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ENERGY GRID DECARBONIZATION: A TALE OF RESISTANCE AND COMPLIANCE IN FLORIDA

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I. INTRODUCTION

On January 27th, 2021, President Biden issued an executive order calling for the United States energy sector to be carbon-pollution free by 2035.[1] For its part, the energy sector has not challenged the prospect of being carbon-pollution free.[2] In fact, many utilities and municipalities had already committed to decarbonization prior to Biden's executive order.[3] Instead, industry

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[1] Exec. Order No. 14008, 86 Fed. Reg. 7619, 7624 (Feb. 1, 2021).

[2] Valerie Volcovici and Nichola Groom, *U.S. Utilities want Protection from Biden's Tight Timeline in Clean Energy mandate,* REUTERS (Apr. 14, 2021, 2:55 PM), https://www.reuters.com/business/sustainable-business/us-utilities-want-protection-bidens-tight-timeline-clean-energy-mandate-2021-04-14/.

[3] *See, e.g.*, Miranda Wilson, *FERC, 10 States Weigh Transmission Overhaul to Unlock Clean Power,* E&E NEWS: ENERGY WIRE (Nov. 11, 2021, 7:09 AM), https://www.eenews.net/articles/ferc-10-states-weigh-transmission-overhaul-to-unlock-clean-power/ [https://perma.cc/CJ9D-6UCM] (noting that at least a dozen states have set goals to achieve 100% clean energy by 2030); Jeff St. John, *The 5 Biggest Utilities Committing to Zero Carbon Emissions by 2050,* GREENTECHMEDIA (Sept. 16, 2020), https://www.greentechmedia.com/articles/read/the-5-biggest-u.s-utilities-committing-to-zero-carbon-emissions-by-mid-century [https://perma.cc/UCJ4-J3V9] (identifying Dominion Energy of Virginia, Duke Energy of North Carolina, Southern Company, Xcel Energy of Minnesota, and Public Service Enterprise Group of New Jersey as the five biggest utilities committing to net zero carbon emissions by 2050); David Roberts, *A Major US Utility is Moving Toward 100% Clean Energy Faster than Expected,* VOX, https://www.vox.com/energy-and-environment/2018/12/5/18126920/xcel-energy-100-percent-clean-carbon-free (last updated May 29, 2019, 7:54 AM) (highlighting Xcel Energy as the first major U.S. utility to pledge to go completely carbon-free, and to fast-track the retirement of two of its existing coal-burning power plants by 2030); and Erica Werner, *Los Angeles is Aiming to be First Major Carbon-free U.S. City, but Obstacles Loom,* THE WASHINGTON POST (Oct. 27, 2021, 7:00 AM), https://www.washingtonpost.com/climate-solutions/2021/10/27/los-angeles-2035-climate-goal/ [https://perma.cc/8DU4-4FAT] (noting that the Los Angeles

concerns center on whether 2035 is a feasible timeline given technological and political constraints.[4] Questions also arise as to the efficacy of a state-by-state versus regional or national approach to the sector's decarbonization.[5] In states hit hard by the effects of a changing climate, like Florida, where increasingly devastating hurricanes and sea-level rise threaten the populous shores, a concerted effort may be the only path to protection.[6]

This paper explores the broader charge placed on the energy sector, followed by a deeper analysis of Florida's likely progress toward that carbon-pollution-free goal. It begins with a broad overview of the changing energy sector, climate change (the driver behind carbon-reduction legislation), and the energy sector structure and terminology. Then, it dives into the Florida energy sector more specifically with an overview of Florida's energy grid, the history of its energy regulations, and its current decarbonization efforts. Concluding remarks will answer the question of whether Florida's energy regulations and practices are bringing the state closer to a carbon-pollution-free future. Perhaps unsurprisingly, as this paper describes through competing legislations and energy sector advances, the landscape is too contentious to tell.

City Council directed the L.A. Department of Water and Power, which is the nation's largest municipally owned utility, to develop a plan to reach Biden's 2035 climate target). This includes Miami, Florida, whose officials recently announced a goal to reach city-wide net neutrality by 2050. *See City of Miami Greenhouse Gas Reduction Plan*, CITY OF MIAMI, https://www.miamigov.com/My-Government/ClimateChange/Climate-Change-Action/GHGReduction [https://perma.cc/N25Q-RYYR] (last updated Nov. 2021).

[4] Volcovici & Groom, *supra* note 2.

[5] Shelley Welton, *Electricity Markets and the Social Project of Decarbonization,* 118 COLUM. L. REV. 1067, 1072 (2018).

[6] James Bruggers and Amy Green, *DeSantis Recognizes the Threat Posed by Climate Change, but Hasn't Embraced Reducing Carbon Emissions,* INSIDE CLIMATE NEWS (Apr. 15, 2021), https://insideclimatenews.org/news/15042021/florida-ron-desantis-climate-change-reduced-emissions-sea-level-rise/ [https://perma.cc/B65R-DFDG].

II. BACKGROUND INFORMATION AND HISTORY

A. The Competing Goals of a Changing Energy Sector

Historically, the energy sector was a simple means-end industry that sought to provide low-cost electricity to consumers.[7] However, anthropogenic climate change, caused primarily by carbon emitted into the atmosphere when burning fossil fuels for energy, has since created challenging political tradeoffs for the energy sector.[8] Now, utility providers must contend with the sometimes competing goals of "reducing carbon [emissions], maintaining reliable electricity supply, and preserving the affordability of power."[9] For example, transferring to newer technologies that emit less carbon is often more expensive than staying with traditional fossil-fuel-burning.[10] Similarly, experimenting with those new technologies could impact the reliability of the electric supply.[11] On the other hand, failing to reduce carbon emissions could exacerbate climate change, creating environmental conditions that negatively affect the energy grid infrastructure (i.e., through more frequent extreme storm events) and similarly impact the reliability of the electric supply.[12] The transition to greener energy sources under the current energy model may also perpetuate so-called "not-in-my-backyard," or "NIMBY," -style effects on traditionally underserved and minority

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[7] Shelley Welton, *Article: Public Energy*, 92 N.Y.U.L. REV. 267, 273 (2017).
[8] *Id.*
[9] Welton, *supra* note 7; *Sources of Greenhouse Gas Emissions,* U.S. ENVTL. PROT. AGENCY, https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions [https://perma.cc/XT6R-PENH] (last visited Jan. 9, 2022).
[10] Welton, *supra* note 7, at 319.
[11] *Id.* at 315.
[12] Michelle Davis and Steve Clemmer, *Power Failure: How Climate Change Puts Our Electricity at Risk – and What We Can Do*, UNION OF CONCERNED SCIENTISTS (Apr. 2014), https://www.ucsusa.org/sites/default/files/2019-10/Power-Failure-How-Climate-Change-Puts-Our-Electricity-at-Risk-and-What-We-Can-Do.pdf [https://perma.cc/4MS4-5KLZ].

populations.[13] Examples abound of renewable energy farms being planted in the midst of land that abuts underserved populations.[14]

As of 2019, the U.S. energy sector emits 5.13 Gigatons of carbon every year.[15] No single entity has reached the level of carbon pollution reduction that Biden's executive order mandates in the history of carbon pollution reduction efforts.[16] The complexity of the industry and related political tradeoffs make 2035, less than thirteen years from today, an unlikely success without the full support and engagement of all actors in the energy sector. However, despite a clear mandate for carbon pollution reduction, Biden's executive order does not provide regulatory mechanisms by which the energy sector is expected to meet the goal.[17]

B. Progress in the Absence of a Federal Approach

In the absence of clear federal regulation, states, municipalities, and corporations are advancing energy efficiency and clean energy through their own creative initiatives.[18] In fact, one in three Americans live in a city or state that has committed to or achieved 100% clean electricity, and more than 200 cities and counties have made a 100% clean-energy commitment or achievement.[19] Some states are more proactive, such as Hawaii,

