ARTICLES

HOW TO CHOOSE BETWEEN ENVIRONMENTALLY POSITIVE ACTIONS WHEN ONE OF THOSE ACTIONS CAN HARM THE OTHER: A CASE STUDY OF THE CONFLICT BETWEEN THE CALIFORNIA CONDOR AND WIND TURBINES

BY
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This Article looks at the potential conflict between restoring endangered condors to the wild and installing wind turbines, an increasingly important source of renewable energy. The ideal terrain for each is the same as both are dependent on wind and require some degree of isolation from people. Yet, they cannot coexist in the same space without harm occurring to any condor that transects the sweep of a turbine's blades.

This Article explores various approaches to resolving conflicts involving incommensurable choices. The author rejects approaches that rest on commonsense norms, like first come, first served, moral principles, or on political realities because they are ambiguous and

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contestable. Nor does the author find it helpful to compare the durability of a choice, the breadth of its public support, or the severity of the consequences of a wrong decision, as the choices become indistinguishable.

This Article concludes that the ease of replacing a use should be the dominant factor. Here, the irreplaceability of the condor means that it should prevail in any conflict with wind turbines as there are other equally viable sources of renewable energy. However, steps must be taken to lessen the negative impact of protecting condors on the growth of the wind turbine industry to be sure it continues to grow. One way to do that is to implement positive initiatives to offset harms to the losing side.

I. INTRODUCTION

It is not unusual to be faced with an environmentally good thing that has a negative consequence, such as recycling glass bottles and thus depriving the homeless of a small but steady income from picking up discarded bottles and collecting a deposit for each returned one. But what happens when the choice is between two environmentally positive outcomes where only one can prevail and will do so at the expense of the other? This Article looks at this situation by using the conflict between restoring endangered condors to the wild and installing wind turbines, an important source of renewable energy.[1] Unfortunately, the ideal terrain

1 *See* Uma Outka, *The Renewable Energy Footprint*, 30 STAN. ENV'T L. J. 241, 243 (2011) (explaining that renewable energy often necessitates greater land impacts). Renewables will increase land impacts associated with energy production: wind has the second-largest impact (17,810 acres) on biomass (70,586-220,917 acres), with nuclear power occupying only 585 acres. *Id.* at 249. Habitat destruction and fragmentation are of particular concern because it decreases the ability of the remaining land to support biodiversity. *Id.* at 250.

for each is the same as both are dependent on wind, and both require some degree of isolation from people. Yet, they cannot coexist in the same space without harm occurring to any condor that transects the sweep of a turbine's blades.

This Article looks at how to determine whether condors or wind turbines should prevail in a conflict between them by looking at the comparative costs of the loss of a single condor and of delaying the transition to wind power.[2] Common sense norms like first come, first served, moral principles, or political realities are ambiguous and contestable and, therefore, do not help answer the question. Nor does looking at the durability of a choice, the breadth of its public support, or the severity of the consequences of a wrong decision, e.g.*,* extinction of a species or a delay in reducing greenhouse gas emissions, as both are severe.

Condors were listed in the original Endangered Species Act[3] (ESA), like the Grizzly Bear, as an example of species on the brink of extinction that might benefit from the statute's protective provisions.[4] Over the past several decades, the country has invested thirty-five to forty million dollars in restoring condors in the wild;[5] at the same time, concern about greenhouse gases has led the country to rely increasingly on renewable sources of energy like those generated by wind turbines.[6] Condors and wind turbines cannot easily coexist, as the turbine blades will kill any avian species, including condors, that fly into them.[7] While there are some

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[2] To arrive at aggregate costs and benefits, the costs and benefits of each condor and wind turbine can be multiplied.

[3] Endangered Species Act of 1973, 16 U.S.C. §§ 1531–1544 (2018).

[4] *See* UTAH DIV. OF WILDLIFE RES., SPECIES STATUS STATEMENT (2020) (noting that the condor has been listed as an endangered species since 1967). In Utah, the condor has experimental, non-essential status, allowing condors to be unintentionally taken under section 10(j) of the ESA, but the status still requires consultation with the United States Fish & Wildlife Service (FWS) for any federal activity that may jeopardize the bird's continued existence. *Id.*

[5] *See* U.S. FISH & WILDLIFE SERV., HOPPER MOUNTAIN NAT'L WILDLIFE REFUGE COMPLEX: CALIFORNIA CONDOR RECOVERY PROGRAM 2018 ANNUAL REPORT 5 (2021) (explaining that approximately $20-22 million of the total amount is estimated to be federal costs, including acquiring land for the birds). The FWS notes that the amount of money spent on condor recovery is small when compared to what athletes and rock stars earn and says that only having condors in zoos "would be like losing part of our heritage, one of North America's most historical and magnificent masterpieces." *Id. See also* Noah Strycker, *Day 146: It's a Bird, It's a Plane…*, AUDUBON (May 28, 2015), https://perma.cc/66WE-LZWW (explaining how expensive it is to maintain condor populations); Julia Wick, *How the California Condor Returned from the Brink of Extinction*, LA TIMES (July 24, 2019) https://perma.cc/5LMZ-BE5P (referring to the first condor conceived and born in captivity "as the '$20-million baby,' since that's what the program had cost by then").

[6] *See* Joshua Partlow, *Biden Wants to Move Energy Offshore, but Choppy Seas are Ahead*, WASH. POST (May 8, 2021), https://perma.cc/4EMX-J2Q2 (explaining that the Biden Administration hopes that the wind industry can produce 30,000 megawatts of electricity from offshore turbines by 2030—an amount sufficient to provide power to ten million homes).

[7] *See* Miranda Willson, *Feds Counter Early Research on Large Turbines, Bird Deaths*, E&E NEWS (Apr. 2, 2021) (summarizing a recent U.S. Geological Survey study attributing

steps that operators of wind turbines can take to lessen their impact on birds, like feathering turbine blades when birds are in the area or situating the turbines sufficiently apart from bird habitats,[8] each of these steps lessens their economic benefit. The benefits of condors and wind energy are incommensurable—the benefits of each are unique and are not replaced by the benefits of the other. As such, they present a "wicked" choice, where it appears that one, either the condor or a source of renewable energy, must be sacrificed to allow the other to exist, let alone flourish.[9]

This Article looks at that choice and identifies various approaches drawn from common sense that might be used in coming to a decision as to whether condors or wind turbines should prevail. Approaches, such as first come, first served; greatest good for or least harm to the greatest number (maximal utilities); as well as in accordance with moral principles, popular choice, and alignment with political realities; offer potential approaches to resolve the conflict, but none is without analytical difficulties. Some examples of such difficulties are identifying what criteria to judge whether an entity has "come first" and when a particular site is occupied; the greatest good or harm to whom or what; which moral

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bird deaths to the amount of energy produced by the turbines rather than the size of the turbines).

8 *See* Matthew Farmer, *The Power Environment: Making Wind Turbines Work for Birds and Bats*, POWER TECH., https://perma.cc/Y69G-MVDX (last updated Mar. 8, 2021) (explaining that turbine placement and feathering are two strategies to reduce bird and bat deaths); *but see* Michael Hutchins, *Top 10 Myths About Wind Energy and Birds*, BIRDCALLS (Dec. 6, 2017), https://perma.cc/Y8NP-FBGB (stating that the only successful methods for reducing bird deaths from turbines are placing turbines far from bird habitats and slowing turbine movement); NAT'L WIND COORDINATING COLLABORATIVE, WIND TURBINE INTERACTIONS WITH BIRDS, BATS, AND THEIR HABITATS: A SUMMARY OF RESEARCH RESULTS AND PRIORITY QUESTIONS 1, 5 (2010) (suggesting that the best solution to protect birds from turbines is to place turbines far from bird habitats).

