

Iowa Needs (Clean Energy) Farmers

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ABSTRACT: Iowa is home to two land-intensive industries—agriculture and clean energy. The two industries have been in constant competition for decades, and Iowa has policies encouraging the development of both industries, without acknowledging or resolving the tension between them. This has played out to the detriment of both the agriculture and clean energy industries—for example, during the proposed Rock Island Clean Line; during the construction of the Dakota Access Pipeline and the subsequently proposed carbon capture pipelines; and through wind and solar ordinances. A federal or state law limiting county-level restrictions on clean energy would help Iowa resolve this tension and realize the host of benefits co-location offers—but such a law seems politically unlikely. In lieu of federal or state action, this Note argues that individual counties should amend their comprehensive plans to resolve the tension and realize the benefits of co-location.

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INTRODUCTION

Farmers and clean energy producers are both vital to Iowa's economy, identity, and security. Unfortunately, the conflict over land between farmers and clean energy producers threatens both industries.

Historically, Iowa has produced an abundance of agricultural products and clean energy. Because of the agricultural industry's historical and economic importance to the state, Iowa's policies, courts, and legislators have long prioritized the industry. Although less recognizably Iowan, numerous state policies have also prioritized clean energy production. However, since agriculture and clean energy infrastructure both require significant amounts of land, the industries are often put in competition. Iowa state policies encourage developing both industries without resolving the tension between them. This results in unnecessary legal conflict that typically ends with the state's powerful agricultural industry dismantling clean energy projects—to their combined detriment.

The conflict between agriculture and clean energy plays out repeatedly in Iowa. In 2014, the agricultural industry successfully blocked the Rock Island Clean Line project, which would have resulted in a five-hundred-mile transmission line hooking significant amounts of clean energy to the grid.¹ In the same decade, the agricultural industry clashed with the Dakota Access Pipeline, an extremely controversial oil pipeline that exercised eminent domain over some of Iowa's prized farmland.² The Dakota Access Pipeline was ultimately built, but proposed carbon capture pipelines now face the consequences of alienating Iowa's agricultural industry.³ Further, many counties imposed

1. See *infra* Section II.A.

2. See *infra* Section II.B.

3. See *infra* Section II.B.

ordinances that significantly restrict wind turbines and solar panels, which are frequently sited on farmland.⁴

For decades, Iowa has suffered from unnecessary legal conflict because it promotes both agriculture and clean energy development without resolving the land use tension between the two. Farmers, clean energy advocates, and Iowa citizens have consequently suffered economic losses. This Note argues that Iowa would see significant economic gains if it encouraged co-locating clean energy infrastructure on active agricultural land. Iowa would achieve co-location at a higher rate if the state passed a law limiting county-level restrictions on clean energy, or if individual counties amended their comprehensive plans to provide clear encouragement and guidelines for co-location.

I. IOWA POLICIES SUPPORTING AGRICULTURE AND CLEAN ENERGY

Agriculture is highly prized around the country, but nowhere more so than in Iowa. Iowa's governors, legislatures, and courts have historically celebrated and protected the industry. At the same time, Iowa has a rich history of embracing clean energy infrastructure—through governor initiatives, market demand, and the Iowa Energy Plan.

A. AGRICULTURAL POLICY IN IOWA

Iowa is not alone in its mission to protect agricultural land use. In 1981, Congress adopted the Farmland Protection Policy Act.⁵ The Act requires “[f]ederal agencies . . . to consider the adverse effects of federal programs on farmland preservation, consider alternative actions that could lessen such adverse effects, and assure that federal programs are compatible with state, local, and private farmland protection programs if this is practicable.”⁶ Congress spends billions of dollars every year subsidizing agriculture.⁷ Additionally, every state in the country has right-to-farm laws, similar to Iowa's.⁸ All fifty states also have tax programs that reduce the property assessments of agricultural land, thereby giving agricultural landowners a tax break.⁹ Several states zone land exclusively or with a preference for agriculture.¹⁰ The agricultural industry is so untouchable that when celebrity Oprah Winfrey swore off burgers during a televised episode on mad cow disease, the industry

4. See *infra* Sections III.C–D.

5. 1 DANIEL R. MANDELKER & MICHAEL ALLAN WOLF, *LAND USE LAW* § 12.10 (6th ed. 2024); Farmland Protection Policy Act, 7 U.S.C. §§ 4201–4209 (2018).

6. MANDELKER & WOLF, *supra* note 5, § 12.10. However, this Act does not go as far attempting to regulate private land use. *Id.*

7. CHRIS EDWARDS, CATO INST., *CUTTING FEDERAL FARM SUBSIDIES 1* (2023), <https://www.cato.org/sites/cato.org/files/2023-08/briefing-paper-162.pdf> [<https://perma.cc/YW7Z-WPVK>].

8. MANDELKER & WOLF, *supra* note 5, § 12.11. Although they vary, right-to-farm laws essentially protect farming operations from nuisance suits. *Id.*

9. *Id.* § 12.10.

10. *Id.* § 12.12.

sued her for food defamation and “usefully demonstrated to a wide audience that anyone who questioned the safety of a perishable food product in a public forum could face ruinously expensive litigation.”¹¹ But even in a nation where the agricultural industry’s power and influence has become ubiquitous, Iowa stands out for the protections it affords agricultural land use.

In 2017, 30.5 million acres of Iowa’s 35.7 million total acres were farmland.¹² That means six out of every seven acres in Iowa are being farmed. Iowa ranks second of all states in terms of total value of agricultural products sold and value of livestock.¹³ Iowa is currently the number one national producer of several major agricultural products: pork, corn, eggs, and biofuels.¹⁴ In 2012, Iowa was home to eighty-eight thousand farms.¹⁵ Although the average farm size in Iowa is only 355 acres, one of the largest farms encompasses 26,000 acres.¹⁶ The size of farms has been steadily increasing in Iowa—the number of farms nearly halved between 1950 and 2012, mostly due to consolidation.¹⁷ The extensive agricultural industry finds its roots in the state’s historically rich soil.¹⁸ However, the rich topsoil is quickly being depleted due to erosion, overtilling, and homogenous crop growth.¹⁹ Some farmers are taking restorative measures, such as planting more cover crops.²⁰

11. Brian Duignan, *How Oprah Got Sued for Dissing a Burger*, BRITANNICA (Jan. 1, 2019), <https://www.britannica.com/story/a-brief-history-of-food-libel-laws> [https://perma.cc/8G5K-7MCC]. Although Oprah won the case, the American Feed Industry Association went on to create a model food-disparagement law and lobby it throughout the country. *Id.*

12. U.S. DEP’T OF AGRIC., 2017 CENSUS OF AGRICULTURE 256 (2019), https://www.nass.usda.gov/Publications/AgCensus/2017/Full_Report/Volume_1,_Chapter_1_US/usv1.pdf [https://perma.cc/M2SR-TKKM]; *Crops: Iowa Farm Facts*, LIVING HIST. FARMS, <https://www.lhf.org/learning-fields/crops/iowa-farm-facts> [https://perma.cc/W5YN-VET9].

13. *USDA NASS Census Proves Agriculture Is Vital to Iowa’s Economy*, IOWA DEP’T OF AGRIC. & LAND STEWARDSHIP (Apr. 11, 2019), <https://iowaagriculture.gov/news/usda-nass-census-proves-agriculture-vital-iowas-economy> [https://perma.cc/M4L8-58X6].

14. *Iowa Department of Agriculture and Land Stewardship*, IOWA DEP’T AGRIC. & LAND STEWARDSHIP, <https://iowaagriculture.gov> [https://perma.cc/9AV2-M2Q7].

15. *Number of Farms by State*, IOWA ST. U.: IOWA CMTY. INDICATORS PROGRAM, <https://www.icip.iastate.edu/tables/agriculture/farms-by-state> [https://perma.cc/LB26-BW23].

16. U.S. DEP’T OF AGRIC., *supra* note 12; *Amana Society Farms*, AMANA SOC’Y, INC., <https://amanasociety.com/farms-land/amana-societyfarms/#:~:text=One%20of%20Iowa%20largest%20contiguous,Iowa's%20largest%20privately%20held%20forest> [https://perma.cc/6ZWL-PA24].

17. *Number of Farms by County*, IOWA ST. U.: IOWA CMTY. INDICATORS PROGRAM, <https://www.icip.iastate.edu/tables/agriculture/farms-by-county> [https://perma.cc/CLK3-4EPC]; Donnelle Eller, *Will Rural Iowa Wither as Big Ag Becomes Bigger, Squeezing out Farms in the Middle?*, DES MOINES REG. (Sept. 8, 2017, 5:53 PM), <https://www.desmoinesregister.com/story/money/agriculture/2017/08/10/middle-sized-farmers-getting-squeezed/471382001> [https://perma.cc/8WYV-6FU5].

18. Jonathan Fong, *Iowa’s Prized Topsoil Could Have 60 Years Left, Experts Say*, WQAD8 (Jan. 3, 2023, 8:40 AM), <https://www.wqad.com/article/news/local/iowa-topsoil-erosion/526-a12810co-a82f-48d6-bd76-dd45f8acf3d6#:~:text=Hillary%20Olson%2C%20state%20soil%20health,to%20prepare%20land%20for%20planting> [https://perma.cc/833X-WHY4].

19. *Id.*

20. *Id.*

Nonetheless, experts estimate that topsoil loss could be severe enough to destroy the agricultural industry as we know it within sixty years.²¹

Agriculture's economic, historic, and aesthetic importance to many Iowans has also led the industry to garner a wealth of political power and support. The Iowa Farm Bureau ("IFB") spends up to \$350 million in lobbying each year, making it one of the most powerful organizations in the state, at least financially.²² The IFB and other farming organizations frequently comment on Iowa Utilities Board ("IUB")²³ rules regulating energy and land use.²⁴ According to the IFB 2023 Policy Handbook, "Iowa electrical energy policy should not promote new wind and solar energy generation on viable and productive agricultural ground" and "[t]he landowner should be the decision-maker over whether their farmland is developed for nonagricultural use."²⁵

State executive orders have historically prioritized and celebrated agriculture in Iowa. During his tenure, Governor Robert D. Ray stated, "the high quality of life enjoyed by Iowans has depended on the health of our agricultural economy" and emphasized the need "to preserve the availability and use of agricultural land for agricultural production."²⁶ His successor, Governor Tom Vilsack called Iowa "the Food Capital of the World."²⁷ The next Governor, Chet Culver, espoused that "Iowa is a national leader in the production of ethanol."²⁸ Current Governor Kim Reynolds created the

21. *Id.*

22. Charlie Hope-D'Anieri, *The Trickle-Down Effect of Agriculture in Iowa*, SIERRA (Mar. 16, 2022), <https://www.sierraclub.org/sierra/2022-1-spring/feature/trickle-down-effect-agriculture-iowa> [https://perma.cc/R5UA-R8D6].

23. Now known as the Iowa Utilities Commission. *Welcome to the Iowa Utilities Commission*, IOWA UTILS. COMM'N, <https://iuc.iowa.gov> [https://perma.cc/8YAB-YQHE].

24. The IFB has consistently exerted its influence over the IUB's rules, especially those relating to electric lines and pipelines on farmland. *E.g.*, Iowa Farm Bureau, Comment Letter on Proposed Rule for Intrastate Gas Pipelines and Underground Gas Storage (Nov. 8, 2022), https://wcc.efs.iowa.gov/cs/idcplg?IdcService=GET_FILE&allowInterrupt=1&RevisionSelectionMethod=latest&dDocName=2106650&noSaveAs=1 (on file with the *Iowa Law Review*); Iowa Farm Bureau, Comment Letter on Proposed Rule on Restoration of Agricultural Lands During and After Pipeline Construction Rules (Apr. 9, 2021), https://wcc.efs.iowa.gov/cs/idcplg?IdcService=GET_FILE&allowInterrupt=1&RevisionSelectionMethod=latest&dDocName=2055853&noSaveAs=1 (on file with the *Iowa Law Review*).

