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Matthew Graham

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Matthew Graham[*]

I. INTRODUCTION

The energy landscape in the United States ("U.S.") has undergone significant changes in the last few centuries.[1] Energy consumption has increased dramatically as more energy sources have been developed.[2] As one of the world's leading energy consumers,[3] the U.S. has a large incentive to develop energy solutions that are both sustainable, dependable, and independent of foreign powers.[4] For these reasons, Congress has spent the last few decades passing numerous pieces of legislation encouraging investment in energy solutions that will benefit the U.S. for centuries.[5] With the enactment of the Inflation Reduction Act ("IRA") of 2022,[6] the U.S. has made its most significant investment ever in climate and energy.[7] This paper argues that a comprehensive understanding of both the historical and ongoing challenges in the U.S. energy landscape, coupled with the strategic application of Alternative Dispute Resolution, is crucial for the successful implementation and expansion of sustainable, reliable, and independent green energy solutions.

This Note is organized into five parts beginning with this introduction. Part II outlines the development of energy in the U.S. Part III focuses on the development of Green Energy Alternatives in the last 50 years, including the most recent legislation that has expanded the reach of clean energy. Part IV analyzes the main barriers surrounding the past and future development of Green Energy. Part V explores

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[*] B.A., University of Missouri, 2014; J.D. Candidate, University of Missouri School of Law, 2024; Associate Member, *Journal of Dispute Resolution*, 2022-2023. I am grateful to Professor Crouch for his insight, guidance, and support during the writing of this Note, as well as the *Journal of Dispute Resolution* for its help in the editing process.

1. *Energy sources have changed throughout the history of the United States*, U.S. ENERGY INFO. ADMIN. (July 3, 2013), https://www.eia.gov/todayinenergy/detail.php?id=11951.

2. *Id.*

3. *Primary energy consumption worldwide in 2022, by country,* STATISTA (June 2023), https://www.statista.com/statistics/263455/primary-energy-consumption-of-selected-countries/.

4. This note will refer to these energy solutions as "Green Energy."

5. *See generally Congress Climate History*, CTR. FOR CLIMATE AND ENERGY SOLS., https://www.c2es.org/content/congress-climate-history/ (last visited Nov. 26, 2023).

6. *Summary: The Inflation Reduction Act of 2022*, SENATE DEMOCRATS, https://www.democrats.senate.gov/imo/media/doc/inflation_reduction_act_one_page_summary.pdf (last visited Oct. 29, 2023) ("The Inflation Reduction Act of 2022 will make a historic down payment on deficit reduction to fight inflation, invest in domestic energy production and manufacturing, and reduce carbon emissions by roughly 40 percent by 2030.").

7. *FACT SHEET: One Year In, President Biden's Inflation Reduction Act is Driving Historic Climate Action and Investing in America to Create Good Paying Jobs and Reduce Costs,* THE WHITE HOUSE (Aug. 16, 2023), https://www.whitehouse.gov/briefing-room/statements-releases/2023/08/16/fact-sheet-one-year-in-president-bidens-inflation-reduction-act-is-driving-historic-climate-action-and-investing-in-america-to-create-good-paying-jobs-and-reduce-costs/.

the use of Alternative Dispute Resolution ("ADR") and how ADR can maximize the utility and efficiency of Clean Energy Projects moving forward. This note concludes with an overview of the necessary relationship between ADR and Clean Energy.

II. DEVELOPMENT OF ENERGY IN THE U.S.

The energy needs of the U.S. have shifted dramatically as the country has developed. At its inception, all energy consumption in the U.S. was renewable; wood was the fuel of choice.[8] Over time, coal grew to dominate the U.S. landscape. In the 20th century, petroleum and natural gas became the two main sources of fuel for the country.[9] By 2019, fossil fuels accounted for 80% of all U.S. energy consumption, and a near-record amount of energy was used.[10] That year, it is estimated that the U.S. used over 100 quadrillion British Thermal Units ("BTUs") of energy,[11] which dwarfs the estimated 250 trillion BTUs that the U.S. used in 1776.[12] This section will examine the transition of energy sources and the technological advancements that have contributed to the current fuel consumption patterns observed in the U.S. and will describe the utility structure that has controlled that energy.

A. Energy in the 19th Century

The Energy landscape of the U.S. began shifting in the 19th century.[13] Starting in the 1840s, steam power provided political leaders with new ways to advance old goals.[14] Still, wood dominated as the primary energy source for Americans until the latter part of the 19th century.[15] With the advent of the Industrial Revolution, coal surpassed wood as the dominant source of fuel in the U.S. in 1885.[16] Coal's importance began to solidify as it became an important fuel source for iron blast furnaces used to make steel.[17] Demand for coal rose even further with the advent of coal-powered steam-locomotives and steamboats.[18] These new technologies revolutionized the transportation of passengers and cargo across the planet.[19] As such, the Industrialization of the U.S. was intimately connected with its emergence as a

8. Harry Kretchmer, *Chart of the day: How US energy consumption has changed since independence*, WORLD ECON. F. (July 3, 2020), https://www.weforum.org/agenda/2020/07/united-states-energy-consumption-since-independence.