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[13] SHALANDA BAKER, REVOLUTIONARY POWER: AN ACTIVIST'S GUIDE TO THE ENERGY TRANSITION 20 (2021).
[14] *Id.* at 36.
[15] U.S. ENERGY INFO. ADMIN., *U.S. Energy-Related Carbon Dioxide Emissions, 2019,* U.S. DEP'T OF ENERGY 5 (2020), https://www.eia.gov/environment/emissions/carbon/archive/2019/pdf/2019_co2analysis.pdf [https://perma.cc/ZDM5-KM4T].
[16] Globally, carbon dioxide emissions declined by almost two Gigatons in 2020, which was the largest-ever decline. *See* INT'L ENERGY AGENCY, *Global Energy Review 2021*, https://www.iea.org/reports/global-energy-review-2021/co2-emissions [https://perma.cc/J9EF-2ZEV] (last visited Jan. 9, 2022).
[17] Exec. Order No. 14008, 86 Fed. Reg. 7619 (Feb. 1, 2021).
[18] Sophia Ptacek and Amanda Leven, *Race to 100% Clean: A Story Map,* NAT. RES. DEF. COUNCIL, https://www.nrdc.org/resources/race-100-clean [https://perma.cc/Z9TR-PUWM] (last updated Sep. 15, 2021).
[19] Kelly Trumbull et al., *Progress Toward 100% Clean Energy in Cities and States Across the U.S.,* UCLA LUSKIN CTR. FOR INNOVATION 2 (Nov. 2019), https://innovation.luskin.ucla.edu/wp-content/uploads/2019/11/100-Clean-Energy-Progress-Report-UCLA-2.pdf [https://perma.cc/ALV5-5HXX].

where the Hawaii Public Utility Commission has called for the island's electric provider, Hawaiian Electric Company, to decouple its profits from electricity sales and incentivize green energy to help meet the state's 100% renewable energy goal by 2045.[20] Other states have gone the other direction, such as Florida, where, effective July 1, 2021, local governments are prohibited from restricting utilities to specific fuel sources for energy that will be used, delivered, converted, or supplied by utilities to customers.[21] Florida's law, therefore, preempts city governments from committing to 100% (or any percent) clean energy since the commitment would effectively restrict their utility provider to cleaner fuel sources.[22]

In a state-by-state approach, if the U.S. energy sector is to be carbon-pollution free by 2035, then at least the largest nationwide emitters will need to be on board and working toward that goal. Florida represents approximately 6.5% of the U.S. population and is the third-highest emitter of carbon dioxide (4.4%), behind Texas (13.3%) and California (6.9%).[23] It is the second-largest electricity producer and fourth-largest energy consumer

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[20] Brian McInnis, *Hawaiian Electric Co. Responds to Directive from Public Utilities Commission,* PAC. BUS. NEWS (Dec. 29, 2020, 8:00 PM), https://www.bizjournals.com/pacific/news/2020/12/29/heco-responds-to-new-directive-from-public-utility.html.

[21] H.B. 919, 2021 Leg., 150th Sess. (Fl. 2021). *See also* Sam Sachs, *Local Florida governments can't restrict 'dirty energy' usage under new law signed by DeSantis,* NBC NEWS CHANNEL 8 (June 22, 2021, 3:28 PM), https://www.wfla.com/news/florida/local-florida-governments-cant-restrict-dirty-energy-usage-under-new-law-signed-by-desantis/ [https://perma.cc/SG2Q-7Q7S].

[22] Bebe Kanter, *Letters to the Editor: Bills Would Pre-Empt City Energy Choices,* NAPLES DAILY NEWS (Apr. 27, 2021), https://www.naplesnews.com/story/opinion/readers/2021/04/27/letters-editor-tuesday-april-27-2021/7382525002/ [https://perma.cc/7KG2-MLUE].

[23] *U.S. and World Population Clock*, U.S. CENSUS BUREAU, https://www.census.gov/popclock/ [https://perma.cc/4VRF-899G] (last visited Jan. 9, 2022); *Rankings: Total Carbon Dioxide Emissions, 2018 (million metric tons)*, US ENERGY INFORMATION ADMINISTRATION, https://www.eia.gov/state/rankings/?sid=FL#/series/226 [https://perma.cc/ML59-NCM6] (last visited Jan. 9, 2022).

nationwide.[24] If the U.S. energy sector is to be carbon-pollution free by 2035, Florida will undoubtedly play an important role in meeting that goal.

C. Climate Change is Behind the Call for Decarbonization

Carbon dioxide is the primary greenhouse gas contributing to the earth's changing climate.[25] Although carbon is naturally present in the atmosphere, carbon dioxide emissions from burning fossil fuels and a reduction in the planet's natural carbon-capture capacity, caused by deforestation and land clearing, have led to substantial increases of carbon dioxide in the atmosphere beyond their natural levels.[26] Greenhouse gases such as carbon dioxide absorb energy, acting as a blanket that holds heat around the planet.[27] At natural levels, greenhouse gases are beneficial to life on earth.[28] However, increased atmospheric greenhouse gas levels lead to increased energy capture and, ultimately, a changing climate.[29] Climate change manifests as changes in ambient temperature and precipitation patterns, increases in ocean temperatures, rising sea-levels, ocean acidification, glacial melting, changes in the frequency, intensity and duration of extreme weather events, and general shifts in ecosystem characteristics such as agricultural growing seasons and avian migration.[30]

Burning fossil fuels for electricity, heating, and transportation is the largest source of anthropogenic carbon dioxide emissions in the United States.[31] Electricity production generates 25% of U.S. greenhouse gas emissions, with approximately 62% of U.S. electricity derived from burning fossil fuels like coal and

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[24] *Florida State Profile and Energy Estimates*, U.S. ENERGY INFO. ADMIN., https://www.eia.gov/state/?sid=FL [https://perma.cc/AXX8-W76C] (last updated Nov. 19, 2020) [hereinafter *Florida State Profile*].
[25] *Basics of Climate Change*, U.S. ENV'T PROT. AGENCY, https://www.epa.gov/climatechange-science/basics-climate-change [https://perma.cc/DKX6-A6NV] (last visited Oct. 17, 2021).
[26] *Id.*
[27] *Id.*
[28] *Id.*
[29] *Id.*
[30] *Id.*
[31] *Sources of Greenhouse Gas Emissions, supra* note 9.

natural gas.[32] The U.S. Energy Information Administration, which tracks annual energy-related carbon dioxide emissions, has found that energy-related carbon pollution emissions are influenced in the short term by weather, fuel prices, and technical electricity generation disruptions.[33] Long-term, they are influenced by pollution reduction policies, technological advances in production and end-use devices, and economic trends.[34]

D. The Politicization of Climate Change

The federal government has recognized and sought to address the effects of climate change since the late 1970s.[35] The issue is made more complicated because, as the D.C. Circuit Court of Appeals recently so eloquently remarked, "electrical power has become virtually as indispensable to modern life as air itself."[36] Although Congress passed the Global Climate Protection Act back in 1987, which recognized that manmade pollution, including the release of carbon dioxide, may cause global warming, it was not until 2007 that the Supreme Court recognized greenhouse gases as a pollutant to be regulated under the Clean Air Act.[37]

Twice the United States has removed itself from international attempts to address climate change.[38] First, it failed to ratify the Kyoto Protocol for greenhouse gas emission reductions under President Clinton in 1997.[39] Then, it withdrew from the Paris Agreement for limiting global warming under President Trump,

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[32] *Id.*
[33] U.S. ENERGY INFO. ADMIN., *U.S. Energy-Related Carbon Dioxide Emissions, 2019,* U.S. DEPARTMENT OF ENERGY 3 (2020), https://www.eia.gov/environment/emissions/carbon/archive/2019/pdf/2019_co2analysis.pdf [https://perma.cc/8AET-EB5E].
[34] *Id.*
[35] Am. Lung Ass'n v. EPA, 985 F.3d 914, 934 (D.C. Cir. 2021). *See also* Massachusetts v. EPA, 549 U.S. 497 (2007).
[36] *Id.*
[37] *Id.*
[38] Matt McGrath, *Climate Change: US Formally Withdraws from Paris Agreement,* BBC NEWS (Nov. 4, 2020), https://www.bbc.com/news/science-environment-54797743 [https://perma.cc/JTM7-DY5N].
[39] *Id.*

announced in 2017 and finalized in 2020.[40] Proponents of Trump's withdrawal hold that the outcome was inevitable because the U.S. entered the treaty via an executive order from President Obama rather than via Congressional approval and ratification.[41] Meanwhile, opponents to the withdrawal pushed forward with carbon emission reductions through programs like America's Pledge, which set a domestic goal to cut U.S. emissions in half by 2030.[42]