25. IOWA FARM BUREAU FED'N, RESOLUTIONS 9, 15 (2023) (on file with the *Iowa Law Review*).

26. Iowa Exec. Order No. 3 (Feb. 5, 1971), <https://www.legis.iowa.gov/docs/publications/EO/966113.pdf> [https://perma.cc/42LP-ZL9P]; Exec. Order No. 48, 5 Iowa Admin. Bull. 1171 (Mar. 16, 1983), <https://www.legis.iowa.gov/docs/publications/EO/966159.pdf> [https://perma.cc/3B5P-MS6Q].

27. Exec. Order No. 16, 23 Iowa Admin. Bull. 1550 (Apr. 19, 2000), <https://www.legis.iowa.gov/docs/publications/EO/966180.pdf> [https://perma.cc/ZR8R-ZZFM].

28. Exec. Order No. 3, 30 Iowa Admin. Bull. 220 (July 18, 2007), <https://www.legis.iowa.gov/docs/publications/EO/966077.pdf> [https://perma.cc/7P9Q-MJ6Z].

Governor's Empower Rural Iowa Initiative and said in one executive order that "Iowa is a recognized leader in agriculture and renewable fuels."²⁹

Iowa's courts and legislators have also long championed Iowan agriculture. The Iowa Supreme Court invalidated a county's attempted regulation of concentrated animal feeding operations because it found the regulation inconsistent with state law.³⁰ The legislature attempted to immunize farms from nuisance suits and criminalize investigations of animal cruelty and food safety threats in slaughterhouses.³¹ Although both of these laws were eventually found unconstitutional, they reflect the agricultural industry's power and influence in Iowa.³²

B. CLEAN ENERGY POLICY IN IOWA

Clean energy, although less recognizably Iowan, is vital to the state's economy and has been repeatedly recognized as such in state policies and initiatives. It is the state's policy to encourage the use of renewable power to meet local electricity demand.³³ Since 1973, both Democratic and Republican Iowa governors have underscored the importance of implementing clean energy in the state.³⁴ Just as agriculture is prioritized in state executive orders, so too is clean energy. Governor Ray made it the policy of the state "to promote the efficient use and conservation of energy resources."³⁵ He also created the Governor's Science Advisory Council, which advised him on energy, environmental, and natural resources policy.³⁶ In 1983, Iowa "became the first

29. Exec. Order No. 9, 44 Iowa Admin. Bull. 295 (July 28, 2021), <https://www.legis.iowa.gov/docs/publications/EO/1224160.pdf> [<https://perma.cc/5KNE-Q2SN>]; Exec. Order No. 3, 41 Iowa Admin. Bull. 440 (Aug. 15, 2018), <https://www.legis.iowa.gov/docs/publications/EO/969799.pdf> [<https://perma.cc/H3S8-6TH4>].

30. *Goodell v. Humboldt Cnty.*, 575 N.W.2d 486, 502 (Iowa 1998). However, they have not done so at all costs. *See, e.g., Punttenney v. Iowa Utils. Bd.*, 928 N.W.2d 829, 840–45 (Iowa 2019) (interpreting Iowa law to allow Dakota Access to take an easement on Iowa farmland); *Bormann v. Kossuth Cnty.*, 584 N.W.2d 309, 318–22 (Iowa 1998) (finding the Iowa right to farm law was a taking because it essentially granted easements to pollute without compensation).

31. IOWA CODE § 352.11 (2024); *see id.* § 727.8A.

32. *Bormann*, 584 N.W.2d at 321 (holding that the legislature's attempt to immunize farms from nuisance suits constituted an illegal taking from neighboring landowners); Press Release, Animal Legal Def. Fund, Court Strikes Down Iowa Recording Ban Ag-Gag Law (Sept. 27, 2022), <https://aldf.org/article/court-strikes-down-iowa-recording-ban-ag-gag-law> [<https://perma.cc/LXN7-5RJS>] (describing the federal district court's ruling that Iowa's ag-gag law violated the First Amendment).

33. IOWA CODE § 476.53A.

34. *See* Iowa Exec. Order No. 17 (Nov. 12, 1973), <https://www.legis.iowa.gov/docs/publications/EO/966128.pdf> [<https://perma.cc/Q7AG-LS4Y>], *amended by* Iowa Exec. Order No. 19 (Feb. 28, 1974), <https://www.legis.iowa.gov/docs/publications/EO/966130.pdf> [<https://perma.cc/U52W-HL9A>].

35. Exec. Order No. 48, 5 Iowa Admin. Bull. 1171 (Mar. 16, 1983), <https://www.legis.iowa.gov/docs/publications/EO/966159.pdf> [<https://perma.cc/PW5Y-ESJ5>].

36. Iowa Exec. Order No. 23 (Apr. 22, 1977), <https://www.legis.iowa.gov/docs/publications/EO/966134.pdf> [<https://perma.cc/QG9T-S3ED>], *rescinded by* Exec. Order No. 12, 22 Iowa

state to create a renewable portfolio standard, signed into law by [Governor Terry] Branstad in his first year in office.”³⁷ Governor Culver said “it is a stated goal of this Administration to make Iowa the renewable energy capital of the world.”³⁸ Governor Culver also issued government bonds for expenditures related to renewable energy development in rural areas.³⁹ In 2006, Governor Culver created the Green Government Initiative to help fulfill Iowa’s policy of “increasing the use of renewable energy.”⁴⁰ Governor Branstad recognized that “[e]very wind turbine you see while driving across our state means income for farmers, revenue for local governments and jobs for Iowa families.”⁴¹

Iowa’s clean energy goals are in line with national standards. In his first day in office, former President Joe Biden authorized the United States to rejoin the Paris Agreement.⁴² As a party to the Paris Agreement, the United States commits to keeping global temperature rise below 1.5 degrees Celsius.⁴³ Additionally, one fourth of the U.S. population is already subject to states’ clean energy laws with the goal of eliminating all fossil fuels by 2050, indicating there will be an increasing demand for clean energy production.⁴⁴ Currently, the solar and wind industries employ almost five thousand Iowans.⁴⁵ The Iowa Environmental Council projects that wind turbine technicians and solar installers are the first and fourth fastest nationally growing occupations,

Admin. Bull. 1088 (Jan. 12, 2000), <https://www.legis.iowa.gov/docs/publications/IACB/854216.pdf> [<https://perma.cc/D3Y2-5XFL>].

37. Tom Kiernan, *Branstad’s Leadership Made Wind Energy Successful*, DES MOINES REG. (Feb. 11, 2017, 4:04 PM), <https://www.desmoinesregister.com/story/opinion/columnists/2017/02/11/branstads-leadership-made-wind-energy-successful/97755502> [<https://perma.cc/P498-VAJ8>].

38. Exec. Order No. 3, 30 Iowa Admin. Bull. 220 (July 18, 2007), <https://www.legis.iowa.gov/docs/publications/EO/966077.pdf> [<https://perma.cc/7P9Q-MJ6Z>].

39. Exec. Order No. 27, 25 Iowa Admin. Bull. 1277 (Mar. 19, 2003), <https://www.legis.iowa.gov/docs/publications/EO/966101.pdf> [<https://perma.cc/9QJK-4TLB>].

40. Exec. Order No. 6, 32 Iowa Admin. Bull. 577 (Aug. 26, 2009), <https://www.legis.iowa.gov/docs/publications/EO/966080.pdf> [<https://perma.cc/7R4Z-5938>].

41. Kiernan, *supra* note 37.

42. Press Release, Antony J. Blinken, U.S. Sec’y of State, The United States Officially Rejoins the Paris Agreement (Feb. 19, 2021), <https://www.state.gov/the-united-states-officially-rejoins-the-paris-agreement> [<https://perma.cc/PB5T-V9LP>].

43. See *The Paris Agreement*, UNITED NATIONS CLIMATE CHANGE, <https://unfccc.int/process-and-meetings/the-paris-agreement> [<https://perma.cc/4K23-7KG9>]. Shortly before this Note’s publication, President Trump withdrew the United States from the Paris Agreement. Nate Perez, *Trump Is Withdrawing From the Paris Agreement (Again), Reversing U.S. Climate Policy*, NPR (Jan. 21, 2025, 5:00 AM), <https://www.npr.org/2025/01/21/nx-s1-5266207/trump-paris-agreement-biden-climate-change> [<https://perma.cc/W8YQ-AZB7>].

44. Alexandra B. Klass, *Eminent Domain Law as Climate Policy*, 2020 WIS. L. REV. 49, 53, 56.

45. IOWA ENV’T COUNCIL, IOWA WIND ENERGY FACT SHEET 1 (2022), [https://www.iaenvironment.org/webres/File/Wind%20Energy%20Fact%20Sheet%20-%202022%20\(1\).pdf](https://www.iaenvironment.org/webres/File/Wind%20Energy%20Fact%20Sheet%20-%202022%20(1).pdf) [<https://perma.cc/AX9G-H28U>]; IOWA ENV’T COUNCIL, IOWA SOLAR ENERGY FACT SHEET 1 (2022), <https://www.iaenvironment.org/webres/File/Solar%20Energy%20Fact%20Sheet%20-%202022.pdf> [<https://perma.cc/GTH5-DL83>].

respectively.⁴⁶ There is \$22 billion invested in wind and \$337 million invested in solar in Iowa.⁴⁷ Each year, tax revenue and land lease payments from solar and wind infrastructure generate billions of dollars for the state.⁴⁸ Additional solar and wind benefits are discussed in Section III.A.

Iowa also committed to clean energy growth through the Iowa Energy Plan (“the Plan”). In 2016, the Iowa Department of Transportation and the Iowa Economic Development Authority authored a bipartisan initiative to help meet the state’s climate goals and simultaneously boost the state’s economy.⁴⁹ The Plan sets out four broad objectives: (1) increase economic development and energy careers; (2) improve energy efficiency and conservation; (3) develop Iowa’s energy resources; and (4) enhance transportation and infrastructure.⁵⁰ The Plan identifies forty-five strategies to help achieve these objectives within ten years.⁵¹ These strategies include adopting voluntary renewable energy goals, grid modernization pilot projects, and a renewable fuels infrastructure program.⁵²

In 2018, Iowa published a progress report highlighting the state’s success.⁵³ Since 2016, several rural electric cooperatives collaborated to create Iowa Choice Renewables, development of a real-time solar generation dashboard, and technical energy scholarships.⁵⁴ Agencies and businesses developed a pilot program to provide energy expertise to rural communities, expanded a benchmarking program that tracks buildings’ energy performances, and established MidAmerican’s GreenEnergy Advantage program (which verifies the percent of renewable energy it delivers to its customers).⁵⁵ Alliant Energy built new solar and wind projects, and the state continued to fund grants and research in the biomass and biofuels sector.⁵⁶ Iowa has also seen growth in the transportation and infrastructure area since 2016—including financial investments in the energy grid, electric vehicle charging station

46. IOWA ENV’T COUNCIL, IOWA WIND ENERGY FACT SHEET, *supra* note 45; IOWA ENV’T COUNCIL, IOWA SOLAR ENERGY FACT SHEET, *supra* note 45.

47. IOWA ENV’T COUNCIL, IOWA WIND ENERGY FACT SHEET, *supra* note 45; IOWA ENV’T COUNCIL, IOWA SOLAR ENERGY FACT SHEET, *supra* note 45.

48. IOWA ENV’T COUNCIL, IOWA WIND ENERGY FACT SHEET, *supra* note 45; IOWA ENV’T COUNCIL, IOWA SOLAR ENERGY FACT SHEET, *supra* note 45.

49. IOWA ECON. DEV. AUTH. & IOWA DEP’T OF TRANSP., IOWA ENERGY PLAN, at iii (2016), <http://www.iowaenergyplan.org/docs/IowaEnergyPlan.pdf> [<https://perma.cc/3B3Q-HBZT>].

50. *Id.* at i, iii–v.

51. *Id.* at iii–v, 12.

52. *Id.* at iii–v.

53. IOWA ECON. DEV. AUTH. & IOWA DEP’T OF TRANSP., IOWA ENERGY PLAN PROGRESS REPORT 1, 6, 8, 10, 12 (2018), https://www.iowaeda.com/UserDocs/IEDA_EnergyPlanProgressRpt_2018.pdf [<https://perma.cc/3WK9-XG2Z>].