9 *See* Mark K. McBeth et al., *Buffalo Tales: Interest Group Policy Stories in Greater Yellowstone*, 43 POL'Y SCI. 391, 396 (2010) ("[W]icked environmental problem[s] a[re] 'value-based political conflicts grounded in competing deep-core human values' . . . [which] are 'acrimonious, symbolic, intractable, divisive, and expensive.'" (quoting Martin Nie, *Drivers of Natural Resource-Based Political Conflict*, 36 POL'Y SCI. 307, 307–08 (2003)); *see also* Martin Nie, *Drivers of Natural Resource-Based Political Conflict*, 36 POL'Y SCI. 307, 307 (2003) (environmental "[p]olitical conflicts . . . are often 'wicked' in that they go beyond scientific, economic and techno-rational analysis and methods of problem solving"); Craig A. Jones, *Weaponizing the EPA: Presidential Control and Wicked Problems*, 55 IDAHO L. REV. 157, 159 n.7, 162 (2019) ("The term 'wicked problem' is borrowed from a study addressing complex urban planning and infrastructure projects in the 1970s. In the study, the authors distinguish more ordinary technical or engineering problems from 'wicked problems' that by comparison are more difficult to resolve because they are value-laden, divisive, expensive, and lack easily identifiable solutions. A number of scholars have used the term in relation to natural resource conflicts, including climate change, and it remains an apt descriptor of climate change and climate change policy. . . . They also defy easy problem definitions and, therefore, clearly defined and generally accepted solutions as well. Not surprisingly, then, wicked problems are prone to political influences."); Horst W. J. Rittel & Melvin M. Webber, *Dilemmas in a General Theory of Planning*, 4 POL'Y SCI. 155, 160–66 (1973) (discussing that in contrast to strictly technical problems, wicked problems are difficult to define, defy resolution, and teem with often conflicting values).

principles and how universal must they be to function as a standard; and popular choice by whom. Further, an approach based upon political realities suffers from impermanence and is time and content dependent. Of greater use might be a weighing that reflects how durable a choice might be, the breadth of public support, and the severity of the consequences of a wrong decision, which here could be the extinction of a species or a delay in meeting critical greenhouse gas emission reductions. While no clear answer emerges from this discussion as to which option should be selected, condor protection or use of wind turbines, the author believes that the analytical process set out in this Article may have merit to the extent it makes the ultimate decision more considerated and perhaps more durable to the extent that its consequences are better understood.

Part II.A presents background information on condors—the history of the government's efforts to save them and repatriate them in the wild, the cost of those efforts, and where reintroduction efforts stand today. Part II.B describes the growth in wind power in the United States, the optimal sites for placing wind turbines, and the current status of the industry, including governmental support for the industry's development, its projected growth over the next decade and obstacles to achieving that growth. Part II.C identifies pragmatic ways of avoiding the conflict between repatriating condors in the wild and growth in wind power, such as redesigning wind towers to reduce the sweep of the blades, painting them to appear more clearly as obstacles to the birds, limiting their use to times when condors are unlikely to be in the area, and separating them to allow condors to fly between instead of at them.[10] Concluding that while those initiatives hold some promise for reducing the killing of individual condors in the short term, the implementation of each would reduce the attractiveness of wind energy as a long-term solution to the conflict by increasing its costs and reducing its benefits.

The absence of a clear winner in this conflict leaves decision makers with the difficult task of deciding between environmental "goods" that are irreconcilable. Part III identifies different approaches to resolving conflicts with no clear winners, such as utility maximization; first come, first served; popular choice; moral principles; and political reality, and evaluates the availability of viable alternative solutions. The author finds merit, however, only in an alternative solution due to the availability of alternative renewable energy sources but finds no way to assure the condors' continued existence unless hazards, like wind turbines, are

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[10] *See infra* text accompanying note 158. Some success has been achieved protecting some types of birds by painting blades. Several Norwegian Scientists discovered that painting one of the three blades on a turbine can reduce avian deaths by 72%. Sana Kazilbash, *The Realities of Bird and Bat Deaths by Wind Turbines*, EVWIND (Oct. 1, 2020), https://perma.cc/V4RA-QAU7. But there is no evidence that this will protect soaring birds like condors because painting turbine blades only deals with one of the many problems for birds created by wind turbines, such as turbulence from the movement of the blades through air.

removed. Although this approach makes the choice in favor of condors more apparent, as their loss cannot be mitigated, it is important to develop other sources of renewable energy that will not threaten the condor's continued existence or the existence of any other endangered species, lest the goal of expanding sources of renewable energy in a timely fashion not be met.

To the extent that the Article has identified an approach for resolving the rather esoteric condor-wind energy dispute, other more common "wicked" problems involving incommensurable conflicts between environmental goods may also be resolvable.[11]

II. THE CONFLICT—CONDORS VERSUS WIND TURBINES

The conflict between condors and wind turbines is somewhat atypical as it does not pit local environmentalists against a nationally important renewable energy project.[12] Rather, two important national interests, energy conservation and protection of endangered species, conflict. What follows explains the nature of that conflict—why it is both unavoidable and difficult to resolve.

A. An Amazing Story—the Rescue of the California Condor from the Brink of Extinction

The California condor is the largest land bird in North America.[13] It has a wingspan of 9.5 feet, is 3 to 3.5 feet tall, and weighs up to 25 pounds, making it roughly the size of a small child.[14] Condors feed on carrion and do not have sharp talons for killing or grasping prey, unlike hawks.[15]

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[11] A feature of "wicked" problems that can make them particularly difficult to resolve is rhetoric.

> Thus, unlike the progressive era ideals, populist appeals are in reality partisan appeals, while rhetoric is weaponized, along with the bureaucracy, to gain and exploit any advantage to keep and wield power. This is the demagoguery our Founding Fathers were concerned about, and it is the demagoguery we may now face as the administrative presidency and rhetorical presidency become business as usual. At this juncture, Congress has the means but not the will to address the very manifestation of what the Founding Fathers feared. The result of which ultimately means that wicked policy problems will remain unsettled and national interests will suffer from the absence of robust deliberation.

Jones, *supra* note 9, at 194.

[12] Rachel Giron, *Struggles on the Path to Renewable Energy: Lessons from SunZia*, 54 NAT. RES. J. 81, 98 (2014). Giron cites BrightSource Energy's Ivanpah concentrating solar power project, located in the California Mojave Desert, which faced strong opposition from environmental groups like the Center for Biological Diversity, the local chapter of the Sierra Club, and the Defenders of Wildlife, despite careful site selection and elaborate mitigation plans by the project proponents. *Id.*

[13] *California Condor Recovery Program*, U.S. FISH & WILDLIFE SERV., https://perma.cc/M7WH-H8T6 (last updated Aug. 25, 2021).