Even the U.S. Supreme Court was split in its landmark greenhouse gas pollution regulation case, *Massachusetts v. EPA*, 549 U.S. 497 (2007), when it ruled 5-4 that the EPA must regulate greenhouse gases from motor vehicles if they determine that greenhouse gases are harmful to public health or welfare.[43] Importantly, the majority first ruled that states have standing to sue the EPA over greenhouse gases because of the potential damage that can be caused to their territories by a failure of the EPA to address global warming caused by motor vehicle emissions.[44] In his dissent, Chief Justice Roberts argued that the majority "ignore[d] the complexities of global warming" and attributed too much causation to localized motor-vehicle emissions than is appropriate for the global phenomenon of climate change.[45]

Since then, the EPA issued its 2009 Endangerment Finding, which officially established that "greenhouse gases in the atmosphere may reasonably be anticipated both to endanger public health and to endanger public welfare."[46] In 2011, the Supreme Court ruled that greenhouse gas pollution caused by fossil-fuel-fired power plants may be regulated by the Clean Air Act.[47] In October 2015, the EPA promulgated the New Source Rule (aka the "Clean Power Plan") for greenhouse gas emissions from new and modified

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[40] *Id.*
[41] *Id.*
[42] *Id.*; AMERICA'S PLEDGE, https://www.americaspledgeonclimate.com/ [https://perma.cc/T7FB-XFXJ] (last visited Oct. 17, 2021).
[43] Massachusetts v. EPA, 549 U.S. 497 (2007).
[44] *Id.* at 519.
[45] *Id.* at 543.
[46] Am. Lung Ass'n v. EPA, 985 F.3d 914, 934 (D.C. Cir. 2021) (citing 2009 Endangerment Finding, 74 Fed. Reg. 66497, 66499 (Dec. 15, 2009)).
[47] *Id.* at 934–35 (citing Am. Elec. Power Co. v. Connecticut, 546 U.S. 410 (2011)).

power plants, stating that "fossil fuel-fired [power plants] emit almost one-third of all U.S. [greenhouse gas] emissions, and are responsible for almost three times as much as the emissions from the next ten stationary source categories combined."[48]

More recently, the Trump administration adopted the Affordable Clean Energy (ACE) Rule to replace the Clean Power Plan.[49] When passed, the ACE Rule was portrayed as the Trump administration's "most significant action to unwind federal regulations aimed at addressing climate change" and as proof that the President was following through on his promises to coal constituents.[50] Shortly thereafter, the D.C. Circuit ruled that the ACE Rule was arbitrary and capricious in its amendment of the regulatory framework to slow the process for the reduction of emissions.[51]

In September 2020, President Trump issued a moratorium on offshore energy exploration, including wind farms, throughout North Carolina, South Carolina, Georgia, and Florida for a 10-year period starting July 2022.[52] Only Congress can reverse this order, per a court precedent that prohibited Trump from unilaterally lifting Obama-era drilling bans.[53] To date, the moratorium stands, despite multiple attempts in Congress to reverse it.[54]

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[48] *Id.* at 936 (citing New Source Rule, 80 Fed. Reg. 64509, 64510 (Oct. 23, 2015)).
[49] *Id.* at 937.
[50] Juliet Eilperin & Brady Dennis, *Trump EPA Finalizes Rollback of Key Obama Climate Rule that Targeted Coal Plants,* THE WASHINGTON POST (June 19, 2019), https://www.washingtonpost.com/climate-environment/trump-epa-finalizes-rollback-of-key-obama-climate-rule-that-targeted-coal-plants/2019/06/19/b8ff1702-8eeb-11e9-8f69-a2795fca3343_story.html [https://perma.cc/D8UR-7EVL].
[51] Am. Lung Ass'n v. EPA, 985 F.3d 914 (D.C. Cir. 2021).
[52] Keith Martin, *Offshore Wind Lease Moratorium*, NORTON ROSE FULBRIGHT (Oct. 9, 2020), https://www.projectfinance.law/publications/2020/october/offshore-wind-lease-moratorium/ [https://perma.cc/QKT3-DKSW].
[53]Elizabeth Ouzts, *N.C. Offshorewind Faces Big Challenges, Even Bigger Opportunities, Advocates Say,* ENERGY NEWS NETWORK (Sept. 30, 2021), https://energynews.us/2021/09/30/n-c-offshore-wind-faces-big-challenges-even-bigger-opportunities-advocates-say/ [https://perma.cc/X9L6-EZMC].
[54] *See* Restoring Offshore Wind Opportunities Act, H.R. 2635, 117th Cong. (2021); Ocean-Based Climate Solutions Act of 2021, H.R. 3764, 117th Cong. (2021).

Today, the U.S. energy sector is under a new charge. President Biden's executive order calls for the energy sector to be carbon-pollution-free by 2035, less than thirteen years from today.[55] Broadly, the order calls for the United States to achieve net-zero emissions economy-wide by 2050.[56] Sections 202 and 203 establish the White House Office of Domestic Climate Policy and National Climate Task Force, respectively.[57] Section 205 calls for the task force to develop a comprehensive plan that will, among other things, achieve the goal of a carbon-pollution free energy sector by 2035.[58] Section 207 calls for the Secretary of the Interior to identify steps that the task force can take toward increasing renewable energy production on public lands and doubling offshore wind by 2030.[59] Section 208 further calls for the Secretary of the Interior to pause all new oil and natural gas leases on public lands and in offshore waters until after a comprehensive review has been completed to consider potential climate impacts of the oil and gas activities.[60] It also gives the Secretary of the Interior authority to adjust royalties associated with coal, oil, and gas resource extraction or take "other appropriate action" that will better-account for corresponding climate costs.[61] Despite all of these charges, there is no discussion of how the energy sector might reach a goal of carbon-pollution-free by 2035.

Originally, President Biden's Infrastructure Plan included a Clean Electricity Standard that would provide regulatory guidance to the energy sector, leading it toward the carbon-pollution free goal.[62] However, the bipartisan infrastructure bill that passed the Senate in August 2021 and the House of Representatives in November 2021 omitted the Clean Electricity Standard.[63] Instead, the approved bill partially addresses the power grid by providing

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[55] Exec. Order No. 14008, 86 Fed. Reg. 7619, 7624 (Feb. 1, 2021).
[56] *Id.* at 7622.
[57] *Id.* at 7622–23.
[58] *Id.* at 7624.
[59] *Id.*
[60] *Id.* at 7624–25.
[61] *Id.* at 7625.
[62] *See* Matthew Daly, *Bipartisan Bill Leaves Out Key Climate, Clean Energy Steps*, AP NEWS (Aug. 3, 2021), https://apnews.com/article/joe-biden-business-climate-environment-and-nature-bills-e0d52ee9e29f72b1bee85c47fa7ae878.
[63] *See id.*

$65 billion for grid updates.[64] It also allocates money to increase school-bus efficiency and access to electric car chargers.[65] But it is unclear how the federal government will substantially support the energy sector's transition to a carbon-pollution free existence.[66]

E. Energy Sector Approaches to Decarbonization

1. The U.S. Electric Grid

The U.S. electric grid is the infrastructure through which electricity is transferred from source (i.e., an electricity-generating power plant) to consumer (i.e., businesses and residences).[67] Because electricity cannot be stored at scale, it must be constantly produced and is almost instantly consumed.[68] Once the electricity enters the grid, it is identical to all other electricity traversing the system, regardless of the initial source from which the energy was generated.[69] The EPA recognizes power plants as "far and away the largest stationary-category source of greenhouse gases."[70]