54. *Id.* at 6–7.

55. *Id.* at 8–9.

56. *Id.* at 10–11.

installations by MidAmerican and Alliant Energy, and a new State Freight Plan which will increase transportation efficiency.⁵⁷

Despite highlighting these various successes, the 2018 Progress Report indicated that only four of the forty-five specific strategies laid out in the Plan were adopted within a year and a half of its publication.⁵⁸ These four strategies were carried out almost exactly as the Plan envisioned, despite being implemented by both government and private actors. All four strategies were successful in helping achieve the objectives they were designed to fulfill. If this trajectory had continued, Iowa may have seen the Plan's entire vision become a reality nearly within the ten-year planning period it adopted.⁵⁹ However, Iowa has not produced any progress reports since 2018.⁶⁰ What seemed like an ambitious yet achievable vision for Iowa's economic and energy future flatlined due to a lack of accountability. This flatline is likely due in part to opposition from the agricultural industry.⁶¹ The Plan is not the first instance of the farming industry successfully opposing clean energy infrastructure—despite Iowa's policies encouraging both, farming and clean energy are often seen as binary land uses.⁶²

II. EXAMPLES OF IOWA'S AGRICULTURAL INDUSTRY OPPOSING CLEAN ENERGY INFRASTRUCTURE

Iowa's agricultural industry has repeatedly used its influence to block utility-scale energy construction on farmland. Notable examples of this opposition include the Rock Island Clean Line, the Dakota Access Pipeline, recent carbon capture pipeline proposals, and local restrictions on wind and solar development.

A. THE AGRICULTURAL INDUSTRY'S OPPOSITION TO THE ROCK ISLAND CLEAN LINE

In 2014, Iowa's agricultural industry blocked a multi-billion-dollar clean energy project. A Texas-based company called Clean Line Energy Partners ("Clean Line") proposed a five-hundred-mile transmission line to transport

57. *Id.* at 6–14.

58. *Id.* The four overlapping programs are: the pilot program providing energy expertise to rural communities, the expansion of a benchmarking program that tracks buildings' energy performances, the Biomass Conversion Action Committee, and electric vehicle charging station installations along the major traffic corridor by MidAmerican and Alliant Energy. *Id.*; IOWA ECON. DEV. AUTH. & IOWA DEP'T OF TRANSP., *supra* note 49, at 35, 54–55, 75.

59. IOWA ECON. DEV. AUTH. & IOWA DEP'T OF TRANSP., *supra* note 49, at 12.

60. *Iowa Energy Plans & Reports*, IOWA ECON. DEV. AUTH., <https://www.iowaeda.com/iowa-energy-office/plan> [<https://perma.cc/CPY4-LEUK>].

61. *See infra* Part III.

62. *See* Peggy Kirk Hall, Whitney Morgan & Jesse Richardson, *Land Use Conflicts Between Wind and Solar Renewable Energy and Agriculture Uses 4–5* (Jan. 10, 2022) (Law Faculty Scholarship, W.V. Univ.).

wind energy from counties in northern Iowa to eastern states.⁶³ Clean Line estimated the transmission line would bring in millions of tax dollars for Iowa while increasing demand for wind energy and wind turbines manufactured in the state.⁶⁴ Despite these benefits, the project was opposed in both Iowa and Illinois.⁶⁵ In Iowa, the majority of the opposition stemmed from rural landowners, particularly farmers.⁶⁶ These landowners objected to Clean Line's attempts to use eminent domain to secure easements for the transmission line to pass over their land and the project's lack of local input.⁶⁷

After Illinois courts stalled the project in 2016, Clean Line withdrew its petition from the IUB.⁶⁸ Seemingly unconvinced the project would not resurface, the Iowa Legislature amended Iowa Code section 6A.21 to add a definition for "merchant lines" that directly mimicked the Rock Island Clean Line proposal.⁶⁹ Then, the Iowa Legislature amended Iowa Code section 6A.21 to prevent the IUB from granting merchant lines eminent domain authority on agricultural land.⁷⁰ This amendment effectively sealed the fate of Clean Line's proposal. Without the power of eminent domain, a single uncooperative farmer could block the project. Iowa Republican legislator and farmer Bobby Kaufmann⁷¹ proclaimed, "[t]his to me is the biggest victory for landowners, when it comes to eminent domain, in the history of the state of Iowa."⁷² Since the 2017 amendment, only two lawsuits and three administrative decisions that this Author could locate have invoked Iowa Code section 6A.21.⁷³ Although enacted to kill the Rock Island Clean Line, the

63. Donnelle Eller, *Rock Island Clean Line Seeks OK to Build Transmission Line*, DES MOINES REG. (Nov. 6, 2014, 6:57 PM), <https://www.desmoinesregister.com/story/money/agriculture/green-fields/2014/11/06/rock-island-clean-line-seeks-to-build-transmission-line/18612709> [https://perma.cc/6WZW-YPB9].

64. *Id.*

65. Brianne Pfannenstiel, *Rock Island Clean Line Withdraws Petition for Iowa Wind Project*, DES MOINES REG. (Dec. 22, 2016, 5:46 PM), <https://www.desmoinesregister.com/story/news/politics/2016/12/22/rock-island-clean-line-withdraws-petition-iowa-wind-project/95756496> [https://perma.cc/C9DA-5ZS3].

66. Eller, *supra* note 63; *Farmers Carry Mixed Feelings over Wind Energy Transmission Line*, IOWA PUB. RADIO (Oct. 21, 2013, 5:01 AM), <https://www.iowapublicradio.org/ipr-news/2013-10-21/farmers-carry-mixed-feelings-over-wind-energy-transmission-line> [https://perma.cc/3CAB-YFVJ].

67. Eller, *supra* note 63; Mike Wiser, *Iowa Bill Challenging Rock Island Clean Island Project Moves Forward*, GAZETTE (Feb. 18, 2014, 3:42 PM), <https://www.thegazette.com/stategovernment/iowa-bill-challenging-rock-island-clean-island-project-moves-forward> (on file with the *Iowa Law Review*).

68. Pfannenstiel, *supra* note 65.

69. IOWA CODE § 6A.22(2); *id.* § 478.6A(1) (2024).

70. *Id.* § 6A.21(2).

71. *Bobby Kaufmann: Iowa House District 73*, STAND UP TO ALEC (2017), <https://standuptoalec.org/wp-content/uploads/2018/10/IA-Bobby-Kaufmann.pdf> [https://perma.cc/NPX7-R484].

72. Pfannenstiel, *supra* note 65.

73. *See, e.g.*, Story Cnty. Wind, LLC v. Story Cnty. Bd. of Rev., 990 N.W.2d 282, 286 (Iowa 2023); Punttenney v. Iowa Utils. Bd., 928 N.W.2d 829, 833 (Iowa 2019); *In re* Nustar Pipeline Operating P'ship L.P., No. HLP-2021-0002, 2023 WL 3196167, at *30 (Iowa Utils. Bd. Apr. 26,

amendment prevents other high-voltage transmission lines from being installed on Iowa's agricultural land. Outside of the Rock Island Clean Line dispute, the IFB consistently comments on proposed electric line IUB rules, typically arguing that the rules should provide more protections and benefits for affected farmers.⁷⁴

B. *THE AGRICULTURAL INDUSTRY'S OPPOSITION TO THE
DAKOTA ACCESS PIPELINE AND SUBSEQUENT PIPELINES*

The Dakota Access Pipeline is another example of Iowa's agricultural industry opposing clean energy infrastructure. In the mid-2010s, the entire country was swept up in controversy over the proposed Dakota Access Pipeline.⁷⁵ In Iowa, this controversy revolved primarily around the pipeline's impact on farmland.⁷⁶ Roughly 350 miles of the oil pipeline were built in Iowa, passing through eighteen counties.⁷⁷ Under Iowa Code section 479B.1, the IUB has authority over hazardous liquid pipelines.⁷⁸ Pursuant to that authority, the IUB granted Dakota Access a permit to construct the pipeline, including the power to exercise eminent domain.⁷⁹ Iowa farmer Keith Puntteney challenged this exercise of eminent domain under Iowa Code sections 6A.21–.22.⁸⁰ Those codes clarify the public uses, purposes, and improvements for which eminent domain may be granted, and they also prohibit eminent domain of agricultural land except for “utilities, persons, companies, or corporations under the jurisdiction of the [IUB].”⁸¹

2023); *In re Dakota Access, LLC*, No. HLP-2014-0001, 2015 WL 6660184, at *1 (Iowa Utils. Bd. Oct. 29, 2015).

74. *E.g.*, Iowa Farm Bureau, Comment Letter on Proposed Review of Electric Lines Rule (Nov. 4, 2022) (on file with the *Iowa Law Review*); Iowa Farm Bureau, Comment Letter on Proposed Rule on Electric Lines (Apr. 16, 2020), https://wcc.efs.iowa.gov/cs/idcplg?IdcService=GET_FILE&allowInterrupt=1&RevisionSelectionMethod=latest&dDocName=2025826&noSaveAs=1 (on file with the *Iowa Law Review*).

75. Although not the focus of this Note, the Native American community also provided a significant amount of pushback on the Dakota Access Pipeline because of the pipeline's particularly devastating impacts on Native Americans. *See* Rebecca Hersher, *Key Moments in the Dakota Access Pipeline Fight*, NPR (Feb. 22, 2017, 4:28 PM), <https://npr.org/sections/thetwo-way/2017/02/22/514988040/key-moments-in-the-dakota-access-pipeline-fight> [<https://perma.cc/YTL2-LCFL>].

76. Kevin Hardy, *Dakota Access Pipeline Wrecking Soil, Farmers Complain*, DES MOINES REG. (Aug. 24, 2016, 8:42 AM), <https://www.desmoinesregister.com/story/money/business/2016/08/23/dakota-access-pipeline-degrading-soil-farmers-complain/88945728> [<https://perma.cc/NF4F-8BCW>].

77. William Petroski, *Oil Is Flowing in the Dakota Access Pipeline, but Iowa Opponents Still Think They Can Shut It Down*, DES MOINES REG. (June 6, 2017, 4:04 PM), <https://www.desmoinesregister.com/story/news/politics/2017/06/06/oil-flowing-dakota-access-pipeline-iowa-shutdown/373315001> [<https://perma.cc/S75T-4MLH>].

78. IOWA CODE § 479B.1 (2024).

79. *Puntteney v. Iowa Utils. Bd.*, 928 N.W.2d 829, 832 (Iowa 2019).

80. *Id.* at 835–36.

81. *Id.* at 842 (quoting IOWA CODE §§ 6A.21–.22).

Puntenney's case ultimately reached the Iowa Supreme Court.⁸² There, the court upheld the IUB's eminent domain grant by reasoning that the pipeline served a public convenience and necessity and was not subject to the agricultural prohibition because it fell under the exception for common carriers under IUB jurisdiction.⁸³

Iowa allowed Dakota Access to build its pipeline over the cries of farmers, and the company only continued to further alienate those farmers.⁸⁴ Pipeline construction disrupted significant amounts of agricultural land.⁸⁵ Drainage tiles were removed and destroyed.⁸⁶ Ditch lines and seeds were disrupted.⁸⁷ Perhaps most importantly, the rich topsoil (although it was removed and stored upon farmer request) was often lost or mixed with lower soil layers.⁸⁸ Multiple farmers filed complaints with the IUB, but the farmers harbored suspicions about the efficacy of the inspection firms since the firms were paid by Dakota Access.⁸⁹ The Dakota Access Pipeline has not developed any leaks to date, and it has been touted by some as the safest pipeline in the country.⁹⁰ Regardless, it generated strong opposition from Iowa farmers.