[14] *Id.*

[15] *Id.*

They reproduce slowly, reaching sexual maturity between the age of five to seven, and lay a single egg at a time.[16] They may lay a second egg, if the first is lost to predators or gets broken.[17] Although "[c]ondors are long-lived birds," they produce only one chick every other year.[18] This means the species' ultimate recovery will take a long time, and the death of even a single bird can substantially influence recovery.[19]

Condors soar on warm thermal updrafts and can do so for hours, reaching speeds over fifty-five miles per hour and altitudes of 15,000 feet.[20] They "require vast, undeveloped landscapes with canyons, cliffs and rocky outcroppings" for nesting, perching, and roosting habitats.[21] Cliffs and canyons create wind patterns that enable this large, heavy "bird to climb and soar in search of food."[22] They feed primarily on ungulates which are found in open areas on foothills and flats.[23] The condor's historic range spread from California to Florida and Western Canada to northern Mexico.[24] Today, its range is restricted to parts of California, Arizona, and northern Mexico.[25]

The ESA listed the condor as an endangered species.[26] In 1979, the United States Fish & Wildlife Service (FWS) began a program to recover condors in the wild.[27] In 1982, there were just twenty-three California condors in the world.[28] Five years later, in 1987, when there were twenty-seven condors in the world, the agency captured the five surviving wild birds in the United States and distributed them between the San Diego Zoo's Safari Park and the Los Angeles Zoo as part of a captive breeding program.[29] National Audubon Society sued to keep some birds in the wild

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16 *Id.* Condor chicks hatch after fifty-four to fifty-eight days. *Id.* Chicks are completely dependent on their parents for up to two years until they learn to forage and feed on their own in the wild. *Id.*

17 *Id.*

18 UTAH DIV. OF WILDLIFE RES., *supra* note 4.

19 *Id.*

20 *California Condor Recovery Program*, *supra* note 13. Condor flights of more than 150 miles in a day have been documented. *Id.*

21 UTAH DIV. OF WILDLIFE RES., *supra* note 4. They also "perch and roost in large conifer trees on or near cliffs." *Id.*

22 *Id.*

23 *Id.*

24 *California Condor Recovery Program*, *supra* note 13.

25 *Id.*

26 *Id.*

27 Brigit Katz, *The California Condor Nearly Went Extinct. Now, the 1000th Chick of a Recovery Program Has Hatched*, SMITHSONIAN MAG. (July 22, 2019), https://perma.cc/AD2C-2W65.

28 *California Condor Recovery Program*, *supra* note 13. *See also* Katz, *supra* note 27 (claiming that there were twenty-two wild condors).

29 Since that time, two additional breeding sites have been added, one at the Oregon Zoo in the United States and one at Chapultepec Zoo in Mexico City, Mexico. U.S. FISH & WILDLIFE SERV., CALIFORNIA CONDOR RECOVERY PROGRAM 2019 ANNUAL POPULATION STATUS 2 (2019), https://perma.cc/X8SH-5V6P.

in case the captive breeding did not work and to have wild birds to serve as guide birds in the event of their release.[30] That litigation failed.[31]

The goal of the government's recovery program is to have two geographically distinct, self-sustaining populations of wild condors, with 150 birds in each, including 15 breeding pairs.[32] A third population of 150 condors was to remain in captivity.[33] In 1992, when the FWS began reintroducing captive-bred condors into the wild, the agency was well on its way to meeting the latter goal, with 410 condors in captivity.[34]

Despite the pronouncements of several condor experts that the birds would never breed in captivity, by 2008 there were more zoo-bred California Condors flying free in the wild than were in zoos.[35] By 2019, there were fifty captive breeding pairs, who produced thirty-four chicks, thirty-two of which were available for release.[36] That same year, the thousandth condor chick hatched in Utah's Zion National Park, born to two birds who were raised in captivity.[37] The birth of this chick brought the global population of condors in the wild and in zoos to approximately 500 birds.[38] As of this writing, yet another condor chick hatched at Pinnacles, a 26,000-acre release site park in San Benito County approximately 120 miles south of San Francisco, managed by Ventana Wildlife Society wildlife biologists.[39] Called the "Pinnacles power couple," this is the third offspring the pair has produced in five years.[40] Captive-bred condors have been released into the southern California mountains north of the Los Angeles basin, in the Big Sur area of the central California coast, near the Grand Canyon in Arizona, and in the mountainous area of Baja California, Mexico.[41]

As of 2019, the world population of condors stood at 518.[42] The wild population of condors in the United States contained 337 birds—98 in

[30] Nat'l Audubon Soc. v. Hester, 627 F. Supp. 1419, 1421 (D.D.C. 1986), *rev'd*, 791 F.2d 210 (D.C. Cir. 1986); Nat'l Audubon Soc. v. Hester, 801 F.2d 405, 406 (D.C. Cir. 1986).

[31] *Nat'l Audubon Soc.*, 801 F.2d at 408–09.

[32] *California Condor Recovery Program*, *supra* note 13.

[33] *Id.* There are currently three active release sites where captive condors are released into the wild: one in California, one in Arizona, and one in Baja, Mexico. *Id.*

[34] *Id.*

[35] *California Condor Population Information*, U.S. FISH & WILDLIFE SERV., https://perma.cc/F9TN-C8WB (last updated Aug. 25, 2021). The California Condor Recovery Program began reporting condor populations in 2003. *Id.*

[36] U.S. FISH & WILDLIFE SERV., *supra* note 29.

[37] Katz, *supra* note 27. Both parents were released back to the wild at Arizona's Vermillion Cliff's National Monument south of the Utah border at the Vermillion Cliffs National Monument. *Id.*

[38] *See* U.S. FISH & WILDLIFE SERV., *supra* note 29 (putting the total world population of California condors at 518, up from 435 in 2015).

[39] *Endangered Condor Egg Hatches in the Wild*, E&E NEWS (May 5, 2021), https://perma.cc/N9T3-XZLD.

[40] *Id.*

[41] *California Condor Recovery Program*, *supra* note 13.

[42] U.S. FISH & WILDLIFE SERV., *supra* note 29, at 1.

Arizona and Utah, 200 in California, and 39 in Baja, California.[43] That year there were 181 birds in captivity and 32 chicks available for release into the wild.[44] In slightly over thirty years, the bird had gone from the brink of extinction to a phenomenal success story—indeed, to the point of becoming a nuisance.[45] Yet, with only slightly more than 500 birds in the world, the "California condor remains one of the rarest animal species in the world" and "continue[s] to require intensive management."[46]

Thus, it should be no surprise that despite the success of the captive breeding program, the International Union for Conservation of Nature persists in classifying the species as "critically endangered" because of the continuing threats to its survival from human encroachment into its habitats and "micro-trash," like pesticides, mercury, and lead fragments from lead bullets.[47] Bullets fragment when they hit a target, like wild deer, then condors ingest lead from bullet fragments when they eat the dead animal.[48] Lead is highly toxic and a primary cause of condor mortality.[49] From 1992 through 2019, the FWS documented 93 wild condor deaths from lead poisoning, attributing 50% of the 185 condor deaths during that period to lead poisoning.[50] To protect against lead poisoning, the blood lead level of wild birds is periodically checked.[51] When these levels are determined to be too high, the birds are recaptured and put into a program to remove the lead from their blood.[52] Until lead

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[43] *Id.* The FWS recently announced plans to release condors in the Pacific Northwest in Redwoods National Park. Endangered and Threatened Wildlife and Plants; Establishment of a Nonessential Experimental Population of the California Condor in the Pacific Northwest, 86 Fed. Reg. 15,602, 15,609 (Mar. 24, 2021) (codified at 50 C.F.R. pt. 17). The condor is classified as a "nonessential experimental population," meaning that no critical habitat can be established for them, and the population is treated like it was listed as a threatened species. *Id.* at 15,604.

[44] U.S. FISH & WILDLIFE SERV., *supra* note 29, at 1–2.

[45] *E&E News* reported that fifteen to twenty condors have ransacked the deck of a house in Tehachapi, California in historic condor habitat. *Condors Ransack House Built in Their Historic Habitat*, E&E NEWS (May 7, 2021), https://perma.cc/VQ85-MVT3.

[46] UTAH DIV. OF WILDLIFE RES., *supra* note 4.

[47] *Endangered Condor Egg Hatches in the Wild*, *supra* note 39.

[48] *Lead Bullet Risks for Wildlife & Humans*, NAT'L PARK SERV. (Sept. 24, 2019), https://www.nps.gov/pinn/learn/nature/leadinfo.htm.

[49] U.S. FISH & WILDLIFE SERV., *supra* note 29, at 3. Those birds who have ingested lead particles that do not die directly from lead poisoning have systems so compromised by the lead in them that they die from secondary causes. UTAH DIV. OF WILDLIFE RES., *supra* note 4.