The grid is under a combination of federal, regional, and local jurisdiction. The Federal Energy Regulatory Commission (FERC) is an independent agency within the Department of Energy that regulates interstate transmission of electricity, natural gas, and oil, including the price for transportation and sale of natural gas and oil.[71] The North American Electric Corporation (NERC), a not-for-profit corporation designated by FERC as the nation's "electric reliability organization" in 2006, develops and enforces reliability

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[64] *See* Lisa Rowan, *Bipartisan Infrastructure Bill Passes: Here's What's in Biden's $1 Trillion Bill,* FORBES ADVISOR (Nov. 8, 2021, 4:22 PM), https://www.forbes.com/advisor/personal-finance/house-finally-approves-bipartisan-infrastructure-bill/ [https://perma.cc/UC9Q-DSJY].
[65] *Id.*
[66] *Id.*
[67] *See* Am. Lung Ass'n v. EPA, 985 F.3d 914, 933 (D.C. Cir. 2021).
[68] *Id.* at 932 (citing New York v. FERC, 535 U.S. 1, 7 (2002)).
[69] *See id.* at 933.
[70] *Id.* at 936 (quoting EPA Br. 169).
[71] The Federal Register, *The Federal Energy Regulatory Commission,* NATIONAL ARCHIVES (last visited Mar. 4, 2022), https://www.federalregister.gov/agencies/federal-energy-regulatory-commission [https://perma.cc/2BD2-PS9R].

standards for the U.S. energy grid to ensure its adequacy and security.[72] NERC oversees six regional reliability organizations that are tasked by FERC with enforcing NERC and regional reliability standards.[73] Locally, states control the retail sales of electricity from the utilities to the consumers, which are typically controlled through public utility commissions (PUCs).[74]

Florida's grid is governed by SERC, one of the six NERC regions, whose territory includes the southeastern and central states of the United States.[75] Up until 2019, Florida's grid was governed by the Florida Reliability Coordinating Council (FRCC).[76] FRCC's mission is to coordinate a safe, reliable, and secure bulk power system.[77] However, in line with a FERC initiative to improve separation between Regional Entities and members (i.e., states), FRCC's Regional Entity status was absorbed by SERC in 2019.[78] Florida's electric utilities are also governed by the Florida Public Service Commission, which regulates rates, competitive market oversight, safety, reliability, and service.[79]

The national electric grid's fragmented governance provides unique challenges to broader decarbonization efforts. Primarily, the regional NERC organizations seek the least-cost sources of electricity while ensuring the bulk power system's adequacy and security.[80] These least-cost measures have not historically

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[72] N. Am. Elec. Corp., FREQUENTLY ASKED QUESTIONS 2–3 (Aug. 2013), https://www.nerc.com/AboutNERC/Documents/NERC%20FAQs%20AUG13.pdf [https://perma.cc/9C4K-BVAB].
[73] *Id.* at 5; *ERO Enterprise | Regional Entities,* NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION, https://www.nerc.com/AboutNERC/keyplayers/Pages/default.aspx [https://perma.cc/WD5E-7JJR] (last visited Mar. 13, 2022).
[74] Welton, *supra* note 7, at 1077–78.
[75] *About SERC,* SERC RELIABILITY CORP., https://www.serc1.org/about-serc [https://perma.cc/QA74-KDNP] (last visited Mar. 13, 2022).
[76] *See FRCC Home*, FLA. RELIABILITY COORDINATING COUNCIL, INC., www.FRCC.com (last visited Mar. 4, 2022).
[77] *Id.*
[78] Daniel Jenkens, *The Dissolution of FRCC,* NAES (Apr. 18, 2019), https://www.naes.com/news/the-dissolution-of-frcc/ [https://perma.cc/GWS2-KRVV].
[79] *See The PSC's Role*, FLA. PUB. SERVICE COMM'N, http://www.psc.state.fl.us/ [https://perma.cc/5NRX-UC4X] (last visited Mar. 4, 2022).
[80] Welton, *supra* note 6, at 1071.

considered carbon emissions or climate effects, leading many to conclude that state incentives for carbon reduction are not only inconsistent with regional governance but can also interfere with them.[81] Further, a transition to 100% carbon-free power will require the design and installation of new power lines throughout the country, which has traditionally been done without significant coordination between neighboring jurisdictions.[82] FERC is therefore considering reforms that will make it easier for states, regions, and FERC to coordinate those efforts.[83]

2. Decarbonization Methods and Options

Before being repealed by President Trump's ACE Rule, the EPA's Clean Power Plan released in October 2015 recognized three methods of emission reduction available to electric utilities and sought to implement all three combined.[84] The first is heat-rate improvements which serve to reduce the amount of coal that must be burned at coal-fired steam power plants.[85] The second is to move away from higher-polluting coal plants and toward lower-emitting plants using sources such as natural gas.[86] The third is to prioritize renewable energy sources over fossil fuels.[87] The Clean Air Act did not require states to meet their emissions targets through any of these three methods.[88] Instead, they were free to choose from

[81] *Id.*
[82] *See* Miranda Willson, *FERC, 10 States Weigh Transmission Overhaul to Unlock Clean Power*, ENERGY WIRE (Nov. 11, 2021, 7:09 AM), https://www.eenews.net/articles/ferc-10-states-weigh-transmission-overhaul-to-unlock-clean-power/ [https://perma.cc/5CYD-J338].
[83] *See id.*
[84] Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units, 80 Fed. Reg. 64,662 (Oct. 23, 2015) (to be codified at 40 C.F.R. pt. 60). *See also* Am. Lung Ass'n v. EPA, 985 F.3d 914, 936 (D.C. Cir. 2021).
[85] Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units, 80 Fed. Reg. 64,662 (Oct. 23, 2015) (to be codified at 40 C.F.R. pt. 60).
[86] *Id.*
[87] *Id.*
[88] *Id.* at 937.

alternatives such as cap-and-trade, carbon capture and sequestration, and more.[89]

Generally, decarbonization options available to power plants today include:

- Energy efficiency;
- "Demand-response" policies which focus on cutting energy demand at peak periods;
- "Distributed" small-scale generation, such as rooftop solar panels;
- Large utility-scale wind farms and solar arrays;
- Major hydropower projects;
- Nuclear energy; and
- Fossil fuel-powered generation with carbon capture and storage technologies.[90]

3. Distinguishing Between Public and Private Utilities

Experts actively debate whether public or private utilities are better positioned to reduce carbon dioxide emissions and meet their local or statewide carbon pollution reduction goals.[91] While not a key component of this paper, the differences between public and private utilities are helpful in considering the energy sector's path forward, and, therefore, it is important to understand the distinction between them.

Public utility ownership can take one of three forms.[92] The utility can be city-owned, a rural electric cooperative, or a Public

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[89] *Id.*

[90] Welton, *supra* note 7, at 297–99.

[91] *Id.* (stating the article's primary contribution as "to provide the first theoretical examination of public utility ownership as a climate change strategy.") *See also* William Boyd, *Public Utility and the Low-Carbon Future,* 61 U.C.L.A. L. REV. 1614 (2014) (arguing that a revitalized and expanded notion of public utility will play critical role in decarbonization of the U.S. energy sector); Tom Perkins, *Publicly Owned Utilities 'Not a Panacea' but Can Produce Customer Benefits,* ENERGY NEWS (Dec. 16, 2019), https://energynews.us/2019/12/16/publicly-owned-utilities-not-a-panacea-but-can-produce-customer-benefits/ [https://perma.cc/Q9BQ-C2NU] (highlighting that profit motives make private utilities less reliable contenders for green energy models).

[92] Welton, *supra* note 7 at 277.