The opposition from Iowa farmers did not go unanswered by the legislature. In 2021, the IUB passed Iowa Administrative Code section 199-9, which was approved by a committee of the Iowa Legislature.⁹¹ The Code outlines restoration requirements for pipelines built on agricultural land.⁹² These requirements include topsoil removal, drain tile setbacks, and detailed repair and restoration guidelines.⁹³ The IFB was heavily involved in passing this rule, supporting a broader version that would have—among other things—allowed more people to recover from pipeline companies and restricted how pipeline easements could be granted.⁹⁴ The agricultural

82. See generally *id.*

83. *Id.* at 848. The Court seemed to reason that a pipeline is a common carrier which automatically makes it into a public use. *Id.* at 842–44. For a further discussion on the strange intricacies of the decision, see Hannah J. Weymiller, Note, *Inconsistent Eminent Domain Laws Preventing Important Infrastructure: Iowa May Have the Solution*, 107 IOWA L. REV. 2433, 2462–64 (2022).

84. Hardy, *supra* note 76.

85. *Id.*; *Puntenney*, 928 N.W.2d at 837 (finding the pipeline caused millions of dollars of damage).

86. Hardy, *supra* note 76.

87. Petroski, *supra* note 77.

88. Hardy, *supra* note 76; IOWA ADMIN. CODE r. 199-9.5 (2024).

89. Hardy, *supra* note 76.

90. Petroski, *supra* note 77; *Treaties Still Matter: The Dakota Access Pipeline*, SMITHSONIAN NAT'L MUSEUM AM. INDIAN, <https://americanindian.si.edu/nk360/plains-treaties/dapl> [<https://perm.a.cc/Y7LY-TFGR>].

91. IOWA ADMIN. CODE r. 199-9.

92. *Id.* r. 199-9.5.

93. *Id.*

94. Iowa Farm Bureau, Comment Letter on Proposed Rule for Hazardous Liquid Pipelines and Underground Storage (July 9, 2020) (on file with the *Iowa Law Review*).

industry has consistently involved itself in other IUB rules that relate to pipeline installation on agricultural land.⁹⁵

In 2023, proposed carbon capture pipelines suffered from the legacy of the Dakota Access Pipeline. Biofuels are a relatively new form of energy that are produced almost exclusively by states in the corn belt, such as Iowa.⁹⁶ Biofuels are produced by combusting organic matter such as corn or soybeans or collecting biogas directly from decomposing organic matter.⁹⁷ Biogas is then used either to generate heat or used directly as a biofuel (e.g., ethanol).⁹⁸ Because biofuels can be produced through traditional farming methods, biofuel production has been widely embraced in Iowa.⁹⁹ Not only does the state lead the nation in biofuel production, but biofuels represent seventy percent of the total energy that Iowa produced in 2014.¹⁰⁰ Although biofuels are an alternative to traditional fossil fuels, they are not widely accepted as being fully renewable—biofuel production requires substantial land use and results in greenhouse gas emissions, including carbon dioxide.¹⁰¹

Carbon is a biofuel byproduct, and it is sometimes transported to rural locations for underground sequestration by carbon capture pipelines.¹⁰² Carbon capture sequestration has received international recognition as a necessary step towards achieving climate goals.¹⁰³ Recently, three companies proposed building carbon capture pipelines through Iowa.¹⁰⁴

95. *E.g.*, Iowa Farm Bureau, Comment Letter on Intrastate Gas Pipelines and Underground Gas Storage, *supra* note 24; Iowa Farm Bureau, Comment Letter on Restoration of Agricultural Lands During and After Pipeline Construction Rules, *supra* note 24; Iowa Farm Bureau, Comment Letter on Proposed Rule for Review of Restoration of Agricultural Lands During and After Pipeline Construction Rules (Aug. 3, 2020), https://wcc.efs.iowa.gov/cs/idcplg?IdcService=GET_FILE&allowInterrupt=1&RevisionSelectionMethod=latest&dDocName=2036236&nOaveAs=1 (on file with the *Iowa Law Review*).

96. *See* IOWA ECON. DEV. AUTH. & IOWA DEP'T OF TRANSP., *supra* note 49, at 11.

97. *Id.*

98. *Id.* at 10.

99. *Id.* at 6; Kendall Crawford, *Sioux Center Looks to Local Dairy Farms for Renewable Energy*, IOWA PUB. RADIO (Jan. 11, 2023, 10:44 AM), <https://www.iowapublicradio.org/environment/2023-01-11/sioux-center-looks-to-local-dairy-farms-for-renewable-energy> [<https://perma.cc/Q3NE-Y9XV>].

100. IOWA ECON. DEV. AUTH. & IOWA DEP'T OF TRANSP., *supra* note 49, at 6.

101. *Econ. of Biofuels*, U.S. ENV'T PROT. AGENCY (Mar. 15, 2024), https://19january2017snaps.hot.epa.gov/environmental-economics/economics-biofuels_.html [<https://perma.cc/L6N9-S6B>].

102. Donnelle Eller, *What We Know About Three Carbon Capture Pipelines Proposed in Iowa*, DES MOINES REG. (Apr. 24, 2022, 5:48 PM), <https://www.desmoinesregister.com/story/money/business/2021/11/28/what-is-carbon-capture-pipeline-proposals-iowa-ag-ethanol-emissions/8717904002> [<https://perma.cc/7XPA-V7FG>].

103. Leah Douglas, *Key Hearing for U.S. Carbon Capture Pipeline Begins in Iowa*, REUTERS (Aug. 22, 2023, 4:20 PM), <https://www.reuters.com/legal/key-hearing-us-carbon-capture-pipeline-begins-iowa-2023-08-22> [<https://perma.cc/SWJ8-8XR6>].

104. Eller, *supra* note 102. However, one of the companies, Navigator, has withdrawn its application with the IUB to build the pipeline. Erin Jordan, *Navigator Pulls Plug on Iowa CO2*

Combined, the three pipelines would result in over two thousand miles of pipelines crisscrossing the state.¹⁰⁵ The federally-subsidized pipelines would transport carbon dioxide away from biofuel plants in Iowa, thereby offsetting the carbon footprint of ethanol and biodiesel.¹⁰⁶ This benefit could prop up Iowa's corn farmers and ethanol market at a time when they are threatened by the rise of electric vehicles and the uncertainty of China's future corn, pork, and soybean purchases.¹⁰⁷ However, some farmers and rural landowners remain concerned about the safety of the pipelines and the potential decrease in land value and productivity they may cause.¹⁰⁸ Many environmentalists also remain concerned about potential toxic leaks and propagating the fossil fuel industry—making unexpected allies out of some farmers and environmentalists.¹⁰⁹

The reaction to the proposed carbon capture pipelines is almost certainly a result of Iowa farmers' poor experiences with the Dakota Access Pipeline on their land.¹¹⁰ The proposed pipelines have already sparked several lawsuits.¹¹¹ Recently, Judge Rose in the Southern District of Iowa granted summary judgment for the pipelines in a ruling that nullified three counties' attempts to zone out the proposed pipelines. Judge Rose held that the ordinances are preempted by state and federal law.¹¹²

The three companies that proposed the pipelines—Navigator CO₂, Wolf, and Summit—have encountered other complications in addition to the lawsuits. Navigator CO₂ fully withdrew its application with the IUB.¹¹³ Wolf stated it will not ask for eminent domain powers, likely in an attempt to avoid

Pipeline, GAZETTE (Oct. 20, 2023, 6:10 PM), <https://www.thegazette.com/energy/navigator-pulls-plug-on-iowa-co2-pipeline> (on file with the *Iowa Law Review*).

105. Eller, *supra* note 102.

106. *Id.*

107. *Id.*; Dave Miller, *China Has Been an Unreliable Customer for U.S. Farmers*, DES MOINES REG. (Oct. 5, 2018, 7:19 AM), <https://www.desmoinesregister.com/story/opinion/columnists/iowa-view/2018/10/05/china-has-been-unreliable-customer-u-s-farmers/1507931002> [<https://perma.cc/T22S-W894>].

108. Eller, *supra* note 102.

109. Mia DiFelice & Oakley Shelton-Thomas, *Why Carbon Storage Is a Bad Idea*, FOOD & WATER WATCH (Sept. 6, 2023), <https://www.foodandwaterwatch.org/2023/09/06/carbon-storage-bad-idea> [<https://perma.cc/7X93-5BM3>].

110. See *supra* notes 85–90 and accompanying text.

111. E.g., Donnelle Eller, *More Stringent Rules for Carbon Capture Pipelines Draw Lawsuits from Ames Company*, DES MOINES REG. (Nov. 21, 2022, 2:20 PM), <https://www.desmoinesregister.com/story/money/agriculture/2022/11/17/carbon-capture-pipeline-co2-iowa-story-shelby-county-lawsuit/69653616007> [<https://perma.cc/9LTN-BQF4>] (describing the suit filed by Summit against the counties trying to zone it out). For a comprehensive and up-to-date overview of the pipeline battle, see *Iowa Carbon Pipelines*, U. IOWA, <https://s-libo24.lib.uiowa.edu/Iowa-Carbon-Pipelines> [<https://perma.cc/A94W-7J2V>].

112. *Couser v. Story Cnty.*, 704 F. Supp. 3d 917, 933 (S.D. Iowa 2023); *Summit Carbon Sols., LLC v. Shelby County*, 704 F. Supp. 3d 941, 945 (S.D. Iowa 2023).

113. Jordan, *supra* note 104.

repeating the follies of Dakota Access.¹¹⁴ Although Summit originally pushed back its timeline to 2026—citing the difficult regulatory process and various eminent domain protests—the IUB recently granted Summit’s permit.¹¹⁵ Opponents have already vowed to appeal the decision.¹¹⁶ Ninety-four percent of Summit’s proposed route was through agricultural land.¹¹⁷

C. THE AGRICULTURAL INDUSTRY’S OPPOSITION TO WIND ENERGY

Wind turbines on Iowa farmland have become so proliferous that the two are depicted together on Iowa license plates.¹¹⁸ Wind energy is primarily produced by wind turbines that charge an electric generator as the blades turn.¹¹⁹ Due to its geographic location, Iowa receives strong winds and is therefore an excellent candidate for wind energy production.¹²⁰ Wind turbines can be sited on agricultural land without fully impeding the ability to farm the land because of their vertical structure.¹²¹ Iowa has historically embraced this dual land use, with its first utility-scale wind operation dating back to 1998.¹²² Today, Iowa is home to 141 utility-scale wind power plants.¹²³ These plants are scattered throughout half of the state’s counties.¹²⁴ As a result, the state produces the second-highest amount of electricity from wind

114. *Id.*

115. *Id.*; Clark Kauffman, *Iowa Utilities Board Approves Permit for Controversial Summit Pipeline*, IOWA CAP. DISPATCH (June 25, 2024, 1:39 PM), <https://iowacapitaldispatch.com/2024/06/25/iowa-utilities-board-approves-permit-for-controversial-summit-pipeline> [https://perma.cc/P9WN-SNAM].

116. Kevin Baskins, *Summit’s Controversial Bid to Build a Carbon Capture Pipeline Wins Iowa Board’s Approval*, DES MOINES REG. (June 25, 2024, 5:14 PM), <https://www.desmoinesregister.com/story/money/business/2024/06/25/summit-carbon-solutions-gets-iowa-utilities-board-approval-for-pipeline-construction/74205561007> [https://perma.cc/858X-X7JF].

117. *Couser*, 704 F. Supp. 3d at 923.

118. Taylor Fisher, *The Power of the People: Resisting Big Wind in Rural Iowa*, GEO. ENV’T L. REV. (Jan. 24, 2023), <https://www.law.georgetown.edu/environmental-law-review/blog/the-power-of-the-people-resisting-big-wind-in-rural-iowa> [https://perma.cc/G59N-Q362].

119. *Wind Explained*, U.S. ENERGY INFO. ADMIN. (Dec. 27, 2023), [https://www.eia.gov/energy-explained/wind/electricity-generation-from-wind.php#:~:text=Wind%20turbines%20ouse%20blades%20to,which%20produces%20\(generates\)%20electricity](https://www.eia.gov/energy-explained/wind/electricity-generation-from-wind.php#:~:text=Wind%20turbines%20ouse%20blades%20to,which%20produces%20(generates)%20electricity) [https://perma.cc/WE6P-ZVQA].