[50] U.S. FISH & WILDLIFE SERV., *supra* note 29. "California banned the use of lead ammunition near condor feeding grounds in 2008" and the use of lead ammunition in hunting in 2019. *Endangered Condor Egg Hatches in the Wild*, *supra* note 39.

[51] *See* Christopher N. Parish et al., *Lead Exposure Among a Reintroduced Population of California Condors in Northern Arizona and Southern Utah*, *in* INGESTION OF LEAD FROM SPENT AMMUNITION: IMPLICATIONS FOR WILDLIFE AND HUMANS 259, 259 (Richard T. Watson et al. eds., 2009) ("Sustaining the population requires an intensive management regime of testing and treatment for lead exposure. Reducing or eliminating the availability of lead is essential to reestablishment of condors in the wild.").

[52] *Id.* at 261.

is removed from the environment, this cycle of capture, treatment, and release will continue.

Collisions with power lines are the third cause of condor deaths behind lead poisoning and predation.[53] Collisions with power lines caused seventeen condors to die between 1992 and 2019 compared to ninety-three from lead poisoning; twenty-seven from predation by golden eagles, mountain lions, and coyotes; and eleven from shooting.[54] Condors, who rely on sight to locate food, will investigate any indication of food.[55] This characteristic "has brought them into contact with humans and human infrastructure," such as power poles and power lines.[56]

B. Wind Power—A Potential Silver Bullet Against the Growth of Greenhouse Gases

Renewable energy is an increasingly important energy source in the United States, growing from 10% of United States electricity in 2009 and expecting to constitute 45% of new generating capacity in the world by 2036.[57] Solar energy exceeded 1% of global electricity at the midpoint of the last decade; experts now estimate solar power to account for 3% of the world's electricity.[58] "We are moving from a global economy fueled primarily by climate-warming fossil fuels to one in which we will cleanly pluck most of our energy out of water, wind, and the fire in the sky."[59] As the technologies that harness renewable energy become cheaper, "a virtuous flywheel" is created, enabling more of them to be used, increasing manufacturing sales, cutting prices even more, and so on.[60] BloombergNEF estimated late last year that by 2050, solar and wind power would produce 56% of the world's electricity; a forecast that some consider too low.[61]

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53 U.S. FISH & WILDLIFE SERV., *supra* note 29, at 3. In 2019, collisions with power lines caused one condor to die, compared to nine from ingesting lead. *Id.* at 2.

54 *See id.* at 3 (providing statistics); U.S. FISH & WILDLIFE SERV., HOPPER MOUNTAIN NATIONAL WILDLIFE REFUGE COMPLEX: CALIFORNIA CONDOR RECOVERY PROGRAM 2013 ANNUAL REPORT 50, https://perma.cc/JJ7D-FGKP (indicating that golden eagles, mountain lions, and coyotes are primary predators of condors).

55 UTAH DIV. OF WILDLIFE RES., *supra* note 4.

56 *Id.* An extreme example of condors interacting with humans was reported in a story in the *New York Times*, discussing a homeowner in Tehachapi, Southern California, whose deck and roof became a "hang out" spot for 15 to 20 condors who wrecked her deck, ripped up a spa cover, knocked over plants, damaged screen doors, and spread excrement all over. The article reported that the homeowner was taking the condor flock in "good stride and appreciating this once-in-a-lifetime annoyance but hoping they decide to leave her house alone soon." Johnny Diaz, *Pesky Condors Invade California Home*, N.Y. TIMES (May 6, 2021), https://perma.cc/QX32-EV6B. *See also supra* text accompanying note 45.

57 Outka, *supra* note 1, at 242.

58 Farhed Manjoo, *The Wind and Solar Boom Is Here*, N.Y. TIMES (Apr. 29, 2021), https://perma.cc/Q9KA-57AV.

59 *Id.*

60 *Id.*

61 *Id.*

One reason for this growth is fear of climate change and the resultant move away from a carbon-based economy.[62] Using wind instead of coal can reduce CO_2 emissions by 98%.[63] The benefits from the reduction in greenhouse gas emissions "are global" and exceed the benefits from the provision of electricity at a local level.[64] But the "benefits are also long-term and abstract," leading to their discounting as a form of "delayed harm."[65]

Wind energy is becoming "the favored alternative[]" among sources of renewable energy able to produce "significant amounts of carbon-free electricity."[66] Yet, much will have to be done before these lofty forecasts come true—electricity consumers will need to adjust to new technologies necessitated by these new sources of energy, new infrastructure to support them will need to be built, and a new regulatory framework will need to be designed before the potential of renewable energy can be fulfilled.[67] But according to one expert, these barriers "are systemic and bureaucratic, not technological."[68] The transformation to a renewable energy future "will be an economic bonanza," made up of new jobs and savings in the price of energy.[69] But if renewable energy is going to fulfill these predictions and avert the effects of climate change, much will need to be done to facilitate its growth, such as reducing the regulatory costs of expanding the use of renewable energy, for example, by streamlining the permitting process.[70]

In 2013, 2.5% of global energy was generated by wind, a share projected to grow by up to 15% by 2050.[71] Fueling that growth are concerns over declines in the availability of fossil fuels, the "political risk of overdependence on fossil fuel producing nations, and . . . climate change."[72] Wind energy is expanding quickly in this country, making the United States one the fastest and largest growing wind markets in the world.[73] In 1995, there were 16,000 wind turbines in California,

[62] Ronald H. Rosenberg, *Making Renewable Energy a Reality—Finding Ways to Site Wind Power Facilities*, 32 WM. & MARY ENV'T L. & POL'Y REV. 635, 636 (2008) ("This increased awareness of and concern about the connection between fossil fuel combustion to the phenomena of global warming has accelerated policy development and raised popular support for renewable energy alternatives as well as increased energy conservation.").

[63] Outka, *supra* note 1, at 253.

[64] *Id.* at 267–68.

[65] *Id.*

[66] Rosenberg, *supra* note 62, at 637.

[67] Manjoo, *supra* note 58. In addition, a complete transition to renewable resources requires a "more robust power grid[]" than presently exists and the electrification of the transportation sector. *Id.*

[68] *Id.*

[69] *Id.*

[70] *Id.*

[71] With respect to countries in the European Union, wind is considered to be "the most important source of renewable e[nergy]." Donald Zillman et al., *More Than Tilting at Windmills*, 49 WASHBURN L. J. 1, 59 (2009).

[72] *Id.* at 1.

[73] *See* ALBERT M. MANVILLE, II, BIRD STRIKES AND ELECTROCUTIONS AT POWER LINES, COMMUNICATION TOWERS, AND WIND TURBINES: STATE OF THE ART AND STATE OF THE

representing the largest source of wind energy development in the world at that time.[74] People "have installed home or farm-sized windmills. Schools and local governments have built community-sized plants and utilities have constructed large, utility-scaled wind farms."[75] The Bureau of Land Management contains over twenty million acres suitable for wind energy development.[76]

The current Administration is moving forward with various offshore wind farms, like Revolution Wind's Block Island wind farm off the coast of Rhode Island.[77] The Bureau of Ocean Energy Management (BOEM) issued a final Environmental Impact Statement (EIS) on Vineyard Wind's 800 megawatt (MW) project twelve nautical miles off the coast of Martha's Vineyard, Massachusetts.[78] That project will provide enough electricity for 400,000 homes.[79] The Trump Administration halted Vineyard Wind for nearly two years while its impact on fisheries was evaluated.[80] In the EIS for Vineyard Wind released in early May 2021, BOEM calculated that the project's turbine array would have no more than a moderate impact on fishermen and minor impacts on navigation in the area.[81] However, a portion of the project area was withdrawn out of navigational concerns.[82]

Prior to Vineyard Wind, just two wind projects had received authorization: a 30 MW Block Island wind farm and Dominion Energy's two-turbine pilot facility off the coast of Virginia.[83] The current Administration has committed "to approving fifteen offshore wind projects by 2025" as "part of an accelerated blueprint to" move the

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SCIENCE–NEXT STEPS TOWARD MITIGATION 1051, 1058 (2005) (discussing the incredibly fast growth in wind turbine construction in the United States).