9. U.S. ENERGY INFORMATION ADMINISTRATION, *supra* note 1.

10. Kretchmer, *supra* note 8.

11. Owen Comstock, *Nonfossil sources accounted for 20% of U.S. energy consumption in 2019,* U.S. ENERGY INFO. ADMIN. (July 1, 2020), https://www.eia.gov/todayinenergy/detail.php?id=44277.

12. *Independence Day Time Warp: U.S.A.'s Early Days Were Powered by 100% Renewable Energy – EIA,* OIL & GAS 360 (July 3, 2018), https://www.oilandgas360.com/independence-day-time-warp-u-s-a-s-early-days-were-powered-by-100-renewable-energy-eia.

13. *See* U.S. ENERGY INFORMATION ADMINISTRATION, *supra* note 1.

14. PETER A. SHULMAN, COAL AND EMPIRE: THE BIRTH OF ENERGY SECURITY IN INDUSTRIAL AMERICA 6 (2015).

15. *See* U.S. ENERGY INFORMATION ADMINISTRATION, *supra* note 1.

16. Michael E. Weber, *The Looming Natural Gas Transition in the United States*, CTR. FOR CLIMATE AND ENERGY SOLS. 1, 2 (May 2012), https://www.ourenergypolicy.org/wp-content/uploads/2012/10/natural-gas-transition-us.pdf.

17. TROY A. RULE, RENEWABLE ENERGY: LAW, POLICY AND PRACTICE 11 (2d ed. 2021).

18. *Id.*

19. *Id.*

global power.[20] Though a slow process, industrialization led to significant societal shifts, including the rise of factory work, the exodus of individuals from rural areas to cities, and the production and consumption of new goods.[21]

The expansion of railroads played a major factor in the increased use of coal in the U.S.[22] Trains were the major transporter of coal, as well as one of the main consumers.[23] By the early 1900s, hundreds of thousands of miners were extracting over 500 million tons of coal from the ground each year.[24] By the end of the 19th century, coal accounted for five quadrillion BTU in the U.S.,[25] over twenty times more energy than consumed by the nation at its inception.

B. Energy in the 20th Century

In the 20th century, there was an unprecedented demand for fuel in the U.S. The number of registered vehicles in the U.S. grew from 2.4 million in 1915 to 31 million in 1939.[26] In that same amount of time, the number of service stations rose from 25,000 to 246,000.[27] In addition to new fuel demands for vehicles, new home construction created unprecedented petroleum demands.[28] In 1921, there were only 12,500 oil-heated furnaces in the U.S.[29] Twenty years later, that number rose to over 2.16 million furnaces.[30] By 2000, the U.S. consumed 25% of the world's commercial energy, despite having just 5% of the world's population.[31] With higher disposable incomes and greater efficiency of appliances, a unit of useful service was hundreds of times more affordable in 2000 than in 1900.[32]

Before 1941, most of the oil consumed along the Atlantic arrived by a fleet of tankers. As these tankers aged- and as some were needed for war efforts- there was a need for a more reliable way to transport oil.[33] An obvious solution to this problem was to construct a pipeline from the Gulf of Mexico to markets along the Atlantic.[34] Congress's House Committee on Interstate and Foreign Commerce proposed H.R. 4816, a bill that would allow certain pipelines— those that the government declared as critical to national defense— to be built under eminent domain.[35] The bill passed

20. SHULMAN, *supra* note 14, at 9.
21. Christopher Jones, *Rise of Coal in the Nineteenth-Century United States,* YALE UNIV. https://energyhistory.yale.edu/rise-of-coal-in-the-nineteenth-century-united-states/ (last visited Nov. 26, 2023).
22. *Railroads and Industrialization,* CORE KNOWLEDGE, 1, https://www.coreknowledge.org/wp-content/uploads/2018/05/CKHG_G6_B2_U8_IndustrializationUrbanization_WTNK_C02_Railroads.pdf (last visited Nov. 26, 2023).
23. *Id.*
24. *Id.*
25. U.S. ENERGY INFORMATION ADMINISTRATION, *supra* note 1.
26. SHULMAN, *supra* note 14, at 216.
27. *Id.*
28. *Id.* at 217.
29. *Id.*
30. *Id.*
31. Vaclav Smil, *Energy in the Twentieth Century: Resources, Conversions, Costs, Uses, and Consequences* 25 ANN. REV. ENERGY AND ENV'T 21, 44 (2000).
32. *Id.* at 38.
33. *See generally* SHULMAN, *supra* note 14, at 214.
34. *Id.*
35. *Id.* at 215.

easily in July of 1941.[36] Following this, the development of drilling and extraction techniques led to sharp increases in oil and gas production in the U.S.[37]