120. Jian Cheng & Hongli Feng, *Utility-Scale Wind and Solar Development in Iowa: Trends, Prospects, and the Land Factor*, IOWA STATE U.: CTR. FOR AGRIC. & RURAL DEV., <https://agpolicyreview.card.iastate.edu/winter-2022/utility-scale-wind-and-solar-development-iowa-trends-prospects-and-land-factor> [https://perma.cc/M2QG-GBNX].

121. *Id.*

122. *Id.*

123. *Id.*

124. IOWA ENV’T COUNCIL, *SUCCESSFUL COUNTY WIND SITING PRACTICES IN IOWA 1* (2019), https://www.iaenvironment.org/webres/File/IEC_WindSiting_Best%20Practices_Oct_2019.pdf [https://perma.cc/FUD9-SYXB].

of any state in the country (second only to Texas).¹²⁵ Additionally, Iowa produces more of its own energy from wind than any other state.¹²⁶ Almost four thousand Iowans are employed by the wind energy sector.¹²⁷ MidAmerican is currently poised to become the first-ever investor-owned utility to produce one-hundred percent of customer energy needs from renewable sources—primarily because of all the wind turbines it operates in the state.¹²⁸

But recently, wind energy is coming under attack in Iowa.¹²⁹ Many rural farmers are dissatisfied with MidAmerican, the dominant producer of wind energy in the state, and the occasional impediments wind turbines cause to their agricultural practices.¹³⁰ Common objections include noise and shadow flicker from the turning blades, aesthetics, impacted land value, land remediation, and bird and bat mortalities.¹³¹ These concerns are not unique to Iowa landowners—one county in Illinois hosted nineteen meetings to discuss the local impacts of a proposed wind farm.¹³²

Wind development's main impediment in Iowa is local ordinances. Iowa is subject to home rule, which allows cities and counties to zone their land unless inconsistent with state legislation (also known as *ultra vires*).¹³³ There are 215 total ordinances in Iowa pertaining to wind turbines.¹³⁴ These ordinances appear in fifty-four of Iowa's ninety-nine counties.¹³⁵ Twelve of these counties have ordinances that pose significant impediments or fully ban utility-scale wind turbines.¹³⁶ Six counties in Iowa have ordinances that either ban or de facto ban all wind turbines.¹³⁷ Examples of de facto bans include

125. IOWA ECON. DEV. AUTH. & IOWA DEP'T OF TRANSP., *supra* note 49, at 1. *Which States Produce the Most Wind Energy?*, INSPIRE CLEAN ENERGY, <https://www.inspirecleanenergy.com/blog/clean-energy-101/which-states-produce-the-most-wind-energy> [<https://perma.cc/4TZ5-BWTC>].

126. IOWA ECON. DEV. AUTH. & IOWA DEP'T OF TRANSP., *supra* note 49, at 1.

127. IOWA ENV'T COUNCIL, *supra* note 45, at 1.

128. Adam Wentworth, *MidAmerican Energy Becomes First US Utility to Go 100% Renewable*, CLIMATE ACTION, <https://www.climateaction.org/news/midamerican-energy-becomes-first-us-utility-to-go-100-renewable> [<https://perma.cc/T3YK-W3HN>]; IOWA ECON. DEV. AUTH. & IOWA DEP'T OF TRANSP., *supra* note 49, at 11.

129. Fisher, *supra* note 118.

130. *Id.*

131. Hall et al., *supra* note 62, at 9. Most of these objections are not rooted in science. See Sueellen Campbell, *Resources for Debunking Common Solar and Wind Myths*, YALE CLIMATE CONNECTIONS (June 3, 2024), <https://yaleclimateconnections.org/2024/06/resources-for-debunking-common-solar-and-wind-myths> [<https://perma.cc/P7DS-3DZB>].

132. David Gelles, *The U.S. Will Need Thousands of Wind Farms. Will Small Towns Go Along?*, N.Y. TIMES (Dec. 30, 2022), <https://www.nytimes.com/2022/12/30/climate/wind-farm-renewable-energy-fight.html> (on file with the *Iowa Law Review*).

133. IOWA CODE § 331.248 (2024).

134. Iowa Env't Council, *Wind Ordinances Datasets* (unpublished dataset) (2022) (on file with the *Iowa Law Review*). Huge thank you to the Iowa Environmental Council for performing and providing this research.

135. *Id.*

136. *Id.*

137. *Id.*

extremely high bond requirements, setback requirements, and maximum county wind power caps¹³⁸: “For wind, the setback is typically determined by a multiplier of the wind turbine’s total height, . . . wind and solar resource could be as much as [eighty-seven percent] and [thirty-eight percent] lower, respectively, under the strictest setback scenario compared to a baseline that does not account for setback ordinances.”¹³⁹

All ordinances impeding or banning wind turbines have been implemented since 2019.¹⁴⁰ The counties with significant wind ordinances are scattered evenly throughout the state.¹⁴¹ There is also no clear correlation between significant wind ordinances and county populations or number of farms by county.¹⁴² However, all counties with significant wind ordinances were Republican counties as of 2020.¹⁴³ There is also a correlation between counties with significant wind ordinances and agricultural land value—wind turbines are most commonly sited on land with high agricultural value.¹⁴⁴ In total, over ten percent of Iowa’s counties have passed an ordinance significantly restricting wind turbine development.

D. THE AGRICULTURAL INDUSTRY’S OPPOSITION TO SOLAR ENERGY

Solar energy has historically been less popular than wind energy in Iowa.¹⁴⁵ But because fifty-five percent of days in Iowa are sunny, the state has huge solar energy potential.¹⁴⁶ Iowa offers tax credits and loans for landowners to install residential solar.¹⁴⁷ Additionally, large-scale solar can be combined with farming in a process known as agrivoltaics.¹⁴⁸ Agrivoltaics is a

138. *Id.*

139. Press Release, Nat’l Renewable Energy Lab’y, NREL Analysis Quantifies Impacts of Setback Ordinances on Land Available for Renewable Energy Deployment (Aug. 3, 2023), <https://www.nrel.gov/news/press/2023/news-release-nrel-analysis-quantifies-impacts-of-setback-ordinances-on-land-available-for-renewable-energy-deployment.html> [<https://perma.cc/ZX7R-ZEQJ>].

140. Iowa Env’t Council, *supra* note 134.

141. *Id.*

142. *Id.*; see also Esther Crompton, *Navigating Demographic Shifts: New Report Unveils Iowa’s Changing Urban and Rural Populations*, IOWA ST. U. (Aug. 4, 2023, 11:33 AM), <https://www.extension.iastate.edu/news/navigating-demographic-shifts-new-report-unveils-iowas-changing-urban-and-rural-populations> [<https://perma.cc/DAU6-8DGB>]; *Number of Farms by County*, *supra* note 17. This data may be misleading because it compares number of farms per county, not percent of the county land that is actually being farmed. *Id.*

143. Iowa Env’t Council, *supra* note 134; see also *Election Results 2020: How Iowa Voted in the Presidential Election*, KCCI DES MOINES (Dec. 14, 2020, 8:06 AM), <https://www.kcci.com/article/iowa-election-results-2020-county-map/34921750#> [<https://perma.cc/TC3X-N36R>].

144. Cheng & Feng, *supra* note 120.

145. See IOWA ECON. DEV. AUTH. & IOWA DEP’T OF TRANSP., *supra* note 49, at 7.

146. *Id.* at 8.

147. *Id.* at 23.

148. Solar Energy Techs. Off., *The Potential of Agrivoltaics for the U.S. Solar Industry, Farmers, and Communities*, U.S. DEP’T OF ENERGY (Apr. 17, 2023), <https://www.energy.gov/eere/solar/articles/potential-agrivoltaics-us-solar-industry-farmers-and-communities> [<https://perma.cc/PYF7-G2TA>].

type of dual land use where solar panels are raised far enough off the ground to allow farming to take place underneath.¹⁴⁹ Despite the success of agrivoltaics elsewhere, solar energy has faced significant opposition in Iowa because it is often portrayed as competing with agriculture for land.¹⁵⁰ Solar generated only .04% of the total electricity that Iowa produced in 2015.¹⁵¹

Like wind, solar development's main impediment in Iowa is county ordinances. There are twenty-four county ordinances in Iowa pertaining to utility-scale solar.¹⁵² Seven counties are responsible for these twenty-four ordinances.¹⁵³ Ordinances in four of these counties contain significant impediments to utility-scale solar.¹⁵⁴ Counties may have less solar than wind ordinances because large-scale solar is less prolific than large-scale wind in Iowa and because solar farms are often located on nonagricultural land (such as brownfields).¹⁵⁵ Examples of significant solar impediments include setbacks and county solar caps.¹⁵⁶ Two counties have simply imposed moratoriums on utility-scale solar development.¹⁵⁷ All four significant solar ordinances have been imposed since 2021.¹⁵⁸

Three of the four counties with significant solar ordinances were Republican counties as of 2020.¹⁵⁹ Just like wind, there is no clear correlation between counties with significant solar ordinances and population.¹⁶⁰ There is, however, a correlation between counties with significant solar ordinances and counties with a higher number of farms. The average number of farms per county in Iowa is 895, but the average number of farms in the four

149. *Id.* Research at Iowa State University is currently being undertaken to examine the economic feasibility of incurring extra steel, maintenance, and other costs associated with raising solar panels sufficiently high off the land to allow farming below. *ISU Researchers to Study Growing Crops in Solar Farm's Footprint*, IOWA ST. U. (Feb. 15, 2023, 9:00 AM), <https://www.news.iastate.edu/news/2023/02/15/agrivoltaics> [<https://perma.cc/3F6T-G38P>].

150. IOWA ECON. DEV. AUTH. & IOWA DEP'T OF TRANSP., *supra* note 49, at 10, 57. However, there are many ways to implement utility-scale solar on active farmland. *See generally* Rutgers EcoComplex, Agrivoltaics Webinar, Examples of Various Agrivoltaics Systems, https://ecocomplex.rutgers.edu/documents/Agrivoltaics_Webinar_AJB.pdf [<https://perma.cc/G2AF-G64S>].

151. IOWA ECON. DEV. AUTH. & IOWA DEP'T OF TRANSP., *supra* note 49, at 7.

152. Iowa Env't Council, Solar Ordinances Dataset (unpublished dataset) (on file with the *Iowa Law Review*).

153. *Id.*

154. Greene, Linn, Madison, and Page counties. *Id.*

155. Cheng & Feng, *supra* note 120.

156. Iowa Env't Council, *supra* note 152.

157. *Id.*

158. *Id.*

159. *Id.* The four counties are Greene, Linn, Madison, and Page. *See Election Results 2020: How Iowa Voted in the Presidential Election*, *supra* note 143.

160. *See* Iowa Env't Council, *supra* note 152; Crompton, *supra* note 142.

counties with significant solar ordinances is 971.¹⁶¹ In some of its forms, solar is more land intensive than wind, putting it in more direct competition with agriculture.¹⁶² Although only four counties have imposed significant impediments to solar so far, Iowa Senator Dan Zumbach proposed a statewide bill that “would effectively outlaw solar panels on the vast majority of Iowa farmland.”¹⁶³

1. Linn County: A Case Study

Linn County, Iowa has an especially interesting history of clean energy production. In 1974, Iowa Electric Light and Power Co. built Iowa’s only nuclear power plant in Linn County.¹⁶⁴ At one time, the Duane Arnold Nuclear Plant was capable of producing 615 megawatts (“MW”) of energy.¹⁶⁵ Despite the economic benefits the plant provided to Linn County, it faced strong opposition due to safety concerns, as nuclear power plants often do.¹⁶⁶ In 2020, the plant was decommissioned after sustaining damage in the derecho that struck the Midwest that summer.¹⁶⁷

Now, NextEra plans to replace the nuclear power plant with two utility-scale solar farms and a battery storage site (“Duane Arnold Solar I and II”).¹⁶⁸

161. See *Number of Farms by County*, *supra* note 17. As with wind, this data may be misleading because it compares number of farms per county, not percent of the county land that is actually being farmed.