74 *Id.* Some projected that the number of wind turbines in this country would increase by an additional 16,000 between 2005 and 2015; others, projecting from then current trends, predicted an even greater growth. *Id.*

75 Rosenberg, *supra* note 62, at 637–38.

76 Outka, *supra* note 1, at 251. There are 1.7 billion acres of offshore land available for wind development, offering "enormous potential" as a source of energy for the country's coastal urban centers. *Id*. at 308.

77 Heather Richards, *Biden Admin Advances R.I. Offshore Wind Farm*, E&E NEWS: GREENWIRE (Apr. 29, 2021), https://perma.cc/P4WY-4MFR (noting in addition that "[t]he Biden administration has made offshore wind a marquee energy priority," praising both its climate benefits and the creation of jobs along the Eastern Seaboard).

78 Heather Richards, *Biden Admin Advances First Major Offshore Wind Farm*, E&E NEWS: GREENWIRE (Mar. 8, 2021), https://perma.cc/285C-JLUH. BOEM will issue a final decision on the project as will the Army Corps of Engineers and National Oceanic and Atmospheric Administration. *Id.*

79 *Id.*

80 *Id.* The then-Secretary of the Interior David Bernhard proposed the development of a cumulative assessment on how the offshore wind industry would affect fishermen. *Id.* The groups were concerned that large areas of coastal waters might be withdrawn. *Id.*

81 *Id.*

82 *Id.*

83 *Id.*

industry to 30 gigawatts by 2030.[84] Wind energy enthusiasts estimate that 2,000 turbines could be operational in the Atlantic Ocean by 2031.[85] Another prediction estimates that the wind power sector of the economy may generate 35% of the country's electricity by 2050 from both land and ocean-based wind turbines on both coasts and could employ 44,000 workers by 2030.[86] The amount of predicted power is roughly equal to thirty large nuclear power plants, at a cost of $12 billion a year.[87]

Climate change is one reason that wind power has been the fastest growing energy industry in the world.[88] The American Recovery & Reinvestment Act of 2009[89] created federal tax incentives for the development of renewable sources of energy that aided this shift.[90] While "debate continues over how dramatic th[e] shift [to renewable energy] will be and how long [the transition] will take," "there is broad-based consensus around the globe that renewable energy [like wind power] is critical to mitigating climate change."[91]

While many view wind power, like other renewable sources of energy, as an antidote to the world's seemingly unbreakable reliance on fossil fuels for power, conflicts over its use have hobbled its potential.[92] These

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[84] Richards, *Biden Admin Advances R.I. Offshore Wind Farm, supra* note 77. There are three other full-scale wind projects in various stages of approval: "South Fork, a 15-turbine project off the coast of Long Island," which completed a draft EIS in January 2021; Ocean Wind, off New Jersey's shore, which began the EIS process in March 2021; and Vineyard Wind off Cape Cod, which completed the final EIS. *Id.* It awaits a final decision and would be the first large-scale offshore wind project in the United States. *Id.* It represents a $2.8 billion investment in the wind energy business. *Id.*

[85] Richards, *Biden Admin Advances First Major Offshore Wind Farm, supra* note 78.

[86] John Fialka, *Scientists Race to Keep Pace with Biden's Wind Power Plans* (Apr. 16, 2021), https://perma.cc/ENA2-8KXW. Increasing the capacity of the wind industry will necessitate $500 million in port improvements, new factories in this country "to build wind turbine housing, blades, tower foundations and subsea cables," as well as the construction of as many as "six turbine installation vessels in U.S. shipyards." *Id.* Sector growth is estimated to provide 77,000 shore wind jobs by 2050 and an additional 57,000 jobs in coastal communities providing support for the wind industry. *Id.* At the same time, improved technology and larger wind turbines will reduce the manufacturing costs of both onshore and offshore turbines by half the 2015 costs. *Id.*

[87] *Id.*

[88] MANVILLE, II, *supra* note 73; *see also* Outka, *supra* note 1, at 242 (noting that, while only about 10% of electricity in the United States came from renewable sources in 2009, over 45% of new generation capacity by 2036 is expected to come from renewable sources—largely due to concerns over climate change). There are additional benefits of wind power, such as diversifying the sources of electricity and lessening dependence on coal and oil. *See* Rosenberg, *supra* note 62, at 659–65; *see also* Zillman et al., *supra* note 71, at 3 ("The option for the United States to continue flowing staggering amounts of its wealth to untrustworthy foreign nations to support its oil addiction is an unpalatable choice.").

[89] Pub. L. No. 111-5, 123 Stat. 115.

[90] Giron, *supra* note 12, at 84; *see also* Zillman et al., *supra* note 71, at 6, 8 (noting that renewable portfolio standards have helped drive wind power's development and electric utilities can recover costs, including interconnection and transmission costs incurred in complying with these standards through ratemaking).

[91] Outka, *supra* note 1, at 242–43.

[92] *See generally* Giron, *supra* note 12, at 81–82 (describing local opposition to a high voltage transmission line to facilitate expansion of renewable energy).

conflicts are a result of the multiple levels of government and different players involved in decisions about wind power's use.[93] "Some laws specifically encourage wind energy developments but rarely do they trump all other laws having their own constituencies and objectives."[94] Frustrated, wind energy's proponents often turn to efforts to streamline the permitting processes for these facilities, lessening the protection those procedures offer the natural environment.[95]

"The dominant regulatory trend in renewable energy siting is to expedite project review and permitting," regardless of whether the land is owned by the government or private individuals.[96] States are following the federal lead and are "moving to expedite renewable energy siting and permitting review."[97] For example, Maine passed a law providing for expedited review of wind energy facility permits and requiring community benefits with the host community, and Massachusetts and Hawaii have laws that entitle renewable energy projects to expedited review and permitting.[98] Some states, like Massachusetts, have preempted local zoning of wind projects.[99] The Texas Competitive Renewable Energy Zones law designated land to be used as transmission corridors to connect isolated rural areas with high wind energy potential to population centers closer to the coast.[100]

Agencies at all levels of government have produced developer-friendly guidelines, "especially for wind siting," to help find good sites for

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93 *See* Zillman et al., *supra* note 71, at 68 ("[A] wealth of law and policy have an impact on wind development. Multiple levels of government—local, state, and national—are involved. Multiple types of laws and policies intersect with wind development. A single wind project may encounter local land-use prohibitions, uses of federal lands, federal or state incentives, and health and safety laws.").

94 *Id.*

95 *See id.* at 17 (listing the multiple federal laws that a wind power developer must comply with, including "the Federal Energy Regulatory Commission's regulation of interstate electric generation transmission, the Federal Aviation Administration (FAA) standards applying to wind power facilities, . . . the E[SA], the Migratory Bird Treaty Act, the Golden Eagle Protection Act, and" if the facility is built on federal lands or with federal monies, the National Environmental Policy Act, "and the Federal Land Policy and Management Act" among others).

96 Outka, *supra* note 1, at 270.

97 *Id.* at 273. California has a Renewable Energy Resources Development Fee Trust Fund, which allows those interested in developing renewable resources to satisfy the habitat requirements of the state's ESA through fees as opposed to through habitat mitigation. *Id.*

98 *Id.* at 274. According to Outka, the approaches in these states not only focus on improved regulatory coordination but also on shorter review periods, reduced public participation, or limits to legal challenges. *Id. See also, e.g.*, Patricia E. Salkin, *Renewable Energy and Land Use Regulation (Part 2)*, ALI-ABA BUS. L. COURSE MATERIALS J., Apr. 2010, at 27, 35 (discussing consideration of expedited processing of wind turbine by Adirondack Park Agency).