C. Modern Utility Structure

The electricity industry is one of the most regulated industries in the U.S.[38] Electric utility regulation attempts to incentivize utilities to act in the best interest of their customers while being able to make money.[39] Most of this regulatory structure is enforced through state agencies called public utility commissions or public service commissions.[40] Three main activities have historically defined the electricity industry's process of creating electric power and delivering it to customers: generation, transmission, and distribution.[41] Investor-owned utilities must serve all customers within their designated service territories.[42] Additionally, they usually need to get approval from state regulators for the rates and fees they charge to retail customers. [43] This holds true regardless of the source of generated electricity.[44]

III. THE DEVELOPMENT OF GREEN ENERGY

The transition to renewable energy sources has been spurred by state action, the affordability of renewables in comparison to fossil fuels, and federal legislation. 2020 marked the year when renewables were officially cheaper than fossil fuels in the U.S.[45] Despite this reality, carbon-intensive sources still generate most of the electricity in the U.S.[46] The affordability of renewable energy, combined with public pressure for climate action, has led state governments to push for larger reliance on renewables.[47] State action has been particularly important in spurring the increased reliance of renewables, accounting for roughly half of the growth in renewable energy generation in the U.S. since the early 2000s.[48] As of 2020, thirty-seven states have adopted Renewable Portfolio Standards ("RPS"). Though these standards range in their policies and targets, they set goals for the percentage of electricity sales from renewable sources in their state. This section will explore the types of green energy sources that states are attempting to grow and rely upon while also looking at legislation that has enabled this development.

36. *Id.* at 217.
37. RULE, *supra* note 17, at 24.
38. *Id.* at 42.
39. *Id.* at 49.
40. *Id.*
41. *Id.* at 33.
42. *Id.* at 54.
43. RULE, *supra* note 17, at 54.
44. *See generally id.* at 33.
45. Lawrence Susskind et al., *Sources of opposition to renewable energy projects in the United States*, 165 ENERGY POL'Y 1 (2022), https://www.sciencedirect.com/science/article/pii/S0301421522001471.
46. *Id.*
47. *Id.*
48. *Id.*

A. Types of Green Energy Sources

Renewable energy solutions are not new to humanity; renewable energy solutions like wind, solar radiation, water currents, and biomass have been supplying energy for humans for thousands of years.[49] Still, the transition towards these technologies in the last few decades represents an unprecedented departure away from fossil-fuel centric systems.[50] Though renewable energy technologies impact transmission and distribution of energy in significant ways, they most directly impact electricity generation.[51] In 2022, renewable sources like wind, solar, hydro, biomass and geothermal generated more electricity than coal for the first time in U.S. history.[52] Most of the growth in renewable sources can be attributed to increased solar and wind capacity.[53] Unlike generation by fossil fuels, electric generation by renewable energy sources is highly dependent on geographical and environmental factors. As such, most of the renewable energy is generated in concentrated areas of the U.S. For example, Texas is responsible for generating 25% of the wind-power in the U.S., while California generates over 25% of the nation's utility-scale solar energy.[54]

B. Legislation that has Fueled Recent Developments

The last few decades have been marked by congressional legislation that has changed our energy landscape.[55] The Energy Policy Act of 2005,[56] American Recovery and Reinvestment Act of 2009,[57] and Energy Independence and Security Act of 2007,[58] all encouraged the development of alternative fuels. More recently, the Climate Leadership and Environmental Protection Act of 2021[59] set goals for reducing greenhouse emissions.

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49. RULE, *supra* note 17, at 10.
50. *Id.*
51. *Id.* at 34.
52. Katherine Antonio, *Renewable generation surpassed coal and nuclear in the U.S. electric power sector in 2022*, U.S. ENERGY INFO. ADMIN. (March 27, 2023), https://www.eia.gov/todayinenergy/detail.php?id=55960.
53. *Id.*
54. *Id.*
55. *See* RULE, *supra* note 17, at 10.
56. *Key Federal Legislation,* U.S. DEP'T OF ENERGY, https://afdc.energy.gov/laws/key_legislation# (last visited Nov. 26, 2023) (showing that the Energy Policy Act called, among other things, for tax incentives that promoted alternative fuels).
57. The American Recovery and Reinvestment Act supported a variety of alternative fuel and advanced vehicle technologies, as well as appropriated money towards investments in renewable energy technologies. *Id.*
58. The Energy Independence and Security Act of 2007 included provisions to increase the supply of renewable alternative fuel sources. *Id.*
59. CLEAN Future Act, H.R. 1512, 117th Cong. (2021) ("The bill establishes an interim goal to reduce greenhouse gas emissions to at least 50% below 2005 levels by 2030 as well as a national goal to achieve net-zero greenhouse gas emissions by 2050.").