162. However, there are many ways to implement utility-scale solar on active farmland. See Rutgers EcoComplex, *supra* note 150.

163. Andy Johnson & Warren McKenna, *Opinion: Iowa’s Rural Prosperity Through Solar Energy Is Under Attack*, DES MOINES REG. (Mar. 6, 2022, 5:01 AM), <https://www.desmoinesregister.com/story/opinion/columnists/iowa-view/2022/03/06/iowa-solar-energy-rural-prosperity-under-attack/9363793002> [<https://perma.cc/HCR8-UNDY>]. Environmental and energy groups alike oppose the bill, but interestingly, there are no lobbyists registered in support of the bill yet—not even the IFB. Katie Peikes, *Iowa Lawmakers Advance a Bill Placing Restrictions on Solar Panels Built on Farmland*, IOWA PUB. RADIO (Feb. 15, 2022, 9:35 PM), <https://www.iowapublicradio.org/state-government-news/2022-02-15/iowa-lawmakers-advance-a-bill-placing-restrictions-on-solar-panels-built-on-farmland> [<https://perma.cc/W32L-JJMU>].

164. Lee Hermiston, *Duane Arnold Nuclear Plant’s New Beginning as a Solar Farm*, GAZETTE (Sept. 14, 2021, 9:00 AM), <https://www.thegazette.com/iowa-ideas/duane-arnold-nuclear-plant-s-new-beginning-as-a-solar-farm> (on file with the *Iowa Law Review*).

165. *Id.*

166. Harry Stevens, *Who’s Afraid of Elemental Power?*, WASH. POST (Apr. 28, 2022), <https://www.washingtonpost.com/business/interactive/2022/nuclear-power-fear> (on file with the *Iowa Law Review*).

167. Hermiston, *supra* note 164.

168. *Project Overview*, NEXTERA ENERGY RES., <https://www.nexteraenergyresources.com/duane-arnold-solar/project-overview.html> [<https://perma.cc/VFY5-3YGG>]. Just prior to this Note’s publication, NextEra proposed restarting the nuclear power plant in addition to constructing the solar farm—this is likely due to AI center demands and President Trump’s new energy policies. See Donnelle Eller, *Iowa’s Sole Nuclear Plant May Restart by Late 2028 to Meet Growing Demand, Owner Says*, DES MOINES REG. (Jan. 24, 2025, 4:54 PM), <https://www.desmoinesregister.com/story/money/business/2025/01/24/duane-arnold-nuclear-plant-iowa-might-reopen-by-2028-nextera/77926765007> [<https://perma.cc/gU9V-EJA8>].

Alliant will own and operate the project after completion, which is estimated for the end of 2024.¹⁶⁹ Together, the two solar facilities will produce two hundred MW of power and have the capacity to store seventy-five MW.¹⁷⁰ The facilities will encompass roughly a thousand acres.¹⁷¹ Although less than one percent of Linn County's population is employed by the agricultural industry,¹⁷² the majority of its land is currently used for agriculture.¹⁷³ After originally denying certification, the IUB granted NextEra its certification of public convenience and necessity.¹⁷⁴ But then, Linn County passed a moratorium on large-scale solar until September 2023.¹⁷⁵ In addition, the county is considering amending existing ordinances to regulate future solar projects.¹⁷⁶ The ordinance amendment would include setback requirements and a "solar project score card requiring a minimum score, prioritizing long-term soil health and encompassing the entire solar project area."¹⁷⁷ Linn County is a striking example of repeated local opposition to energy infrastructure development, despite the infrastructure's ability to generate significant economic benefits for locals.

III. HOW THE IOWAN AGRICULTURAL INDUSTRY WOULD BENEFIT FROM SUPPORTING CLEAN ENERGY DEVELOPMENT

The history of tension between agriculture and clean energy in Iowa has only disadvantaged both industries. Clean energy must be part of the solution to climate change, which is widely recognized as a particular threat to rural

169. Brittney J. Miller, *After Initial Denial, Iowa Utilities Board Preapproves Duane Arnold Solar Projects*, GAZETTE (May 8, 2023, 10:07 AM), <https://www.thegazette.com/energy/after-initial-denial-iowa-utilities-board-preapproves-duane-arnold-solar-projects> (on file with the *Iowa Law Review*); *Project Overview*, *supra* note 168.

170. Miller, *supra* note 169.

171. *Duane Arnold Solar Project*, ALLIANT ENERGY, <https://www.alliantenergy.com/cleanenergy/ourenergyvision/solargeneration/iowasolar/duanearnoldsolar> [<https://perma.cc/8WZP-FQRV>].

172. DAVID G. LOOMIS, ECONOMIC IMPACT AND LAND USE ANALYSIS OF DUANE ARNOLD SOLAR PHASE I, at 11 (2021), https://wcc.efs.iowa.gov/cs/idcplg?IdcService=GET_FILE&allowInterrupt=1&RevisionSelectionMethod=latest&dDocName=2075429&noSaveAs=1 [<https://perma.cc/G55XJ89C>].

173. *See id.* at 14. On the other hand, "the Duane Arnold Solar Project Phase I represents just 0.26 [percent] of the acres used for farming in Linn County." *Id.*

174. Miller, *supra* note 169.

175. Marissa Payne, *Linn County Seeks Input on Draft of Utility-Scale Solar Policy*, GAZETTE (Apr. 26, 2023, 6:00 AM), <https://www.thegazette.com/local-government/linn-county-seeks-input-on-draft-of-utility-scale-solar-policy> (on file with the *Iowa Law Review*). Neighbors also sued over the rezoning for utility-scale solar, but their claim was dismissed. Erin Jordan, *Judge Rules Against Neighbors Who Opposed Rezoning for Palo Solar Project*, GAZETTE (Aug. 5, 2023, 5:00 AM), <https://www.thegazette.com/energy/judge-rules-against-neighbors-who-opposed-rezoning-for-palo-solar-project> (on file with the *Iowa Law Review*).

176. Payne, *supra* note 175.

177. *Id.*

farming communities.¹⁷⁸ Individual landowners, both industries, and the state as a whole would benefit from cooperation. In the past, the agricultural and clean energy industries have successfully cooperated by co-locating clean energy infrastructure on farmland.¹⁷⁹ However, replicating this success on a larger scale is unlikely unless Iowa resolves the tension between the two industries by limiting county-level restrictions on clean energy. In lieu of state action, individual counties should resolve the tension by amending their comprehensive plans to encourage co-location.

A. *THE BENEFITS OF CO-LOCATING AGRICULTURE AND
CLEAN ENERGY INFRASTRUCTURE*

Co-locating clean energy infrastructure on agricultural land offers a host of benefits, both to the landowner and the larger community. The landowner receives lease payments for the energy infrastructure sited on their land.¹⁸⁰ This energy infrastructure can be sited on land that is not otherwise financially productive.¹⁸¹ Even if the energy infrastructure is sited on productive agricultural land, the infrastructure is temporary—Iowa imposes a twenty-year maximum on agricultural land leases.¹⁸² During that time, the farmer's land lays fallow and the soil regenerates so that once infrastructure is removed, the soil is more productive than before. In this way, clean energy infrastructure leases replicate the federal government's Conservation Reserve Program, where the federal government enters ten to fifteen year leases with farmers so their land can regenerate.¹⁸³ Additionally, many landowners have opted to power their own farms and households from the energy infrastructure sited on their land.¹⁸⁴ Since Iowa is a net importer of energy, this should appeal to those in the industry who wish to become more self-sufficient.¹⁸⁵ The lease payments from clean energy infrastructure also diversify farmers' incomes and have been accurately portrayed as simply another form of harvest.¹⁸⁶

178. E.g., *Climate Impacts on Agriculture and Food Supply*, U.S. ENV'T PROT. AGENCY, <https://climatechange.chicago.gov/climate-impacts/climate-impacts-agriculture-and-food-supply#crops> [https://perma.cc/F69E-J4ZA].

179. E.g., *Alliant Energy and Iowa State University Collaborate on Solar Farm*, ALLIANT ENERGY (Nov. 4, 2021), <https://www.alliantenergy.com/alliantenergynews/newscenter/04-iowastateuniversitysolarfarmnewsrelease> [https://perma.cc/B43G-8SEM] (describing an experiment between ISU and Alliant to integrate farming and solar panels).

180. Cheng & Feng, *supra* note 120.

181. Hall et al., *supra* note 62, at 5.

182. IOWA CONST. art. I, § 24.

183. U.S. DEP'T OF AGRIC., CONSERVATION RESERVE PROGRAM 1 (Feb. 2022), https://www.fsa.usda.gov/Assets/USDA-FSA-Public/usdfiles/FactSheets/2019/conservation-reserve_program-fact_sheet.pdf [https://perma.cc/56EW-FAU4].

184. Hall et al., *supra* note 62, at 3.

185. IOWA ECON. DEV. AUTH. & IOWA DEP'T OF TRANSP., *supra* note 49, at 6.

186. Bob Bjoin, *Harnessing the Sun for Food and Energy*, IOWA FARM BUREAU (July 17, 2023), <https://www.iowafarmbureau.com/Article/Harnessing-the-sun-for-food-and-energy> [https://perma.cc/UT2E-EMML]; *Iowa State University Researcher Finds Wind Farms Positively Impact Crops*,

“[T]he average land lease payment per MW of wind turbine in Iowa is \$4,000 per year,” while it is anywhere between \$600 and \$1,000 for solar.¹⁸⁷ Finally, numerous studies have demonstrated that solar and wind infrastructure may actually benefit land’s agricultural productivity by providing shade, evaporating dew, and increasing photosynthesis.¹⁸⁸

Iowa and U.S. citizens support clean energy development. Nationally, eighty-nine percent of people support expanding solar energy and eighty-three percent support expanding wind energy.¹⁸⁹ In Iowa, ninety-one percent of people support expanding solar energy, ninety-three percent support expanding wind energy, and eighty-four percent support these energy sources over fossil fuels.¹⁹⁰ Most Iowans have also reported positive experiences with clean energy.¹⁹¹ And as far back as 2015, nearly thirty percent of utility-scale solar was sited on agricultural land.¹⁹²

The support for clean energy does not break down across political lines—it is common across Republicans, Democrats, and Independent voters.¹⁹³ This issue often makes for strange bedfellows. One example of this is the Land & Liberty Coalition, which is a traditionally conservative group made up of “farmers, landowners, and key stakeholders . . . who support utility-scale renewable energy developments.”¹⁹⁴ The Land & Liberty Coalition has chapters across the Midwest, including in Iowa.¹⁹⁵ Studies reveal that not only do the majority of rural Americans believe climate change is happening, the

IOWA STATE U.: COLL. OF AGRIC. & LIFE SCIS. (Mar. 5, 2018), <https://www.cals.iastate.edu/news/2018/iowa-state-university-research-finds-wind-farms-positively-impact-crops> [<https://perma.cc/UWP4-HP2N>] (“We’re planting turbines.”).

187. Chen & Feng, *supra* note 120.

188. *Iowa State University Researcher Finds Wind Farms Positively Impact Crops*, *supra* note 186.

189. CARY FUNK & BRIAN KENNEDY, PEW RSCH. CTR., *THE POLITICS OF CLIMATE* 96 (2016), https://www.pewresearch.org/internet/wp-content/uploads/sites/9/2016/10/PS_2016.10.04_Politics-of-Climature_FINAL.pdf [<https://perma.cc/8RVY-JRQ7>].

190. ENV’T L. & POL’Y CTR., IOWA ENV’T COUNCIL & IOWA INTERFAITH POWER & LIGHT, *POLL FINDS LARGE MAJORITY OF IOWANS SUPPORT CLEAN ENERGY 1* (2014), https://www.iaenvironment.org/webres/File/News%20%26%20Resources/Fact%20Sheets/Iowans_Support_Clean_Energy_Polling_Results.pdf [<https://perma.cc/H52D-VKLT>].

191. Rod Swoboda, *Iowans Cite Mostly Positive Experiences with Renewable Energy*, *FARM PROGRESS* (Feb. 6, 2018), <https://www.farmprogress.com/conservation-and-sustainability/iowans-cite-mostly-positive-experiences-with-renewable-energy> [<https://perma.cc/8VXM-5KM6>].