99 Outka, *supra* note 1, at 278. The adoption of a county-wide ban on commercial wind facilities was sustained by the state's supreme court, but in Wisconsin, a similar county-wide ordinance was declared to be ultra vires and contrary to that state's policies favoring wind energy systems; similarly, the creation of a county Wind Farm Resource Overlay Zone ordinance in Washington was held to be preempted by a state statute. *Id.* at 279.

100 *Id.* at 281.

wind facilities.[101] The FWS has a Wind Turbine Guidelines Advisory Committee.[102] These guidelines encourage the creation of incentives for voluntary adoption by wind energy proponents; still climate change presents "the greatest challenge the USFWS has ever faced in conserving fish, wildlife, and their habitats."[103]

Unfortunately, in the opinion of Uma Outka, an esteemed law professor and Associate Dean for Faculty at The University of Kansas School of Law, the emphasis on expediting siting and permitting of renewable facilities, like wind turbines, "is not uniformly paired with an equal commitment to siting projects well."[104] "The local environmental impacts of land use for renewable energy development are real and can be significant, and there is no easy solution to these difficult trade-offs."[105] An additional problem with wind power is the need for transmission lines to move the power generated by wind in remote places to the more urbanized areas where it is located.[106] While "climate change 'includes and eclipses' other environmental harms, direct and immediate impact from land use for renewable energy is nevertheless significant."[107] And while there may be more emphasis on planning for these facilities on public lands, this is not the situation on private lands, which may be "the most biologically productive areas of the [country]."[108] To the extent the planning process tilts too heavily to federal lands, the overall balance between non-energy and energy uses of those lands may tilt toward the development of renewable energy facilities.[109]

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101 *Id.* at 282.
102 *Id.*
103 *Id.* at 282–83 (quoting from the Guideline).
104 *Id.* at 283.
105 Giron, *supra* note 12, at 105.
106 Rosenberg, *supra* note 62, at 666. *See* Zillman et al., *supra* note 71, at 5 (identifying issues related to siting transmission lines and cost allocation of new lines to connect to the country's best wind resources as problems needing to be resolved to achieve 20% wind energy production). However, the Department of Energy said there were "[n]o material constraints," such as copper and fiberglass, which are generally available. *Id.*
107 Giron, *supra* note 12, at 99.
108 Outka, *supra* note 1, at 284.
109 *Id.* Another troublesome reality is that primary authority over land use, even on federal lands, is institutionally and legally delegated to state and local governments, and states have a "long history of devolving" this exercise of state policy to local government. *Id.* at 288–89.

C. Conflicts Between Wind Turbines and Birds

Birds are in peril.[110] A recent study estimated that the United States and Canada have almost 3 billion fewer birds than they had in 1970.[111] Structures like power lines and buildings, "built to provide public services and amenities," cause considerable harm to birds and contribute to their loss.[112] "Recent extrapolations from various databases indicate that human-caused mortality could account for billions of bird deaths per year."[113]

Bird collisions with towers are most problematic with tall towers, illuminated at night with solid or pulsating incandescent red lights, held up by guy wires, near wetlands, and in major bird migration corridors.[114] Wind facilities are tall and generally illuminated by incandescent red lights.[115] They often are located in bird migration corridors because of wind conditions that also favor soaring birds.[116]

A federal district court in Maryland applied the ESA's take prohibition to an endangered bat "resulting in restrictions on the timing and duration of the wind turbine operation."[117] While the Migratory Bird Treaty Act applies to birds like raptors, the law does not require an operator of a wind turbine to get a pre-operation permit out of concern for its potential impact on birds and bats,[118] and its penalties for killing a raptor are very low.[119]

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110 Wind turbines are also one of the leading causes of mass bat mortality, killing 888,000 bats annually. Kazilbash, *supra* note 10. One type of bat, the hoary bat, makes up half of all bat fatalities, and "could be at the risk of extinction due to mortality from wind turbines." *Id.* Like large birds, bats have low reproduction rates and require adult survival to maintain population levels. *Id.* Wind turbines could reduce the hoary bat population by 90% in the next fifty years. *Id.*

111 Cecelia Smith-Schoenwalder, *Study: North America Lost Nearly 3 Billion Birds in 50 Years*, U.S. NEWS (Sept. 19, 2019), https://perma.cc/CY2J-V8SM.

112 MANVILLE, II, *supra* note 73, at 1051. The first documentation of a structure killing birds was "in 1874 at lighthouses and lamps." *Id.* Additional sources of bird death, beyond collisions with communication towers, power lines, and buildings, include collisions with cars and planes; electrocution at power lines; poisoning from pesticides, oil, and contaminant spills; drowning in wastewater pits; entanglement, strangulation, and drowning in fishing gear; and habitat loss and degradation. *Id.* at 1052.

113 *Id.*

114 *Id.* at 1056.

115 *Id.*

116 Ana T Marques et al., *Wind Turbines Cause Functional Habitat Loss for Migratory Soaring Birds*, 89 J. ANIMAL ECOLOGY 93, 94 (2020).

117 Kirsten Nathanson et al., *Developments in ESA Citizen Suits and Citizen Enforcement of Wildlife Laws*, NAT. RES. & ENV'T, Winter 2015, at 15, 15 (discussing application of the ESA in *Animal Welfare Institute v. Beech Ridge Energy*, 675 F. Supp. 2d 540 (D. Md. 2009)).

118 *Id.* at 17.

119 It is a misdemeanor to violate any provision of the Migratory Bird Treaty Act with punishment of a maximum fine of $15,000 or imprisonment up to six months or both. 16 U.S.C. § 707(a) (2018). However, it is a felony to "knowingly" take a bird with the intent to sell or to sell a migratory bird garnering a maximum fine up to $2,000 or imprisonment up to two years or both. *Id.* § 707(b).

Wind turbine blades not only kill birds who collide with them directly but also indirectly by occupying habitat that birds might otherwise use, especially land in migratory corridors.[120] Birds also hit the towers and can be electrocuted.[121] Annually, wind turbines kill approximately 573,093 birds.[122] This is a relatively small number when compared to cats, who kill nearly 2.5 billion birds annually, buildings, which kill nearly 600 million birds, and cars, which kill nearly 200 million birds.[123] Yet, turbines are not an insignificant cause of bird mortality. One wind turbine can kill up to 40 birds a year.[124] The significance of these losses is difficult to generalize because, depending on the species, a loss of a single bird, like a condor, can have a significant impact.[125] However, all of these numbers are dwarfed by bird losses due to climate change, which is estimated to be 4.98 bird deaths per gigawatt hour.[126]

Soaring enables large birds to travel long distances without expending much energy.[127] Condors and raptors soar.[128] A study printed in the Journal of Animal Ecology "estimated that the footprint of wind turbines affected 3%-14% of" areas otherwise suitable for use by soaring birds in the study area.[129] The study noted that "[d]espite the immediate benefits for climate change mitigation, negative interactions between wind energy production and wildlife, mainly birds and bats, have been widely reported."[130] Soaring birds and wind turbines compete for the same areas at both the regional and local level. Wind turbines are often located along mountain ridges to increase their exposure to horizontal winds, the same areas that soaring birds use because of their uplift potential.[131] "Migratory bottlenecks of soaring birds" can happen at

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120 Marques et al., *supra* note 116, at 94–95, 97–101.

121 MANVILLE, II, *supra* note 73, at 1058.

122 Leroy J. Walston, Jr., *A Preliminary Assessment of Avian Mortality at Utility Scale Energy Facilities in the United States*, 92 RENEWABLE ENERGY 405, 411 (2016).