The Inflation Reduction Act of 2022[60] is the most significant piece of climate legislation in U.S. History.[61] This Act includes numerous tax credits and incentives for businesses, nonprofits, educational institutions, and state, local, and Tribal governments.[62] In addition to this, it includes tens of billions of dollars in grant and loan programs dedicated to new clean energy technology investment and deployment.[63] Collectively, these incentives reduce renewable energy costs.[64]

These types of government programs have helped solve positive externality problems.[65] At the same time, they have done little to solve negative externality problems.[66] "These problems arise when some of the costs associated with renewable energy projects are borne by individuals who do not directly participate in and have relatively less influence over development decisions."[67] Though developers and landowners on whose property the development occurs do bear most of the cost, countless other parties can suffer significant costs.[68] When renewable energy projects are created without taking into account all costs to the community, inefficient outcomes result.[69] In addition to this, these projects could ultimately tarnish renewable energy's public image and could slow the progress of sustainable energy solutions.[70]

C. The Inflation Reduction Act of 2022

The Inflation Reduction Act ("IRA") aims to substantially reduce carbon emissions and drive the decarbonization of the U.S. economy by implementing a range of programs, tax credits, and fees.[71] These provisions reduce the expenses associated with clean energy technologies like wind, solar, electric vehicles, and building efficiency.[72] As a result, clean energy technologies can become more competitive with fossil fuel technologies and drive a shift towards cleaner energy.[73]

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60. SENATE DEMOCRATS, *supra* note 6 (stating that this Act sets to reduce carbon emissions by roughly 40 percent by 2030).

61. *Summary of Inflation Reduction Act provisions related to renewable energy*, U.S. ENV'T PROT. AGENCY, https://www.epa.gov/green-power-markets/summary-inflation-reduction-act-provisions-related-renewable-energy (Oct. 25, 2023).

62. *Id.*

63. John D. Podesta, *Building a Clean Energy Economy: A Guidebook to the Inflation Reduction Act's Investments in Clean Energy and Climate Action*, THE WHITE HOUSE 1, 2 (Jan. 2023) https://www.whitehouse.gov/wp-content/uploads/2022/12/Inflation-Reduction-Act-Guidebook.pdf.

64. U.S. ENVIRONMENTAL PROTECTION AGENCY, *supra* note 61.

65. RULE, *supra* note 17, at 79 ("Positive externality problems exist in this context because wind and solar energy development generate significant *benefits* that are distributed diffusely among the planet's billions of inhabitants, most of whom reside far away from the project site.").

66. *Id.* at 80–81.

67. *Id.* at 81.

68. *Id.*

69. *Id.*

70. *Id.* at 81–82.

71. John Larson et al., *A Turning Point for US Climate Progress: Assessing the Climate and Clean Energy Provisions in the Inflation Reduction Act*, RHODIUM GRP. 1, 2 (Aug. 12, 2022), https://rhg.com/wp-content/uploads/2022/08/A-Turning-Point-for-US-Climate-Progress_Inflation-Reduction-Act.pdf.

72. *Id.*

73. *Id.*

In 2022, the Biden administration announced that it would aim to cut U.S. emissions 50-52% below 2005 levels by 2030.[74] The provisions of the IRA will help reduce greenhouse gas emissions to 32-42% below 2005 levels by 2030.[75] This is potentially ten percentage points more than under pre-IRA policy.[76] These emissions cuts, in combination with additional executive branch and state action could put the 2030 target within reach.[77] The IRA's benefits are not merely environmental; one report estimates that household energy cost will decrease by about $1000 in 2030 relative to 2021 levels.[78]

The IRA allots $27 billion for the Greenhouse Gas reduction fund.[79] This includes awarding competitive grants to enable financing and leverage private capital for clean energy projects.[80] Furthermore, the IRA allots $40 billion in loan authority to guarantee loans for innovative clean energy projects.[81] Finally, the IRA includes numerous opportunities to receive clean energy production and investment tax credits.[82] Section 13801 of the IRA extends many of the law's tax incentives to state, local, Tribal governments, and other tax-exempt entities.[83] This means that taxpayers that are generally ineligible for direct payment of credits can transfer credits to an unrelated party in exchange for cash.[84] Both public and private actors can apply for these grants and tax incentives.[85]

The IRA provides numerous grants that are aimed at helping communities reduce both indoor and outdoor pollution.[86] In addition, $4 billion is channeled towards helping to reduce harmful air pollution from the transportation sector.[87] Altogether, the grants, funds, and tax incentives are set in place to enable communities to benefit from economic development, good-paying jobs, and less pollution.[88]

It is important to note that the IRA reserves funds for many other things that will positively affect the environment in the long run. These things include funds to: (1) make homes and buildings cleaner and more efficient,[89] (2) build the market for low-carbon construction materials and other advanced technologies,[90] (3) support climate-smart agriculture and rural economic development,[91] and (4) strengthen communities' resilience to drought, flooding, and other climate impacts.[92] As these funding opportunities take place on a more individualized basis, they are not discussed in depth in this Note.