Utility District.[93] As of 2017, 1,958 publicly owned systems (excluding cooperatives) served 24 million customers or 15.6% of U.S. customers.[94] On average, publicly owned utilities served 12,100 electricity customers each.[95] Similarly, 812 cooperatives, or not-for-profit member-owned utilities, served 20 million, or 12.9% of U.S. customers and an average of 24,500 electricity customers each.[96]

By comparison, private companies have provided the majority of electricity to the U.S. energy grid since the early 1900s.[97] Moreover, these tend to be larger operations. As of 2017, investor-owned utilities represented less than 6% of U.S. electric utility companies but served 72% of U.S. electricity customers.[98] Privately owned utilities served an average of 654,600 electric customers each in 2017.[99]

Proponents of public utilities argue that public utilities are better positioned to accommodate experimental models during the climate change era since profit is not the motive.[100] They argue that the profit-motive of private utilities may prevent them from reducing carbon pollution if it is not profitable, despite having more resources to pursue carbon pollution reduction technologies.[101] Historically, private companies served an important role in investing in the initial infrastructure of the electric grid; they were a welcome partner to government entities that might not have had the necessary capital to make those investments.[102] However, there is some doubt as to whether the for-profit model can accommodate today's more complex mission of providing not only the least expensive, reliable electricity, but also deriving it from cleaner

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[93] *Id.*
[94] *Investor-owned utilities served 72% of U.S. electricity customers in 2017,* U.S. ENERGY INFO. ADMIN., (Aug. 15, 2019), https://www.eia.gov/todayinenergy/detail.php?id=40913 [https://perma.cc/ER6X-88SA] [hereinafter *Investor-owned utilities*].
[95] *Id.*
[96] *Id.*
[97] Welton, *supra* note 7, at 280.
[98] *Investor-owned utilities, supra* note 94.
[99] *Id.*
[100] Welton, *supra* note 7, at 270.
[101] Perkins, *supra* note 91.
[102] *See* Welton, *supra* note 7, at 289–91.

energy sources in order to address climate change.[103] Later, this paper addresses the enthusiastic efforts of one privately-owned utility in Florida, Florida Power & Light.

4. The Possible Role of Decentralization in Decarbonization

Whether private or public, electric utilities are all connected to one of three energy grids in the United States.[104] This centralized model not only creates some vulnerabilities for U.S. citizens (i.e., blackouts from overloads, terrorist attacks, or natural disasters) but also limits power generation to large-scale production rather than empowering end-use consumers with the ability to also function as producers.[105]

Proponents of a decentralized electric grid hold that locally produced power is more energy efficient because it can be more easily produced by carbon-free renewable means and is closer to the consumer, meaning less will be lost in transmission.[106] Examples of decentralization might include rooftop solar panels or neighborhood windmills that can produce energy needed locally and then transmit any extra electricity into the grid for consumption elsewhere.[107]

This sort of decentralized model would require an increase in local energy storage devices and installation of transmission lines that permit electricity to flow in both directions.[108] These technologies exist but are not yet as widespread as would be necessary for a truly decentralized system.[109]

However, the recent power crisis in Texas, a state that emphasized decentralization to the point of existing on its own grid

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[103] *Id.* at 273.
[104] Kristen Verclas, *The Decentralization of the Electricity Grid – Mitigating Risk in the Energy Sector,* JOHNS HOPKINS UNIV. AM. INST. FOR CONTEMP. GERMAN STUD. (Apr. 27, 2012), https://www.aicgs.org/publication/the-decentralization-of-the-electricity-grid-mitigating-risk-in-the-energy-sector/ [https://perma.cc/7AKR-64B4] ("The U.S. has three independently synchronized grids: the Eastern Interconnection, the Western Interconnection, and Electric Reliability Council of Texas.").
[105] *Id.*
[106] *Id.*
[107] *Id.*
[108] *Id.*
[109] *Id.*

entirely, has left spectators doubting decentralization as an option for accommodating more renewable energy options.[110] The nonprofit Electrical Reliability Council of Texas manages Texas's network of electrical suppliers and has declined invitations to connect with nearby regional energy grids over the years, instead opting to maintain absolute control over its own energy supply and distribution.[111] When a severe winter storm hit Texas in early 2021, nearly four million Texans experienced electrical outages due in large part to the independent grid's lack of weatherization (i.e., storm hardening).[112] Though some speculators interpreted the blackout as a failure of renewable technologies like wind turbines in Texas, renewables actually represented only about eight percent of the affected grid and were therefore not a catalyst for the grid's breakdown, even though some turbines did freeze.[113] Instead, the outages were more closely tied to freezing conditions on natural gas generation infrastructure in Texas and their inability to connect to outside natural gas resources.[114]

In sum, the U.S. energy grid is a complex web of state and regional infrastructure through which energy is produced primarily from fossil fuels by power generators, distributed through power lines, and ultimately consumed. A charge to reduce carbon pollution will necessarily require regulatory support at all levels. This paper now turns to the Florida energy sector, exploring its approach to decarbonization and its likelihood of being carbon pollution free by 2035.

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[110] Clifford Krauss, Manny Fernandez, Ivan Penn and Rick Rojas, *How Texas' Drive for Energy Independence Set it Up for Disaster,* N.Y. TIMES, https://www.nytimes.com/2021/02/21/us/texas-electricity-ercot-blackouts.html [https://perma.cc/97FE-EE3T] (updated May 13, 2021).
[111] Robin Lloyd, *Massive Power Failure Could Finally Cause Texas to Connect with the Nation's Power Grids,* SCI. AM. (Feb. 19, 2021), https://www.scientificamerican.com/article/massive-power-failure-could-finally-cause-texas-to-connect-with-the-nations-power-grids1/ [https://perma.cc/T7GS-EGUG].
[112] *Id.*
[113] *Id.*
[114] *See id.*

III. THE FLORIDA ENERGY SECTOR

A. Florida's Energy Regulatory Structure and Landscape

The Florida Public Service Commission (FPSC) oversees electric utilities statewide.[115] The FPSC was originally created by the Florida Legislature in 1887 under the name Florida Railroad Commission (renamed FPSC in 1965).[116] It was expanded to include investor-owned electric utilities in 1951, municipal and rural cooperative electric utilities in 1974, and safety jurisdiction over all electric utilities in 1986.[117] As of 2019, FPSC oversees five investor-owned electric companies, thirty-four municipally owned electric companies, and eighteen rural electric cooperatives.[118] Florida's electric supply is also imported from Georgia, Alabama, and Mississippi.[119]

Through the Florida Energy Efficiency and Conservation Act of 1980 (FEECA), the Florida Legislature declared that "it is critical to utilize the most efficient and cost-effective demand-side renewable energy systems and conservation systems in order to protect the health, prosperity, and general welfare of the state and its citizens."[120] The Act charged FPSC with adopting and approving relevant goals and plans to promote demand-side renewable energy systems and conserve electric energy and natural gas usage in

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[115] *Overview and Key Facts,* FLA. PUB. SERV. COMM'N, https://www.floridapsc.com/AboutPSC/Overview [https://perma.cc/5AAV-WC9X] (last visited Apr. 7, 2022).
[116] *History of the PSC,* FLA. PUB. SERV. COMM'N, https://www.floridapsc.com/AboutPSC/PSCHistory [https://perma.cc/TVE4-M8F6] (last visited Mar. 16, 2022).
[117] *Id.*
[118] FLA. PUB. SERV. COMM'N, 2020 FACTS & FIGURES OF THE FLORIDA UTILITY INDUSTRY 1 (2020), http://floridapsc.com/Files/PDF/Publications/Reports/General/Factsandfigures/April%202020.pdf [https://perma.cc/T97B-TT6A] [hereinafter 2020 FACTS & FIGURES].
[119] *See* FLA. PUB. SERV. COMM'N, STATISTICS OF THE FLORIDA ELECTRIC UTILITY INDUSTRY 3 (2019), http://www.floridapsc.com/Files/PDF/Publications/Reports/Electricgas/Statistics/2018.pdf [https://perma.cc/334P-3N8T].
[120] FLA. STAT. § 366.81 (2021).