123 Cecelia Smith-Schoenwalder, *What's Really Killing Birds?*, U.S. NEWS (Dec. 24, 2019), https://perma.cc/9B86-WFSP; Jason Davis, *Annually, Cats Kill 10,000 Times More Birds than Wind Turbines*, EVERYTHING LUBBOCK (Sept. 13, 2019), https://perma.cc/9R87-23PK.

124 *See also* MANVILLE, II, *supra* note 73, at 1051 ("More than 15,000 wind turbines may kill 40,000 or more birds annually nationwide, the majority in California.").

125 Smith-Schoenwalder, *What's Really Killing Birds?*, *supra* note 123. The impact on large birds like golden and bald eagles and a variety of hawks, falcons, kestrels, and kites is more significant because of their lower reproduction rates meaning that the loss of even one can have a greater impact on the species' overall population. *See* Kazilbash, *supra* note 10.

126 Aaron Sherr, Wind Energy Kills Birds 2 (Fall 2018) (submitted as coursework, Stanford University) (https://perma.cc/7DKA-LFLS).

127 Marques et al., *supra* note 116.

128 *Id.*; Alex Fox, *The Andean Condor Can Soar 100 Miles Without Flapping*, SMITHSONIAN MAG. (July 20, 2020), https://perma.cc/7EET-A59G.

129 Marques et al., *supra* note 116, at 93, 95; *see also id.* at 99 ("[W]ind turbines affect a large area of potentially suitable soaring habitat around them.").

130 *Id.* at 94.

131 *Id.*

mountain passes or other narrow crossings when the area's topography can favor high wind speeds that are also good for wind turbines.[132]

The impact of wind turbines on soaring birds is more than birds running into their blades. Wind farms fragment and disturb habitats and birds.[133] Soaring birds may change their flight paths to avoid wind turbines,[134] which can lead to the under-utilization of otherwise suitable soaring habitat.[135] To the extent birds maneuver around wind turbines and avoid the space occupied by them to escape turbine blades, they are abandoning otherwise functional habitat.[136] As soaring birds fly in corridors that contain the right wind condition and topography, even small losses of suitable habitat in those corridors may constrain the birds' "vital activities."[137] Birds can be displaced far beyond areas actually occupied by wind turbines due to disturbances in local airflow that can "compromise" the generation of airlift that might otherwise occur.[138] The study recommends recognizing and planning for the negative effects of wind turbines on soaring birds that go beyond mortalities from collisions.[139]

The conflict between wind turbines and condors is difficult to resolve because of the unavoidable geographic overlap of use areas caused by a shared reliance on air thermals and the inability to modify outcomes due to the demands of biology and the reality of economic limitations. Decisions about solutions must be made within a tight timetable given the uncertainty of the condor's continued existence and the diminishing opportunity to affect the trajectory of global climate change. And the price of a wrong decision is substantial—on the one hand, extinction and, on the other, lost investment opportunities or opportunities to slow down, even arrest the rapid pace and impact of greenhouse gas development.

However, there are obvious ways to avoid the conflict between wind turbines and soaring birds, such as not siting turbines where condors are known to exist and turning them off or feathering their blades when condors are in the turbine's area.[140] But reducing power at a wind turbine

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132 *Id.*

133 MANVILLE, II, *supra* note 73, at 1058.

134 Marques et al., *supra* note 116.

135 *Id.* at 94–95, 99.

136 *Id.* at 94–95, 100.

137 *Id.* at 100. These losses are particularly important during migration; mortality during migration can be particularly high because of natural barriers like deserts and large bodies of water. *Id.*

138 *Id.*

139 *Id.* at 101. Another cause of injuries to birds is "barotrauma - internal injuries caused by exposure to rapid pressure changes near the trailing edges of moving blades." Kazilbash, *supra* note 10. "The [FWS] estimates that between 140,000 and 500,000 bird deaths occur" annually at wind farms. *Id.*

140 *See also* MANVILLE, II, *supra* note 73, at 1060 (describing recommended measures to reduce wind turbine impacts, including shutting turbines off during periods of high bird concentration); *Prevent Turbine Blades from Turning at Low Wind Speeds ('feathering')*, CONSERVATION EVIDENCE, https://perma.cc/2TV9-LSCG (last visited Nov. 24, 2021) (discussing how feathering can help prevent bat deaths).

to avoid bird strikes, taking one offline for the same purpose, or spacing turbines more widely to allow birds to fly between them, reduce that unit's contribution to lessening carbon emissions and makes the unit less profitable for its owners. Relocating towers to areas less frequented by soaring birds, like condors, means locating them somewhere less desirable for wind power where wind may be less consistent or not strong enough to turn the blades efficiently. Any of these steps, while potentially protective of soaring birds, decreases the attractiveness of wind power to utilities as an alternative baseload power source, a role traditionally fulfilled by fossil fuel-fired or nuclear power plants.

There are also non-structural ways to lessen conflicts between wind turbines and soaring birds, like condors, such as lessening the need for more turbine construction through energy efficiency and conservation.[141] Sometimes, simply extending or expanding existing capacity through operational changes or upgrades in existing equipment can avoid needing a new facility.[142] Using brownfield sites for wind turbines[143] and siting new transmission lines for them in existing transmission corridors will maximize the footprint of existing development, while reducing the need to use undeveloped lands.[144] Co-locating wind facilities on existing structures can also reduce land consumption and loss of wildlife habitat.[145]

While there are ways of reducing the conflict between wind turbines and soaring birds, the exaction for doing this may lessen the attractiveness of wind power as a positive response to global climate change. The price for protecting condors on a global scale may be too high.

D. Where Conflicts Between Environmental Goods Are Unavoidable and Resolving the Conflict May Exact Too High a Price for One Side of the Conflict—Thinking Around the Conflict

Conflict can play a constructive role "in achieving positive social change."[146] In fact, resolving the conflict may only be achieved when

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141 Outka, *supra* note 1, at 297. "[O]ver-enthusiasm for grid expansion leads to 'overbuilding' power lines," losing that land to other productive uses. *Id*. at 307. It also means more hazards for birds. *See* Andy McGlashen, *Bird Safety a Concern in National Push to Build More Power Lines*, AUDUBON MAG. (July, 29 2021), https://perma.cc/MEN5-ANQJ (discussing bird deaths from power lines).

142 Outka, *supra* note 1, at 298. An additional benefit is that overall system costs may be reduced by upgrading existing equipment and remove the need to acquire new permits, find and acquire new sites, gain public acceptance, and consume new land for energy consumption. *Id*. at 299.

143 *Id.* at 300. The Environmental Protection Agency and the National Renewable Energy Laboratory have identified over 4,000 brownfields nationwide that could be used for solar, wind, or biomass facilities. *Id*. at 301.

144 *Id.* at 301.

145 *Id.* at 302–03.

146 Heather Pincock & Timothy Hedeen, *Where the Rubber Meets the Clouds: Anticipated Developments in Conflict and Conflict Resolution Theory*, 30 OHIO STATE J. DISP. RESOL. 431, 433 (2016).

disputing parties "find themselves in a mutually-hurting stalemate" where neither side can win unilaterally and the conflict harms both sides of the dispute or is costly to both.[147]

However, the problem with any conflict involving "climate change is characterized by deeply divided and firmly held ideological views, making it among the most wicked of not only environmental problems but social problems as well."[148] Climate change undergirds the conflict between wind towers and condors, as the former is built to lessen climate change.