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74. *US Government Sets Target to Reduce Emissions 50-52% by 2030*, WORLD RES. INST. (Sept. 19, 2022), https://www.wri.org/outcomes/us-government-sets-target-reduce-emissions-50-52-2030.
75. Larson et al. *supra* note 71, at 3.
76. *Id.*
77. *Id.*
78. *Id.* at 9.
79. Podesta, *supra* note 63, at 10.
80. *Id.*
81. *Id.*
82. *Id.* at 9.
83. *Id.* at 11.
84. *Id.*
85. *See* Podesta, *supra* note 63, at 11.
86. *Id.* at 82.
87. *Id.* at 83.
88. *Id.* at 12.
89. *Id.* at 105.
90. *Id.* at 121.
91. Podesta, *supra* note 63, at 130.
92. *Id.* at 166.

One goal of the IRA is to make energy infrastructure permitting more efficient and effective.[93] To accomplish this goal, more than $1 billion of the IRA will support environmental reviews at key agencies and White House components.[94] This includes councils that help accelerate information and troubleshoot to avoid and resolve potential conflicts.[95] In addition, this money will be used to improve the efficiency of such reviews to ensure that any contemplated infrastructure is well-designed, well-built, and meets the needs of communities.[96]

IV. BARRIERS THAT INHIBIT THE DEVELOPMENT OF GREEN ENERGY

The development of green energy projects faces numerous challenges, including land use issues, local opposition, and regulatory barriers that hinder states from achieving their Renewable Portfolio Standard ("RPS") targets. These challenges include community-level concerns such as public safety, health, land values, and wildlife habitats, as well as complications arising from jurisdictional differences and legal decisions. Furthermore, the integration of renewable energy into the existing electrical grid requires balancing energy supply and demand, which can be influenced by federal regulatory authority and policy-making. Recognizing and addressing these barriers is essential for promoting clean energy development and reducing carbon emissions, ultimately benefiting the long-term health and economic well-being of communities.

The development of green energy projects often requires large tracts of land, which raises numerous land use issues like zoning, land ownership, and land use restrictions.[97] Local opposition to developing renewable energy sources (namely wind, solar, and geothermal) poses a significant challenge for states attempting to achieve their RPS targets.[98] At times, multiple stakeholders with vastly different underlying sources of opposition will join together to oppose an energy project.[99] For instance, environmental advocates may oppose a project due to its impact on endangered species, while landowners could oppose that very same project out of fear of decreasing property values.[100]

In most cases, multiple sources of opposition to renewable energy projects exist.[101] A 2010 National Renewable Energy Laboratory study took a closer look at the opposition to wind energy, finding that common community-level sources of opposition included public safety and health, impacts on land values, and impacts on wildlife and habitats.[102]

Additionally, barriers to the development of energy projects on Tribal lands could include the financial costs associated with project development, tax credit ineligibility, internal Tribal disagreements, inefficiencies at the Bureau of Indian Affairs, and the failure of the federal government to uphold its commitments under

93. *Id.* at 182.
94. *Id.*
95. *Id.* at 182.
96. *Id.*
97. *See* TROY A. RULE, SOLAR, WIND AND LAND: CONFLICTS IN RENEWABLE ENERGY DEVELOPMENT, at i (1st ed. 2014).
98. Susskind et al., *supra* note 45, at 2.
99. *Id.*
100. *Id.*
101. *Id.*
102. *Id.*

its Federal Trust Responsibility.[103] Development projects that span multiple counties as states, such as transmission lines, face significant obstacles due to distinct zoning codes and regulations that vary by jurisdiction.[104]

Court decisions can also provide potential barriers to the development of green energy. The Supreme Court's decision in *Hughes v. Talen Energy Marketing, LLC* emphasized the importance of federal regulatory authority over wholesale electricity markets and limited the ability of states to interfere with these markets.[105] In this case, Maryland had a state-sponsored electricity generation program.[106] The Supreme Court held that the Maryland program was preempted by federal law because it conflicted with FERC's regulatory authority over wholesale electricity rates.[107]

Integrating renewable energy sources into the U.S.' current electricity system is met with several difficulties, many of which revolve around maintaining a balance between energy demand and supply on the electrical grid.[108] This problem was brought before the Supreme Court in *FERC v. Electric Power Supply Association.*[109] There, the Court held that the Federal Energy Regulatory Commission (FERC) had the authority to regulate demand response programs in wholesale electricity markets.[110] This meant that FERC could incentivize customers to reduce their energy usage during peak period, which could help balance energy supply and demand on the grid.[111] Ultimately, this would reduce the need for additional fossil fuel-based power generation and help lead the country toward a framework allowing further clean energy development.[112]

Both the local and federal government have interests in promoting the long-term health of the communities they are serving. Although it is hard to put a dollar figure on future health of communities, the social cost of carbon is a metric that measures the economic damages that result from the emission of one additional ton of carbon dioxide into the atmosphere.[113] Though the current U.S. federal estimate of the social cost of carbon is $51/ton,[114] the EPA is proposing to increase the social cost of carbon to $190/ton.[115] To calculate this figure, the EPA takes into account many factors and "uses estimates of how much people are willing to pay for small reductions in their risk of dying."[116]