Florida.[121] The Act also authorized FPSC to require utilities to develop and adopt plans and programs to meet those goals.[122] FPSC is required to review the goals at minimum every five years.[123]

All electric utilities in Florida were originally required to comply with FEECA.[124] As of 2020, only electric utilities that meet certain retail sales thresholds are subject to FEECA.[125] Accordingly, FEECA's energy efficiency goals only apply to five investor-owned and two municipal utilities.[126] Every five years, FPSC holds formal and informal proceedings to establish new goals, including proposals from the regulated utilities.[127] After the goals are set, the regulated utilities must submit demand-side management plans for approval by FPSC.[128] There is tremendous emphasis on cost-effectiveness throughout this process.[129] In fact, Florida is the only state to utilize Ratepayer Impact Measure test ("RIM" method) in its cost-effectiveness analyses.[130] The RIM method permits utilities to calculate lost ratepayer revenue from energy efficiency as a "cost" to the utility, which may prioritize shareholder profit over

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[121] *See* FLA. STAT. § 366.82(6) (2021).
[122] *Id.*
[123] *Id.*
[124] FLA. PUB. SERV. COMM'N ANN. REP. ON ACTIVITIES PURSUANT TO THE FLA. ENERGY EFFICIENCY & CONSERVATION ACT 5 (2020) [hereinafter FEECA ANNUAL REPORT] http://www.floridapsc.com/Files/PDF/Publications/Reports/Electricgas/AnnualReport/2019.pdf#search=energy%20efficiency [https://perma.cc/S8UD-SV8S].
[125] *Id.*
[126] *Id.*
[127] *See* Erik L. Sayler, *A Brief History of Florida's Energy Efficiency Goals Under the FEECA Statute – Part 1*, 39 ELULS ENV'T AND LAND USE LAW SECTION, no. 1, at 1 (Oct. 2018) https://eluls.org/~mvalmxmy///wp-content/uploads/2018/10/The-Environmental-and-Land-Use-Law-Section-Reporter-October-2018b.pdf [https://perma.cc/J2J6-BTRU].
[128] *See id.* at 19.
[129] *See generally* FEECA ANNUAL REPORT, *supra* note 124.
[130] Alissa Jean Schafer, *Nikki Fried calls for end to utilities' energy efficiency programs while endorsing their proposed goals of zero,* ENERGY AND POL'Y INST. (Sep. 30, 2019) https://www.energyandpolicy.org/nikki-fried-feeca/#:~:text=FEECA%2C%20passed%20by%20the%20legislature%20in%201980%2C%20is,major%20utilities%3B%20five%20investor-owned%20and%20two%20municipal%20utilities [https://perma.cc/AF6T-98HY].

customer savings.[131] The investor-owned utilities have also recovered $328 million in conservation program expenditures, with FPSC approval, through the Energy Conservation Cost Recovery clause.[132]

The Department of Agriculture is a party to the proceedings to adopt and analyze FEECA goals.[133] In 2019, with support from Florida's Commissioner of Agriculture, Nikki Fried, the regulated utilities proposed canceling energy efficiency programs, claiming that energy efficiency programs are not cost-effective and will lead to electric rate increases.[134] They also proposed energy efficiency goals that were significantly lower than their 2014 counterparts, with some goals near or at zero.[135] Fried called for the discontinuation of "outdated and ineffective" FEECA, and endorsed the controversial RIM methodology.[136] In turn, FPSC rejected the utilities' energy efficiency goals, calling for the utilities to follow the goals set forth in 2014.[137] Fried reversed her position after that, seemingly in response to public pressure.[138] While FEECA continues, FPSC expressed an interest in reviewing and revising the goalsetting process before the next round of goal-setting submissions in 2024.[139] Given that FEECA rules have not been updated for thirty years, revising the goalsetting process may be a welcomed approach.[140]

In 2006, the Florida legislature passed the Florida Renewable Energy Technologies and Energy Efficiency Act, creating renewable energy grants and a solar rebate program.[141]

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[131] *Id.*
[132] FEECA ANNUAL REPORT, *supra* note 124, at 3.
[133] Florida Energy Efficiency and Conservation Act, FLA. STAT. § 366.82(5) (2021).
[134] Schafer, *supra* note 130.
[135] FEECA ANNUAL REPORT, *supra* note 124, at 12.
[136] Schafer, *supra* note 130.
[137] FEECA ANNUAL REPORT, *supra* note 124, at 13.
[138] *See* Schafer, *supra* note 130.
[139] FEECA ANNUAL REPORT, *supra* note 124, at 13.
[140] Katie Chiles Ottenweller, *Commentary: Florida needs to update its energy efficiency rules,* ENERGY NEWS NETWORK (Jan. 27, 2021), https://energynews.us/2021/01/27/commentary-flordia-needs-to-update-its-energy-efficiency-rules/ [https://perma.cc/HW8X-XN29].
[141] Florida Renewable Energy Technologies and Energy Efficiency Act, FLA. STAT. § 377.806(1) (2006).

Then, in 2008, the legislature passed HB 7135, creating the Florida Energy and Climate Commission and charging FPSC with developing a renewable portfolio standard to ensure that a fixed percentage of electricity is generated from renewable resources.[142] The resulting standard would have required 20% of the state's energy supply to be derived from renewable sources, but the legislature failed to ratify the bill in 2009.[143]

Recent regulatory developments are similarly underwhelming for climate activists. On January 28, 2021, only one day after President Biden issued his executive order calling for a carbon-free energy sector, Florida Governor Ron DeSantis announced the "Resilient Florida" program, allocating $1 billion for grants to help local governments adapt to the impacts of climate change.[144] Proponents of this initiative hold that it makes good business sense for municipalities to be empowered to address the effects of climate change.[145] Opponents applaud the step in the right direction but argue that the program fails to acknowledge the emissions causing climate change.[146] Opponents also point to the Resilient Florida funding source—money diverted from affordable housing programs—and predict that it could result in greater harm to those individuals who are most vulnerable to the effects of

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[142] H.B. 7135, 2008 Leg., 227th Sess. § 366.92 (Fla. 2008).
[143] *See Draft Renewable Portfolio Standard Rule,* FLA. PUB. SERV. COMM'N (Jan. 30, 2009) http://www.psc.state.fl.us/Files/PDF/Utilities/Electricgas/RenewableEnergyWorkshops//2009_FPSC_Draft_RPS_Rule.pdf [https://perma.cc/GRT2-CDDK]; Uma Outka, *Siting Renewable Energy: Land Use and Regulatory Context*, 37 ECOLOGY L.Q. 1041, 1043–44 (2010).
[144] Amy Green and Blaise Gainey, *DeSantis Calls for $1 Billion as Florida Braces for Future Storms, Sea Level Rise,* NPR CENT. FLA. NEWS (Jan. 28, 2021), https://www.wmfe.org/desantis-calls-for-1-billion-as-florida-braces-for-future-storms-sea-level-rise/173037 [https://perma.cc/6Z7H-PYPC].
[145] *See id.*
[146] *See* Cassandra Dergins, *Florida Bill Addresses Sea Level Rise – But Not the Emissions Causing It,* NPR WUFT PBS (Apr. 23, 2021), https://www.wuft.org/news/2021/04/23/florida-bill-addresses-sea-level-rise-but-not-the-emissions-causing-it/ [https://perma.cc/6BQE-ELKA].

climate change.[147] Governor DeSantis signed the bill into law on May 12, 2021.[148]

Six short months later, Florida passed SB 1128/HB 919, "Preemption Over Restriction of Utility Services," which prohibits local governments from banning fossil fuels as an energy source.[149] The resulting law effectively invalidates any carbon-free commitments that Florida governments may have previously made.[150] Proponents of HB 919 hold that it makes better business sense for consumers, rather than municipalities, to choose what energy source to use.[151] Opponents argue that it is "anti-democratic" and prevents local governments, which are elected by the people, from making their own energy choices.[152]

Concurrently, the Florida judicial system entertained its first broad climate change suit in *Reynolds v. Florida*.[153] In 2018, the plaintiffs—a group of eight young Floridians—sued Florida state agencies for, among other things, "breach of mandatory fiduciary duty to protect Florida's public trust resources" and violating substantive due process under the Florida Constitution.[154] Led by Our Children's Trust, a nonprofit public interest law firm that supports youth clients in climate action suits, the plaintiffs filed suit against the State of Florida for violating their constitutional rights to life, liberty, property, and the pursuit of happiness by creating

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[147] *See id.*

[148] Zachary T. Sampson and Kiry Wilson, *DeSantis signs landmark Florida sea level rise bills into law*, Tampa Bay Times (May 12, 2021) https://www.tampabay.com/news/florida-politics/2021/05/12/desantis-signs-landmark-florida-sea-level-rise-bills-into-law/ [https://perma.cc/H5S8-RN2Q].