192. Hall et al., *supra* note 62, at 6.

193. Molly Taft, *Iowa Was a Wind Energy Leader—Then Memes Slowed Its Clean Energy Transition*, *DISTILLED* (Sept. 27, 2023), <https://www.distilled.earth/p/iowa-was-a-wind-energy-leaderthen> [<https://perma.cc/5FFU-2Q36>]; Sudiksha Kochi, *Young Republicans Are Concerned About the Climate. How Will GOP Candidates Win Them Over?*, *USA TODAY* (Dec. 15, 2023, 11:18 AM), <https://www.usatoday.com/story/news/politics/elections/2023/12/15/young-republicans-climate-change-gop-candidates/71580864007> [<https://perma.cc/TE5Q-G4S4>] (describing the importance of climate change to the younger Republican generation).

194. LAND & LIBERTY COALITION, <https://www.landandlibertycoalition.com> [<https://perma.cc/UP9W-MXHP>].

195. *Id.*

majority also support clean energy projects.¹⁹⁶ Even the IFB has occasionally supported siting clean energy infrastructure on agricultural land.¹⁹⁷

This overwhelming support for co-locating clean energy infrastructure on agricultural land is rooted in real and established community benefits. If clean energy infrastructure is sited in Iowa, Iowans will have the better, cheaper, and more reliable access.¹⁹⁸ Although Iowa is already the leader in ethanol production,¹⁹⁹ using the state's land for solar is one hundred times more productive than using the same land for growing corn to produce ethanol.²⁰⁰ Any growth in clean energy will lower the use of fossil fuels, a known cause of climate change.²⁰¹ In 2021 alone, the United States lost over 2.5 billion hours of labor to heat exposure, and some of that loss came at the expense of the agricultural industry.²⁰² Iowan farmers are particularly at risk from climate change since their livelihoods depend on unpredictable weather events.²⁰³ Because farmers receive lease payments for clean energy infrastructure, these payments should effectively subsidize their agricultural business and keep the cost of food lower.²⁰⁴ The growth of clean energy infrastructure in Iowa would also provide massive financial benefits to the state in the form of tax revenue, economic boosts, and job growth.²⁰⁵ Siting

196. Memorandum from Trenton Marlar & Robin Pressman, Embold Rsch. to Interested Parties 2–3 (2023), https://emboldresearch.com/wp-content/uploads/2023/11/Rural-Renewable-Poll-_Results-Memo_-_October-2023.pdf [<https://perma.cc/3KR4-UKFM>].

197. Bjoin, *supra* note 186; Terri Queck-Matzie, *Churning Out Savings*, IOWA FARM BUREAU (July 12, 2021), <https://www.iowafarmbureau.com/Article/Churning-out-savings> [<https://perma.cc/K8GH-RN92>].

198. IOWA ENV'T COUNCIL, IOWA WIND ENERGY FACT SHEET, *supra* note 45; IOWA ENV'T COUNCIL, IOWA SOLAR ENERGY FACT SHEET, *supra* note 45.

199. IOWA DEP'T AGRIC. & LAND STEWARDSHIP, *supra* note 14.

200. PAUL MATHEWSON & NICHOLAS BOSCH, CLEAN WIS., CORN ETHANOL VS. SOLAR: LAND USE COMPARISON 1 (2023), <https://www.cleanwisconsin.org/wp-content/uploads/2023/02/Corn-Ethanol-Vs.-Solar-Analysis-V3-12-compressed.pdf> [<https://perma.cc/4KWY-XE2K>].

201. U.S. ENV'T PROT. AGENCY, CLIMATE FORCING 1 (2021), https://www.epa.gov/sites/default/files/2021-03/documents/climate-forcing_td.pdf [<https://perma.cc/E2YS-Y4PV>].

202. Coral Davenport, *Heat Is Costing the U.S. Economy Billions in Lost Productivity*, N.Y. TIMES (July 31, 2023), <https://www.nytimes.com/2023/07/31/climate/heat-labor-productivity-climate.html> (on file with the *Iowa Law Review*). The amount of labor lost specifically within the agricultural industry to climate change remains unclear. See Wangyang Lai, Yun Qiu, Qu Tang, Chen Xi & Peng Zhang, *The Effects of Temperature on Labor Productivity*, 15 ANN. REV. RES. ECON. 213, 220–23 (2023).

203. E.g., M.K. WALSH ET AL., U.S. DEP'T OF AGRIC., CLIMATE INDICATORS FOR AGRICULTURE 1 (2020), https://www.usda.gov/sites/default/files/documents/climate_indicators_for_agriculture.pdf [<https://perma.cc/J7F6-GD9S>].

204. Hall et al., *supra* note 62, at 10.

205. IOWA ENV'T COUNCIL, IOWA WIND ENERGY FACT SHEET, *supra* note 45; IOWA ENV'T COUNCIL, IOWA SOLAR ENERGY FACT SHEET, *supra* note 45; YCC Team, *Wind Farms Generate Significant Tax Revenue for Iowa Counties*, YALE CLIMATE CONNECTIONS (Sept. 25, 2023), <https://yaleclimateconnections.org/2023/09/wind-farms-generate-significant-tax-revenue-for-iowa-counties> [<https://perma.cc/4YC2-SLNQ>].

clean energy on farmland will also improve Iowa's water quality by alleviating the application of fertilizer and pesticide.²⁰⁶

Perhaps the two most common concerns surrounding clean energy infrastructure are the possible detriment to land value and the loss of otherwise agriculturally productive land—but these concerns are unfounded. Studies have shown there is no notable decrease in land value for properties further than one mile from clean infrastructure sites.²⁰⁷ This is true for both solar and wind infrastructure.²⁰⁸ Additionally, developers typically perform public studies to understand any potential nuisances—such as glare, noise, flicker, and soil disturbance—and how they can best mitigate them.²⁰⁹ Finally, land loss from clean energy is no greater than land loss from fossil fuel production. The “time to land use equivalency theory” posits that “[w]ind and solar facilities use the same land year after year for decades, while fossil-based energy continuously requires new land[] that may or may not be capable of being reverted to an alternate use.”²¹⁰ Thus, “land consumption for extraction-based energy eventually catches up to the larger initial needs of renewable energy, and the land use impacts of each is about the same over the lifetime of an energy project.”²¹¹

B. IOWA POLICIES SUPPORTING CO-LOCATING CLEAN ENERGY ON AGRICULTURAL LAND

As discussed in Sections II.A and II.B, Iowa has a multitude of policies supporting both agriculture and clean energy. Interestingly, though, Iowa also has several policies supporting the cooperation, or at least co-existence, of the two. The Iowa Energy Plan, for example, was created with participation from agricultural stakeholders and encourages cooperation between clean energy developers and agricultural landowners.²¹² Multiple executive orders outline

206. See Sara Walling, *Let's Talk About the Environmental Impacts of Vista Sands Solar*, CLEAN WIS. (Aug. 15, 2024), <https://www.cleanwisconsin.org/lets-talk-about-the-environmental-impacts-of-vista-sands-solar> [https://perma.cc/8G2G-2H3F].

207. Salma Elmallah, Ben Hoen, K. Sydney Fujita, Dana Robson & Eric Brunner, *Shedding Light on Large-Scale Solar Impacts: An Analysis of Property Values and Proximity to Photovoltaics Across Six U.S. States*, ENERGY POL'Y, Apr. 2023, at 1, 13; Duane Arnold Solar, LLC, Application for a Certificate of Public Convenience and Necessity Under Iowa Code Chapter 476A and Request for Waivers, No. GCU-2021-0002 (Nov. 2, 2021) 1, 18, https://wcc.efs.iowa.gov/cs/idcplg?IdcService=GET_FILE&allowInterrupt=1&RevisionSelectionMethod=latest&dDocName=2075408&noSaveAs=1 [https://perma.cc/4F8S-R8NR].

208. See sources cited *supra* note 207; Eric J. Brunner, Ben Hoen, Joe Rand & David Schwegman, *Commercial Wind Turbines and Residential Home Values: New Evidence from the Universe of Land-Based Wind Projects in the United States*, ENERGY POL'Y, Feb. 2024, at 2, 10.

209. *E.g.*, WESTWOOD PRO. SERVS., GLARE STUDY: DUANE ARNOLD SOLAR – PHASE I, at 15 (2021), https://wcc.efs.iowa.gov/cs/idcplg?IdcService=GET_FILE&allowInterrupt=1&RevisionSelectionMethod=latest&dDocName=2075434&noSaveAs=1 [https://perma.cc/2FBE-LZHW].

210. Hall et al., *supra* note 62, at 5–6.

211. *Id.* at 6.

212. IOWA ECON. DEV. AUTH. & IOWA DEP'T OF TRANSP., *supra* note 49, at 2.

the history of support for cooperation. Governor Ray emphasized “the need for and importance of land use planning.”²¹³ Governor Vilsack referred to the “mutually compatible goals of environmental protection and economic development.”²¹⁴ Governor Kim Reynolds has recognized that rural Iowa can only thrive if there is strategic planning and private investment in the land, which can be accomplished by siting clean energy infrastructure on agricultural land.²¹⁵ Further, there are federal programs such as Rural Energy for America, that encourage farmers to install clean energy on their land through financial incentives.²¹⁶ Taken as a whole, Iowa’s policies encourage co-location.

C. *ENCOURAGING CO-LOCATION THROUGH FEDERAL,
STATE, OR LOCAL ACTION*

There are three levels of governance that could encourage co-location: federal, state, or local. Each level comes with its own drawbacks and benefits. A federal law limiting state or county restrictions on co-location would be the most far-reaching. However, a new federal law seems politically unlikely at best. Iowa has an excellent blueprint for a state-level law because Illinois recently passed statewide standards for siting clean energy. However, without the IFB’s support, such a law seems unlikely to pass in the Iowa Legislature. In the end, local comprehensive plans that outline a county’s vision and support for co-location may be Iowa’s most feasible path forward.

1. Federal Action

Two lawsuits leave the legality of a federal law limiting local restrictions on co-location murky. In the first, the Supreme Court declined to allow a federal law to preempt state control of municipalities.²¹⁷ In the second, the Ninth Circuit allowed a federal law to preempt a municipal regulation.²¹⁸

In the 1990s the United States decided to promote competition among telecommunication companies.²¹⁹ One barrier to competition was local zoning ordinances restricting the unsightly construction of cell towers.²²⁰ In response to this local opposition, Congress passed the Telecommunications Act of 1996: “No State or local statute or regulation, or other State or local legal requirement,

213. Exec. Order No. 48, 19 Iowa Admin Bull. 1171 (Mar. 16, 1983), <https://www.legis.iowa.gov/docs/publications/EO/966159.pdf> [<https://perma.cc/S5LE-XJR7>].

214. Exec. Order No. 41, 24 Iowa Admin. Bull. 1570 (May 25, 2005), <https://www.legis.iowa.gov/docs/publications/EO/966205.pdf> [<https://perma.cc/M7XZ-UR4Q>].

215. See Exec. Order No. 3, 41 Iowa Admin. Bull. 440 (Aug. 15, 2018), <https://www.legis.iowa.gov/docs/publications/EO/969799.pdf> [<https://perma.cc/8SVZ-3BWG>].

216. Notice of Solicitation of Applications for the Rural Energy for America Program for Fiscal Years 2023 and 2024, 88 Fed. Reg. 62 (Mar. 31, 2023).

217. See generally *Nixon v. Mo. Mun. League*, 541 U.S. 125 (2004).

218. See generally *Cal. Rest. Ass’n v. City of Berkeley*, 89 F.4th 1094 (9th Cir. 2024).

219. Lynn Hanley, Note, *Wireless Communications and the Telecommunications Act of 1996: An Experiment in Federalism*, 12 LOY. CONSUMER L. REV. 48, 51–53 (1999).