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103. *Id.*
104. *See* Susskind et al., *supra* note 45, at 6.
105. Hughes v. Talen Energy Mktg., LLC, 578 U.S. 150, 153 (2016).
106. *Id.*
107. *Id.* at 151.
108. RULE, *supra* note 17, at 58.
109. *See* FERC v. Elec. Power Supply Ass'n, 577 U.S. 260 (2016).
110. *Id.* at 290.
111. *Id.* at 260–61.
112. *See generally* Sanem Sergici & Long Lam, *Retail Pricing: A Low-Cost Enabler of the Clean Energy Transition,* 20 IEEE POWER & ENERGY MAG., July-Aug. 2022, at 66.
113. *Social Cost of Carbon More Than Triple the Current Federal Estimate, New Study Finds*, RES. FOR THE FUTURE (Sept. 1, 2022), https://www.rff.org/news/press-releases/social-cost-of-carbon-more-than-triple-the-current-federal-estimate-new-study-finds/.
114. *Id.*
115. Rebecca Hersher et al., *The social cost of carbon: a powerful tool and ethics nightmare*, NAT'L PUB. RADIO (Feb. 16, 2023, 7:34 PM), https://www.npr.org/2023/02/16/1157550402/the-social-cost-of-carbon-a-powerful-tool-and-ethics-nightmare.
116. *Id.*

In 2021, the U.S. produced 4.9 billion metric tons of carbon dioxide.[117] Using the White House's current social cost of carbon, that amounts to a cost of nearly $250 billion. Taking a look at related health costs shows an even larger problem; the U.S. sees over $820 billion in health costs every year as a result of fossil fuel generated air pollution and climate change.[118] With so much at stake, it is clear that the government has a financial interest in reducing carbon emissions.

Every major regulation is required to go through a cost-benefit analysis. [119] A higher social cost of carbon would make regulation much more likely and possible.[120] As such, the EPA adopting a higher social cost of carbon could mean that clean energy is encouraged even further in future pieces of legislation.

V. THE IMPORTANCE OF ADR FOR THE FUTURE OF GREEN ENERGY

In the pursuit of a sustainable future, the importance of ADR in the realm of green energy development cannot be understated. ADR offers a flexible, cost-effective, and efficient means of resolving disputes within the complex landscape of renewable energy projects, encompassing policy-making, regulatory litigation, and transactional disputes. By employing ADR and Dispute System Design ("DSD") processes, stakeholders can effectively address community concerns, foster collaborative relationships, and streamline project implementation. As a result, ADR and DSD contribute to the economic and environmental well-being of all parties involved, ensuring that green energy initiatives continue to progress despite the challenges they may face.[121]

A. The Essential Nature of ADR and DSD in Green Energy Projects

Energy disputes generally fall into three categories: policy-making/rulemaking to implement policy, regulatory litigation, and transactional and other individual disputes.[122] Using ADR to resolve these disputes can be incredibly beneficial, which might explain why The Department of Energy (DOE) uses various ADR techniques.[123] For example, The DOE's Civilian Board of Contract Appeals provides numerous ADR options to parties, including mediations, mini-trials, non-binding advisory opinions, and summary binding decisions.[124]

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117. Ian Tiseo, *Carbon dioxide emissions in the United States from 1975-2021*, STATISTA (Sept. 12, 2023), https://www.statista.com/statistics/183943/us-carbon-dioxide-emissions-from-1999/.

118. *Report: Health Costs from Climate Change and Fossil Fuel Pollution Tops $820 Billion a Year*, NRDC (May 20, 2021), https://www.nrdc.org/press-releases/report-health-costs-climate-change-and-fossil-fuel-pollution-tops-820-billion-year.

119. Hersher et al., supra note 115.

120. *Id.*

121. *See generally* Mark McMahon, *The Rise of Renewable Energy Disputes,* NEW L.J. (Sept. 9, 2022), https://www.newlawjournal.co.uk/content/the-rise-of-renewable-energy-disputes; *see generally* Sarah Klain et. al., *Engaging Communities in Offshore Wind*, ISLAND INST. 1, 28 (2015), https://www.islandinstitute.org/wp-content/uploads/2019/07/Offshore-Wind-Report_2015_updated.pdf.

122. *Using ADR to Resolve Energy Industry Disputes: The Better Way*, ENERGY ADR F. 1, 11 (Oct. 2006), http://www.raabassociates.org/Articles/EnergyADRForumReport-Oct2006.pdf.

123. *ADR Resources*, U.S. DEP'T OF ENERGY, https://www.energy.gov/oha/adr-resources (last visited Oct. 27, 2023).