[149] FLA. STAT. § 366.032 (2021). *See* Michelle Lewis, *Florida's governor just locked 'Florida into a dirty fossil fuel future'*, ELECTREK (June 23, 2021, 2:09 PM), https://electrek.co/2021/06/23/florida-governor-bill-thfossil-fuels/ [https://perma.cc/HD5S-Q8J4].

[150] Lewis, *supra* note 149.

[151] *Id.*

[152] *Id.*

[153] Reynolds v. State, No. 2018-CA-819, 2020 WL 3410846 (Fla. 2d Cir. Ct. June 10, 2020) (granting motions to dismiss with prejudice); Kyle Robisch, *1st Fla. Climate Change Suit May Be Just the Beginning,* LAW360 (Apr. 20, 2021) https://www.bradley.com/insights/publications/2021/04/1st-fla-climate-change-suit-may-be-just-the-beginning [https://perma.cc/P4JY-RGJ4].

[154] Compl. at 51, 56, Reynolds v. State, No. 2018-CA-819 (Fla. 2d Cir. Ct. April 16, 2018). *See also* Robisch, *supra* note 153.

and perpetuating a fossil-fuel-based energy system.[155] However, the circuit court dismissed the case in June 2020, holding that the claims are "inherently political questions" that must be brought to political branches of government.[156] The First District Court of Appeals affirmed the dismissal in May 2021.[157]

The broader regulatory and judicial picture in Florida is unlikely to produce a carbon-free energy sector on Biden's timeline. By effectively prohibiting governments from committing to carbon-free, climate-friendly energy sources and instead encouraging them to focus their resources on identifying ways to adapt their infrastructure to a changing climate, the Florida legislature all but guarantees that energy sector changes will need to be driven by consumers.[158] This paper now turns to a discussion of the ways in which these changes may yet come.

B. History of Electricity and Consumer Preferences in Florida

The elegant St. James Hotel in Jacksonville became Florida's first building with electric power in 1883, only one year after Thomas Edison installed the first electrical system in New York.[159] Three years later, Henry Flagler built an electric plant in Miami to serve both the Florida East Coast Railway and his Royal Palm Hotel.[160] By 1895, several cities had electrical systems with a rate of 35 cents per month, per lightbulb.[161] Flagler then built the first electric plant designed to serve the general public in Miami in

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[155] *Reynolds v. State of Florida*, OUR CHILDS. TR., https://www.ourchildrenstrust.org/florida [https://perma.cc/TQ78-BYCY] (last visited Nov. 13, 2021).
[156] Reynolds, 2020 WL 3410846.
[157] Reynolds v. State, 316 So.3d 813 (Fla. Dist. Ct. App. 2021) (per curiam) (mem.).
[158] *See* FLA. STAT. § 366.032 (2021) (Preemption over utility service restrictions), *supra* note 150; FLA. STAT. § 380.093 (2021) (Resilient Florida Grant Program).
[159] James C. Clark, *Electricity – The Light of Florida's*, ORLANDO SENTINEL (Sept. 7, 1991, 12:00 AM), https://www.orlandosentinel.com/news/os-xpm-1991-09-08-9109051004-story.html [https://perma.cc/4DU2-98QL].
[160] *Id.*
[161] *See id.*

1905, producing 200 kilowatts of power by burning wood.[162] Florida Power Corporation and Florida Power & Light were formed in 1925, and the state's electric demand skyrocketed, from a capacity of 500,000 kilowatts in 1941 to 33 million kilowatts in 1990.[163]

Even as its energy consumption grew, Florida residents sought early on to prevent coal-fired power plants from being built in their neighborhoods.[164] In 2003, a local Environmental Protection Advisory Committee (EPAC) prevented Gainesville Regional Utilities (GRU) in Alachua County from building a new coal-fired power plant to meet increasing electricity demands.[165] EPAC held that the plant would have severe environmental and health impacts, leading residents to create the Citizens for Affordable and Renewable Energy, which successfully petitioned to bring the potential power plant to vote in the November 2006 elections.[166] Ultimately, the coal plant was blocked by the citizens, and GRU instead signed a 30-year power purchase agreement with American Renewables to build and operate the Gainesville Renewable Energy Center, which began operating in 2013 and provides renewable energy to 70,000 households.[167] Unfortunately, GRU's rates are some of the highest in the state today and have been approved for a 7% increase next fiscal year, followed by a 3% increase every year through 2027, allegedly due to the higher cost of providing renewable energy.[168]

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[162] *Id.*
[163] *Id.*
[164] Lisa A. Kelley, *The Power of the Sea: Using Ocean Energy to Meet Florida's Need for Power,* 37 ENV'T. L. 489, 499 (2007).
[165] *Id.* at 499–500.
[166] *Id.* at 500. *See Gainesville Renewable Energy Center,* POWER TECH. (Jan. 1, 2014) https://www.power-technology.com/projects/gainesville-center/ [https://perma.cc/EQ5W-F7RV].
[167] Gainesville Renewable Energy Center, POWER TECH. (Jan. 1, 2014) https://www.power-technology.com/projects/gainesville-center/ [https://perma.cc/EQ5W-F7RV].
[168] John Henderson, *Already Among the State's Highest, GRU's Utility Rates Slated to Increase Yearly Through 2027,* THE GAINESVILLE SUN, https://www.gainesville.com/story/news/local/2021/08/01/gainesville-residents-vent-frustration-multi-year-utility-rate-increases/5383714001/ [https://perma.cc/H8TP-C72A] (updated Aug. 2, 2021, 6:31 AM).

Nearby, citizens in Jacksonville formed the "Keep Madison Clean" coalition to prevent the local utility authority from building a coal-fired power plant in Madison County in the early 2000s.[169] As a result, in September 2005, the Madison County Commission passed a resolution opposing the plant's construction anywhere within the county.[170] Shortly thereafter, on October 3, 2005, the nearby Wakulla County Board of County Commissioners also passed a resolution opposing the construction of a coal-fired power plant within Wakulla or in nearby counties.[171]

The interest crosses party lines. Though both Alachua and Madison Counties are strongly liberal, Wakulla County is predominately Republican.[172] As of January 31, 2022, 49% of Alachua County's registered voters are registered Democrats, compared to only 27% who are registered Republicans.[173] In fact, Alachua has voted Democratic in every presidential election since 2000.[174] Madison County is also liberal, with 49% registered Democrats and 38% registered Republicans.[175] On the other hand, Wakulla County is 49% registered Republican and only 32% Democrat and has voted Republican in every presidential election since 2000.[176]

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[169] Kelley, *supra* note 164, at 500.
[170] *Id.* at 501.
[171] *Id.*
[172] *Voter Registration – By County and Party,* FLA. DEP'T OF STATE, https://dos.myflorida.com/elections/data-statistics/voter-registration-statistics/voter-registration-reports/voter-registration-by-county-and-party/ [https://perma.cc/RRD2-3Q9R] (updated Jan. 31, 2022) [hereinafter *Voter Registration*].
[173] *Id.*
[174] *Politics & Voting in Gainesville, Florida,* BESTPLACES.NET, https://www.bestplaces.net/voting/city/florida/gainesville (last visited Nov. 13, 2021).
[175] *Voter Registration, supra* note 172.
[176] *Id.*; *Politics & Voting in Wakulla County, Florida,* BESTPLACES.NET, https://www.bestplaces.net/voting/county/florida/wakulla (last visited Nov. 13, 2021).