220. See *id.*

may prohibit or have the effect of prohibiting the ability of any entity to provide any interstate or intrastate telecommunications service.”²²¹ One year later, Missouri passed a law forbidding its counties and municipalities from providing telecommunication services. In *Nixon v. Missouri Municipal League*, the Supreme Court addressed whether the Telecommunications Act of 1996 preempted the Missouri state law.²²² The Court held that “any entity” within the Telecommunications Act only refers to private actors.²²³ Therefore, the Act only prevents states and localities from prohibiting private actors from providing telecommunications services, and it does not prevent states from prohibiting political subdivisions from providing telecommunications services. The Court indicated “it [would be] highly unlikely that Congress intended to,” or even had the authority to, free municipalities from state control.²²⁴

A very different decision came from the Ninth Circuit in *California Restaurant Ass’n v. City of Berkeley*.²²⁵ The case arose after Berkeley passed a regulation banning all natural gas piping in new buildings, which essentially mandated all-electric construction.²²⁶ The Ninth Circuit held that the Energy Policy and Conservation Act (“EPCA”) preempted Berkeley’s regulation.²²⁷ The EPCA preempted any regulation “that is contained in a State or local building code for new construction concerning the energy efficiency or energy use of a covered product.”²²⁸ The court reasoned that a ban on natural gas concerned energy use within the meaning of the EPCA.²²⁹

Together, these two decisions represent the precariousness of a federal law that attempts to preempt state control of municipalities. Aside from the massive political challenges of passing such a law, it is unclear whether a federal law restricting local limits on co-location could withstand a legal challenge.

2. State Action

Another possibility is that the Iowa Legislature pass a statewide law standardizing the terms of co-location, as the Illinois legislature has done. In 2021, Illinois committed to a carbon-free power sector by 2050.²³⁰ In response, many Illinois counties passed ordinances restricting or banning clean energy

221. Telecommunications Act of 1996, 47 U.S.C. § 253.

222. *Nixon*, 541 U.S. at 128–29.

223. *Id.* at 133–34.

224. *Id.* For a discussion on the differing standards of deference federal circuits afforded local zoning commissions under the Telecommunications Act prior to *Nixon*, see Hanley, *supra* note 221, at 55–59.

225. See generally *Cal. Rest. Ass’n v. Berkeley*, 89 F.4th 1094 (9th Cir. 2024).

226. *Id.* at 1098.

227. *Id.* at 1107.

228. *Id.* at 1101 (quoting 42 U.S.C. § 6297(f) (emphasis omitted)).

229. *Id.* at 1101–02.

230. J.C. KIBBEY, ILL. ENV’T. PROT. AGENCY, PRIORITY CLIMATE ACTION PLAN 78 (2024), <https://www.epa.gov/system/files/documents/2024-03/illinois-priority-climate-action-plan.pdf> [http s://perma.cc/23DN-GJFV].

development.²³¹ Undeterred, the Illinois legislature passed a new siting law.²³² The law established statewide setback distances and banned individual counties from setting more stringent setback distances or passing broad moratoria on wind or solar farms.²³³ The law does not, however, completely withdraw local authority—counties retain the authority to vote on and permit proposed clean energy projects.²³⁴ Importantly, the law also requires solar or wind owners to negotiate a land restoration agreement with the Illinois Department of Agriculture before construction.²³⁵ This agreement is known as the “Agricultural Impact Mitigation Agreement.”²³⁶

As a result of its new siting law, Illinois is projected to see exponential growth in its clean energy production, increased local job opportunities, a significant economic boost, and lower electric bills for residents.²³⁷ In 2023, Michigan enacted a law containing similar statewide standards for clean energy infrastructure.²³⁸ In 2023, Iowa proposed a similar bill—but that bill did not even advance out of its committee.²³⁹

3. Local Action

County-level comprehensive plans are the most feasible tool to encourage co-location in Iowa. A comprehensive plan is a vision for future land use that guides local decisions.²⁴⁰ These plans gained popularity in the United States in the 1900s and are now prolific.²⁴¹ Iowa law requires cities and counties to have a comprehensive plan if they wish to zone or regulate the use of their land.²⁴² Typically, a comprehensive plan lays out the municipality’s long-term goals and objectives and often maps out what specific parcels of land should be used for.²⁴³ They have been cited as playing “a potentially vital role to play in enabling communities to prepare for and adapt to the disruptive effects

231. Press Release, Ill. Env’t Council, Bill Defending CEJA and Protecting Local Clean Energy Projects Passes During Lame Duck Session (Jan. 11, 2023), <https://ilenviro.org/bill-defending-ceja-and-protecting-local-clean-energy-projects-passes-during-lame-duck-session> [<https://perma.cc/XAZ2-VK4S>].

232. 55 ILL. COMP. STAT. 5/5-12020 (Supp. 2024).

233. *Id.*

234. *Id.* at 5/5-12020(b)–(c).

235. *Id.* at 5/5-12020(c), (j-5).

236. *Id.* at 5/5-12020(c).

237. *Renewable Energy in Illinois [2024 Guide]*, CLEAN CHOICE ENERGY (Aug. 1, 2024), <https://cleanchoiceenergy.com/news/renewable-energy-in-illinois> [<https://perma.cc/5EXV-TLSM>].

238. JON DAVIS, CSG MIDWEST, WIND, SOLAR AND SITING: A LOOK AT RECENT LAWS AND LEGISLATIVE TRENDS IN THE MIDWEST 5 (2024), https://csgmidwest.org/wp-content/uploads/2024/01/2023_MLC_Renewable-Energy-Siting-Laws-Brief.pdf [<https://perma.cc/AN3T-MJAS>].

239. *Id.* at 7–8.

240. David Rouse, *The Future of the Comprehensive Plan*, 5 J. COMPAR. URB. L. & POL’Y 299, 299 (2022).

241. *Id.*

242. IOWA CODE § 414.3 (2024).

243. Rouse, *supra* note 240, at 300–04.

of change in an uncertain world.”²⁴⁴ Comprehensive plans are especially important for rural communities, which face even more uncertainty in the modern world.²⁴⁵ Not only are comprehensive plans required to pass zoning regulations, but they are incredibly impactful on the success of those regulations—a zoning or rezoning regulation will almost certainly fail if it does not align with the local comprehensive plan, and it will almost certainly succeed if it does align with the plan.²⁴⁶ Because of this, comprehensive plans bear heavily on whether counties can successfully promote or zone out clean energy infrastructure.

Iowa Code section 414.3 lays out specific requirements for comprehensive plans:

The regulations shall be . . . designed to preserve the availability of agricultural land; to consider the protection of soil from wind and water erosion . . . to promote health and the general welfare; to provide adequate light and air . . . to promote the conservation of energy resources; to promote reasonable access to solar energy . . .²⁴⁷

Together, these requirements should be interpreted as requiring Iowa counties to amend their comprehensive plans to encourage clean energy infrastructure on agricultural land. First, co-location has the potential to preserve Iowa’s agricultural landscape because clean energy infrastructure allows the soil to regenerate while remaining economically productive as a site for clean energy infrastructure.²⁴⁸ Second, expanding clean energy promotes both the economic and physical health of Iowans by decreasing greenhouse gas emissions and increasing revenue.²⁴⁹ Third, the decrease in greenhouse gasses ensures adequate clean air. Fourth, the use of clean energy conserves the use of nonrenewable energy sources. Fifth, counties that amend their comprehensive plans to promote co-location will be increasing reasonable access to solar for the residents. In order to fulfill Iowa Code section 414.3 requirements, counties must amend their comprehensive plans to encourage co-location.

Counties should observe several specific practices when amending their comprehensive plans to ensure success and acceptance.²⁵⁰ First, the comprehensive plans should be amended using a long-term lens—in other words, they must keep in mind “social, technological, economic, and

244. *Id.* at 306.

245. *See supra* notes 203–05 and accompanying text.

246. IOWA CODE § 414.3; *e.g.*, *Little v. Winborn*, 518 N.W.2d 384, 388–89 (Iowa 1994).

247. IOWA CODE § 414.3 (1).

248. *See supra* Section III.A for a lengthier discussion of the benefits of co-location.

249. *See supra* Section III.A.

250. There are many existing resources to help guide local governments hoping to implement these changes. *See generally* SOLAR@SCALE, A LOCAL GOVERNMENT GUIDEBOOK FOR IMPROVING LARGE-SCALE SOLAR DEVELOPMENT OUTCOMES (2d ed. 2022). The American Planning Association also published comprehensive plan standards in 2010. *See Rouse, supra* note 240, at 302.

environmental” change.²⁵¹ Second, counties should include leaders from the agricultural community and other important local groups in the amendment process.²⁵² Otherwise, the plans may not accurately reflect farmers’ concerns and on-the-ground experiences, which increases the chance the agricultural community will eventually attack the plans. Third, the plans should include decommissioning requirements for the clean energy infrastructure. Applicable literature reveals this is a common concern for landowners and including it in the plans will alleviate these concerns.²⁵³ Fourth, the plans should detail the specific opportunities for co-location within the county. Although some Iowa counties have already amended their comprehensive plans to encourage clean energy development, that is not enough.²⁵⁴ As the Rock Island Clean Line, the Dakota Access Pipeline, the proposed carbon capture pipelines, and the wind and solar examples have shown, simply encouraging clean energy development without resolving its tension with agriculture is a recipe for failure.

Finally, the amendments should outline the benefits that co-location will provide to the local community. This could be as simple as a list of benefits similar to those in Section III.A but should especially highlight that clean energy expansion increases tax revenue, increases jobs, lowers utility costs, lowers reliance on international energy imports, and diversifies the energy sector overall. Studies demonstrate that these are the benefits rural communities value the most.²⁵⁵ Counties may also choose to require clean energy developers to provide specific benefits to the community. Previously, such benefits have taken the form of creating grazing spaces beneath solar panels, contributing money to community causes, and building pollinator habitats.²⁵⁶ Together, these practices and elements will ensure the comprehensive plan amendments successfully resolve the tension between clean energy infrastructure and agriculture.

251. Rouse, *supra* note 240, at 306.

252. Hall et al., *supra* note 62, at 13–14.

253. *Id.* at 15.

254. IOWA ENV’T COUNCIL, *supra* note 124, at 11.

255. Memorandum from Trenton Marlar & Robin Pressman, *supra* note 196, at 5.

256. Ellen Rosen, *As Demand for Green Energy Grows, Solar Farms Face Local Resistance*, N.Y. TIMES (Nov. 2, 2021), <https://www.nytimes.com/2021/11/02/business/solar-farms-resistance.html> (on file with the *Iowa Law Review*). In a particularly successful instance of co-location, AES Corporation installed roughly one hundred wind turbines on an active cattle ranch in rural Arizona. Lacey Latch, *Clean Energy and Cattle: Wind Farm Begins Operation on Historic Winslow Ranch*, AZCENTRAL (Nov. 27, 2023, 2:40 PM), <https://www.azcentral.com/story/news/local/arizona/2023/07/13/clean-energy-and-cattle-wind-farm-operates-on-historic-winslow-ranch/70384319007> [<https://perma.cc/VFC2-4ZDZ>]. The success of that project is likely due to a combination of practices, including heavy consultation with ranch owners and state and federal agencies, donations to local education programs, and visible community economic boosts. *Id.*

CONCLUSION

Iowa is at a crossroads. It can either continue to allow the tension between agriculture and clean energy to play out naturally at a loss to both industries, or it can resolve the tension between the two by encouraging co-location. Neither the demand for food nor the demand for clean energy is going away. Now is the time for the state to pass a law limiting county-level restrictions on clean energy or for individual counties to amend their comprehensive plans to encourage co-location. Iowa has an opportunity to ensure its future as a leader in clean energy production while retaining its position as a leader in agricultural production. Because nearly half of the entire United States is farmland,²⁵⁷ this is Iowa's unique but fleeting opportunity to become a leader in national industry cooperation.

²⁵⁷ U.S. DEP'T OF AGRIC.: NAT'L AGRIC. STATS. SERV., FARMS AND FARMLAND 1 (2017), https://www.nass.usda.gov/Publications/Highlights/2019/2017Census_Farms_Farmland.pdf [<https://perma.cc/CV6M-QPLY>].