124. *Types of Alternative Dispute Resolution Procedures*, U.S. CIVILIAN BD. OF CONT. APPEALS, https://www.cbca.gov/adr/types.html (last visited Nov. 26, 2023).

Through ADR, parties have the option to select a mediator, arbitrator or expert who possesses legal and technical knowledge relevant to the particular energy sector, intellectual property and dispute resolution.[125] This creates an impartial setting where disputes can be resolved and streamlined using a single procedure.[126] Additionally, ADR can be structured to ensure the outcome is effectively enforced, thus improving efficiency.[127] One energy study noted that almost half of the renewable energy projects were cancelled after years of delays and stoppages.[128] After initial stoppages or delay, only 13% of projects were completed.[129] This highlights the necessity for a more effective mechanism for moving these projects forward. ADR has played a role in the development of green energy by providing a flexible and cost-effective means of resolving disputes related to renewable energy projects.[130]

In order to meet the needs of communities, it is crucial that community members are a part of that process. A Dispute System Design ("DSD") process is an ADR strategy that could help tailor programs to satisfy stakeholders' interests generally while also improving other aspects of the programs[131]. In addition to this, a DSD process could reduce motivation for problematic behavior.[132] Various components of DSD include identifying goals, stakeholders, resources available, and the accountability and success of the system.[133]

Any dispute system can be designed to include a variety of processes, including negotiation, mediation, arbitration, and others.[134] Organizations use their discretion to select a process that works best within their dispute system.[135] Disputes over energy projects can address important party economic, political, and relational interests. Though the Department of Energy can award economic development grants to sitting authorities or other state and local governments for communities impacted by transmission projects,[136] communities may not find these grants to be adequate compensation for proposed projects. In wind development projects, evidence shows that a lack of early discussions relating to community benefits may have had a negative effect on how these benefits are perceived within the local community.[137] As local community opposition grows, so does the chance of failure of a potential

125. *WIPO Alternative Dispute Resolution (ADR) for Energy*, WORLD INTELL. PROP. ORG., https://www.wipo.int/amc/en/center/specific-sectors/energy/ (last visited Nov. 26, 2023).
126. *Id.*
127. *Id.*
128. Susskind et al., *supra* note 45, at 7.
129. *Id.* at 8.
130. *See generally* Marily Paralika, *Arbitration: An Answer to Disputes in the Renewable Energy Sector*, FIELDFISHER (Jan. 20, 2022), https://www.fieldfisher.com/en/insights/arbitration-an-answer-to-disputes-in-the-renewable ("Spain, for instance, has emerged as a hotspot for arbitration claims under Bilateral Investment Treaties (BITs) concerning renewable energy projects, while Italy has also seen a relatively high number of claims…").
131. John Lande, *Using Dispute System Design Methods to Promote Good-Faith Participation in Court-Connected Mediation Programs*, 50 UCLA L. REV. 70, 76 (2002).
132. *Id.*
133. Rafael Gely, *Collective Bargaining and Dispute System Design*, 13 U. ST. THOMAS L.J. 218, 221 (2017).
134. *Id.* at 222.
135. *Id.*
136. Julie Murdock, *Part 2: Uncovering Public Sector Grant Funds in the Inflation Reduction Act,* FORVIS (Feb. 28, 2023), https://www.forvis.com/article/2023/02/part-2-uncovering-public-sector-grant-funds-in-inflation-reduction-act.
137. *See* Mhairi Aitken, *Wind Power and Community Benefits: Challenges and Opportunities*, 38 ENERGY POL'Y 6066 (2010).

project. As such, private and public investors have a strong incentive to participate in early discussions with community members to outline potential benefits.

Just because the federal government offers these programs does not mean that communities will want to participate. [138] In the year preceding the passing of the IRA, Congress authorized billions in Covid relief aid for cities and towns across the U.S.[139] Despite this, some small rural or conservative towns ended up refusing the cash.[140] Some community leaders could not think of a way to spend the cash, while others refused the funds for ideological reasons.[141] Regardless, it is clear that some communities did not want to participate.[142] Developers need to recognize this reality and look towards established methods that will help them overcome such obstacles.

DSD is the process of identifying, developing, implementing, and assessing an effective strategy to resolve conflicts that may occur within an organization.[143] Designing a system that maximizes community engagement in energy planning requires one to first understand the history, culture, structure, and social aspects of that community.[144] Part of this process involves honesty and making sure that community members understand what they can expect throughout the planning process.[145] Ultimately, keeping the community's goals and needs at the center of the conversation will show respect and support for community agency.[146] Developing one system to resolve all clean energy disputes is impossible because of the unique needs and goals of each community.[147] As such, it is important to meet the community where they are and to democratize participation through both virtual and in-person meeting spaces.[148]

Both public and private entities that wish to take advantage of the grants and tax credits of the IRA must ultimately rely on local members of the community to approve the proposed clean energy project. [149]Without it, projects can often be slowed down until failure.[150] Coming up with an effective way to anticipate and resolve disputes is important not only as a means of justice for local communities but also assists in the economic and environmental well-being of all involved.