A problem with this particular conflict is that renewable energy and wildlife conservation are both environmental "goods," as each reflects a positive social value.[149] Conflict in such situations makes it impossible to realize the two values together.[150] For Dworkin, a perception that values conflict reflects a misinterpretation of one, as values cannot conflict with each other.[151] Because, for Dworkin, genuine values can never truly conflict either conceptually or as applied, resolving apparent conflict lies in reinterpreting the conceptions of those values.[152] In other words, energy conservation and wildlife conservation can never conflict even though there is an actual conflict between the manifestation of those values in the form of wind turbines and free-flying raptors. However, despite Dworkin's view, the values here do conflict as neither can be realized without the other being stopped.

One way of eliminating this conflict, besides using Dworkin's word play to make energy conservation consistent with wildlife preservation, is to determine that one of these values is not genuine or that the concept of consistency is only "a commitment to attempt to resolve conflict when it appears;" Winter calls this "a procedural protocol requiring that" disputants consider, "as a first step," that they should "find conceptions" of the values in question "that do not conflict."[153] Thinking this way, turns "consistency" between values into "an ambition, but one which may turn out to be unrealizable."[154] Any new interpretation cannot simply be an excuse to reinterpret "values in whatever way suits our overall value system," but must "be independently plausible."[155] "[I]f value-conceptions are to retain the moral significance enjoyed by pre-theoretical conceptions, any reinterpretation must bear at least a reasonable degree

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147 *Id*. at 439.

148 Jones, *supra* note 9, at 167; *see also id.* at 165 ("Climate change itself remains a subject of substantial import in U.S. policy because of its high salience, entrenched views despite a well-documented scientific consensus, and elusive solutions.").

149 In this Part of the Article, the author uses Dworkin's definition of a "value" as "a moral principle" that directs that "particular actions, attitudes or states of affairs be promoted or avoided on pain of wronging some person," noting in addition that values "have judgmental force." Jack Winter, *Justice for Hedgehogs, Conceptual Authenticity for Foxes: Ronald Dworkin on Value Conflicts*, 22 RES PUBLICA 463, 464 (2016).

150 *Id.*

151 *Id.*

152 *Id.* at 465, 467.

153 *Id.* at 466.

154 *Id.*

155 *Id.* at 467.

of resemblance to them," or the reinterpretation loses recognition as the same value.[156]

An alternative approach to Dworkin's view of value conflicts, and Winter's interpretation of it, is to identify "a practical solution"— "a way of acting differently or altering the circumstances in order to avoid the values coming into conflict."[157] This Article identifies several practical solutions to the conflict in values between conserving soaring birds and reducing global climate change, such as siting wind turbines away from birds, changing the operation of turbines to not operate when the birds are around or operate at reduced speeds, or even painting the turbine blades to warn birds off.[158] A positive result from employing practical solutions is that the approach does not achieve consistency between conflicting values "at the cost of ignoring moral commitments."[159] Practical solutions can sometimes avoid one side or the other (bird conservation or wind turbine) feeling aggrieved or that their values were compromised to optimize a solution, and when that's not possible, practical solutions can "admit that one value has been compromised and explain why, regrettably, this was necessary."[160]

Fortunately, "[t]he natures of values are not fixed by external objective reality in the way that the natures of rocks are fixed."[161] However, reinterpretation will only go so far; it will not allow a "reinterpretation to stretch the conception of a value too far" lest the reasons one cares about it disappear.[162] Nonetheless, if a conflict between wildlife protection and reducing greenhouse gases can be reduced, perhaps even avoided, by digging deeper into the meaning and importance of those values—what Winter refers to as an "empirical investigation"—then the groundwork may be laid to find "coherence by implementing political solutions."[163]

III. NON-STRUCTURAL APPROACHES TO CONFLICT RESOLUTION NOT A PANACEA

There are various non-structural approaches to a conflict that can lead to its resolution, such as application of aphorisms like first come, first served, or of the principle of utility maximization, popular choice, moral rules, or ceding to political reality. While the use of any one of these

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156 *Id.* at 468–69.

157 *Id.* at 472.

158 *See* Kazilbash, *supra* note 10 (discussing ways to protect birds from wind turbines, including painting their blades); Roger Drouin, *For the Birds (and the Bats): 8 Ways Wind Power Companies are Trying to Prevent Deadly Collisions*, GRIST (Jan. 3, 2014), https://perma.cc/DP3V-T8SJ (discussing radars that can slow and shut down wind turbine when birds are in close proximity).

159 Winter, *supra* note 149, at 473.

160 *Id.* at 476.

161 *Id.* at 477.

162 *Id.* at 478.

163 *Id.*

approaches might dictate which side of the conflict might appeal, the choice may still be flawed unless other factors, such as the durability of the choice, the breadth of popular support for it, the severity of a wrong decision, and whether the consequences of a wrong decision can be ameliorated.

Both wind power and endangered species, like condors, have broad popular support and, in the case of the condor, legal protection and both alternatives appear able to last. However, in this conflict, a wrong decision might result in the extinction of a species. Although there is some scientific interest in reconstituting extinct species, it is not a viable alternative at this point and raises serious moral and societal questions.[164] On the other hand, there are substitute products for wind energy, like solar and waterpower, as well as reduction of energy consumption. But there are no comparable substitutes for a condor with its unique characteristics and history.

While it may be easier to deconstruct wind turbines and locate them somewhere else than to move the nesting sites of condors, the cost of dismantling a wind turbine may be prohibitive, which could ultimately lead to the sacrifice of condors with unknown long-term impacts. So, correcting a wrong choice may impose costs on both, freighting both sides of the debate with the burden of being right, *ab initio*.

Given the fact that the wrong resolution of this conflict could result in the extinction of a species or precious time being lost for preventing the negative effects of global climate change, there is no easy answer to which side should prevail. What does become apparent is that there must be a way to change a decision when its consequences are too great. This will require monitoring the effects of any resolution through benchmarks that provide an understanding of why the resolution may not be working and the ability to reverse course before the procedures and consequences are too great.

IV. CONCLUSION

Restoring condors to the wild and creating new wind energy facilities are environmental "goods," as each benefits society. Free flying condors provide the benefits of an apex animal in the pyramid of life. Its absence would change that pyramid, not necessarily for the better. Wind energy offers a measurable reduction of carbon dioxide emissions, commensurably contributing to global temperature stability. Yet, both cannot occupy the same geographic place simultaneously without the one, wind turbines, destroying the other, condors. Ways to eliminate or reduce the problem are costly and perhaps unrealistic. So a decision must be made which of the two will or can survive.

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[164] Joseph R. Bennett et al., *Spending Limited Resources on De-Extinction Could Lead to Net Biodiversity Loss*, 1 NATURE ECOLOGY & EVOLUTION 53, 53 (2017).

Once the effect of deciding for the other party becomes clear, the choice may as well. It seems obvious that the condor must survive as it has no alternatives, unlike wind energy, even though, like wind energy, it adds a social benefit. But steps need to be taken to lessen the negative impact of the decision on the losing side to be sure it continues, but in a way that does not adversely affect the environment. Environmentally protective regulations should apply, within reason, to the placement and operation of wind towers. They should not bar the siting of towers except when an important natural resource may require extreme protection.

The purpose of this Article has been to identify the conflict between wind towers and condors and explore how the conflict may be resolved. In this dispute, there is no resolution that allows both to continue side-by-side. That recognition triggers the need for positive initiatives to offset any harm to the losing side. So if condors lose, that loss might be offset by monetary support for a wild condor breeding program, or if a wind farm cannot be developed, there might be monetary support for wind energy research and development.

The author hopes that by identifying the conflict, its players, and the consequences of losing, proactive steps can be taken to avoid and ameliorate the negative impacts of one side winning and the other losing when unavoidable. At minimum, this Article should make any decisions regarding conflicts more deliberate. While conflicts can sometimes be positively resolved, they can as easily block the realization of legitimate social goals; efforts should be made to resolve them, to which the author of this Article hopes to have contributed.