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138. *See generally* Sophie Quinton, *Why Some Small Towns are Rejecting Federal COVID Relief Funds*, STATELINE (Sept. 28, 2021, 12:00 AM), https://stateline.org/2021/09/28/why-some-small-towns-are-rejecting-federal-covid-relief-funds/.
139. *Id.*
140. *Id.*
141. *Id.*
142. *See generally id.*
143. Program on Negotiation Staff, *What is Dispute System Design?*, HARVARD L. SCH. (Oct. 24, 2023), https://www.pon.harvard.edu/daily/dispute-resolution/what-is-dispute-system-design/.
144. Liz Ross & Megan Day, *Community Energy Planning: Best Practices and Lessons Learned in NREL's Work with Communities* NAT'L RENEWABLE ENERGY LAB'Y 1, 12 (2022) https://www.nrel.gov/docs/fy22osti/82937.pdf.
145. *Id.*
146. *Id.*
147. *Id.*
148. *Id.*
149. *See generally* Susskind et al., *supra* note 45, at 8.
150. *See id.* at 8.

B. ADR and DSD in Action

The essential nature of ADR and DSD in green energy initiatives is best shown by taking a closer look at a real project. In 2016, Deepwater Wind[151] completed their first offshore wind farm in the U.S.[152] Located off the coast of Block Island, Rhode Island, the project faced significant opposition from various stakeholders, including local residents, environmental groups, and commercial fishermen.[153] Despite this opposition, this project ended up as a success, largely due to the proactive steps that Deepwater Wind took before the project was even proposed.[154] Deepwater Wind chose to create and distribute a Special Area Management Plan ("SAMP") to locals before proposing a wind farm. This provided the community with quality state waters information for stakeholders to rely upon throughout their decision-making process.[155] In addition to creating the SAMP, Deepwater Wind conducted community meetings from 2009-2012.[156] They hired consultants to listen, translate, and represent community interests.[157] When the community wanted to hire their own consultants, Deepwater Wind offered to pay for those consultants as well. [158]These steps helped Deepwater Wind gain the trust of key stakeholders in the community, ultimately leading to the completion of the project in 2016. This example highlights the importance of early engagement and collaboration in the resolution of disputes related to renewable energy projects.

VI. CONCLUSION

As the U.S. continues to turn towards Green Energy, it is important that we anticipate the legal challenges that lie ahead. As the country shifts toward sustainable energy solutions, we must be sure to look towards sustainable methods of implementing these solutions. Looking to proactive solutions like DSD is going to be essential if we wish to meet the green energy goals that are being promoted at both the federal and state levels.[159] Parties throughout the U.S. now have access to more clean energy grant and tax incentives than ever before.[160] As such, communities are faced with questions that they may not have faced in the past: who will bear the financial cost of any proposed energy projects? What social costs are involved? Is this something everyone in the community wants? Does this project align with community goals?

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151. Deepwater wind was once the leading US offshore wind developer and was acquired by Ørsted in 2018. *See Ørsted Acquires Deepwater Wind and Creates Leading US Offshore Wind Platform,* ØRSTED (Oct. 8, 2018, 12:11 AM), https://orsted.com/en/company-announcement-list/2018/10/1819975.
152. Brady Dennis, *The nation's first offshore wind farm is ready to go, despite critics' blowback,* THE WASH. POST, (Aug. 27, 2016, 3:44 PM), https://www.washingtonpost.com/national/health-science/the-nations-first-offshore-wind-farm-is-ready-to-go-despite-critics-blow-back/2016/08/27/7a43c6d6-693f-11e6-99bf-f0cf3a6449a6_story.html.
153. *Id.*
154. Klain et al., *supra* note 121, at 28.
155. *Id.*
156. *Id.* at 26.
157. *Id.*
158. *Id.* at 28.
159. *See generally supra* PART V.
160. U.S. ENVIRONMENTAL PROTECTION AGENCY, *supra* note 61.

A community-based approach in the implementation of green energy projects ensures that all involved and effected by these projects have a voice.[161] This is not only a more just solution, but also one that will lead to efficient outcomes.[162] Ultimately, this will help accelerate the implementation of green energy projects, and will ensure that there will be future opportunities beyond the IRA to fund these sorts of projects.

Increasing efficiency and reducing costs of future energy conflicts will be beneficial for all parties who will be affected by such projects. With increased projections of the social cost of carbon, the government has a heightened incentive to develop sustainable DSD to assist in distributing any clean energy grants and tax incentives.[163] Moving away from fossil fuels and towards clean energy alternatives is something that will benefit citizens on both a local and national level.[164] As such, there should be a strong incentive for all parties involved to take a look at other communities that have effectively managed these sorts of disputes and mirror their success through ADR methods.

161. Ross & Day, *supra* note 144.
162. *Id.*
163. *See supra* PART IV.
164. *See supra* PART III.