C. Florida's Current Reliance on Nonrenewable Energy Sources

Despite anecdotes of citizen interest in avoiding, at the least, coal power plants in central Florida, Florida's energy production remains largely nonrenewable. Today, Florida is the second-largest electricity producer after Texas, with about 75% derived from natural gas.[177] Even so, there have been advances toward cleaner energy. Between 2008 and 2019, Florida's coal consumption declined from 29 million tons to about 9 million tons as natural gas-fired power plants replaced coal power plants.[178] Though still a fossil fuel, natural gas is a cleaner alternative to coal.[179]

As of 2018, only 2.27% of Florida's energy was derived from renewable sources, up from less than 2% in 2010.[180] The FPRC predicts that as of 2028, the net energy load will be derived from 65% natural gas, 14% "interchange & other" (aka non-hydro renewables and non-utility generation), 12% nuclear, and 10% coal, based on net energy patterns between 2009 and 2018.[181] As of 2018, Florida's renewable capacity was 52% solar, 14% biomass, 11% municipal solid waste, 9% waste heat, 8% wind, 4% landfill gas, and 2% hydro.[182] Similarly, in 2019, about half of Florida's renewable energy was derived from solar photovoltaic and solar thermal energy.[183] Solar, therefore, represents less than 1% of Florida's electricity generation, compared to almost 19% in California and almost 11% in Vermont and Massachusetts in

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[177] *Florida State Profile, supra* note 24.
[178] *Id.*
[179] *Natural Gas Explained,* U.S. ENERGY INFO. ADMIN., https://www.eia.gov/energyexplained/natural-gas/natural-gas-and-the-environment.php [https://perma.cc/AR6M-RDHZ] (updated Dec. 8, 2021).
[180] 2020 FACTS & FIGURES, *supra* note 118; Outka, *supra* note 143.
[181] *Statistics of the Florida Electric Utility Industry,* FLA. PUB. SERV. COMM'N 19 (2019), http://www.floridapsc.com/Files/PDF/Publications/Reports/Electricgas/Statistics/2018.pdf [https://perma.cc/EP6Q-GLM4].
[182] 2020 FACTS & FIGURES, *supra* note 118.
[183] *Florida State Profile, supra* note 24.

2018.[184] However, in 2020, Florida added 282 megawatts of small-scale solar production to its energy grid and had the second-largest increase in small-scale solar capacity in the United States.[185]

These figures suggest that vast increases in renewable energy will likely be derived from solar technologies. Solar energy can be harnessed through various means, including rooftop solar and community solar farms.[186] Rooftop solar systems are installed on residential or business rooftops and typically generate power for their own location, potentially providing excess energy into the electrical grid for sale back to the utility.[187] On the other hand, solar farms are larger tracts of land containing multiple solar panels that provide solar energy directly into the electrical grid.[188]

There is potential for offshore wind farms, even though wind currently represents a small portion of the renewable energy produced in Florida.[189] However, the political landscape seems unlikely to permit offshore wind farms in Florida any time soon.[190] Importantly, the ten-year moratorium on offshore energy exploration in Florida, signed by President Trump in 2020 and includes wind, is still slated to go into effect on July 1, 2022.[191]

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[184] Ivan Penn, *Florida's Utilities Keep Homeowners from Making the Most of Solar Power,* N.Y. TIMES (Jul. 7, 2019), https://www.nytimes.com/2019/07/07/business/energy-environment/florida-solar-power.html [https://perma.cc/ZU3G-FUYW].

[185] Small-scale solar capacity grew by 63% (from 670 MW to 1,093 MW) in Texas and 57% (from 492 MW to 773 MW) in Florida in 2020. *Texas and Florida had Large Small-Scale Solar Capacity Increases in 2020,* U.S. ENERGY INFO. ADMIN. (Mar. 4, 2021), https://www.eia.gov/todayinenergy/detail.php?id=46996 [https://perma.cc/XF79-A53J].

[186] *What are the Differences Between Rooftop Solar and Community Solar?*, CLEARWAY CMTY. SOLAR, https://www.clearwaycommunitysolar.com/resource-center/different-types-of-renewable-energy/community-solar-vs-rooftop-solar/ [https://perma.cc/E3QD-SZQJ] (last visited Jan. 9, 2022) [hereinafter *What are the Differences*].

[187] *Id.*

[188] *Id.*

[189] Craig Pittman, *Talk of Putting Wind Turbines Off Florida is Little More Than a Lot of Hot Air,* FLA. PHOENIX (Oct. 21, 2021), https://floridaphoenix.com/2021/10/21/talk-of-putting-wind-turbines-off-florida-is-little-more-than-a-lot-of-hot-air/ [https://perma.cc/REA9-QRXH].

[190] *See id.*

[191] *Id.*

D. Florida's Contentious Energy Landscape

1. Net-Energy Metering in Florida

Net-energy metering is the means by which electric customers who generate their own energy from renewables like solar power can sell the excess electricity back into the grid.[192] As of 2019, only 0.05% of Florida electric customers were enrolled in net metering.[193] Florida's utilities and policymakers have a long history of adopting policies that block access to net-energy metering.[194] Between 2014 and 2019, Florida's four largest investor-owned utilities spent a combined $57 million on related campaign contributions, including $31 million from the state's largest utility, Florida Power & Light.[195]

In May 2020, Florida Rep. Lawrence McClure, at the request of utility front group Energy Fairness, prompted the Florida Public Service Commission to review the rules and regulations over customer-owned solar and net metering.[196] Coinciding with his request, Energy Fairness and McClure released an anti-rooftop solar document claiming rooftop solar threatens low- to middle-income Floridians.[197] The document argues that net metering policies were a valuable but now outdated policy tool to kickstart the solar industry.[198] Further, it argues that energy intermittently produced by solar rooftop panels is less valuable than the consistent energy

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[192] *Net Metering*, SOLAR ENERGY INDUSTRIES ASSOCIATION, https://www.seia.org/initiatives/net-metering [https://perma.cc/PZY6-M4SK] (last visited Jan. 9, 2022).
[193] Alissa Jean Schafer, *Utility Front Group Sparks Attack on Florida Rooftop Solar Amid Ongoing COVID Crisis*, ENERGY AND POL'Y INST. (Sept. 11, 2020), www.energyandpolicy.org/energy-fairness-mcclure-attack-florida-solar/ [https://perma.cc/XW2U-B2MX].
[194] Penn, *supra* note 184.
[195] *Id.*
[196] Schafer, *supra* note 193.
[197] *Id.*; ENERGY FAIRNESS, NET METERING: COSTS, CUSTOMERS, AND A SMARTER WAY FORWARD FOR FLORIDA 9 (Jan. 2020), https://s3.documentcloud.org/documents/7201395/Net-Metering-2019-webv2-Energu-Fairness.pdf [https://perma.cc/32HE-H8HA].
[198] ENERGY FAIRNESS, *supra* note 197, at 4, 8.

produced by utility companies and that paying customers too much for their solar-generated electricity is essentially causing all other customers to pay more for their electricity.[199] This is not the first attempt by Florida's investor-owned utilities to attack rooftop solar policies. In 2016, the utilities invested $20 million seeking to pass a ballot initiative that allegedly supported rooftop solar but would have, in fact increased rooftop solar customer restrictions and fees.[200]

These barriers continue today. In September 2021, a Florida District Court of Appeals held that Solar United Neighbors, a solar electricity co-op organizer, lacked standing to sue municipal utility Jacksonville Electric for its decision to significantly cut the net-metering rate at which it pays customers who produce solar into the grid.[201]

2. Large-Scale Renewable Production in Florida

Despite continued investment against net-metering, Florida's utilities are rapidly pursuing large-scale renewable production, primarily via solar farms. In fact, Florida is home to the largest community solar program in the United States.[202] Florida Power & Light (FPL) has installed more than 12 million solar panels in Florida (the largest solar expansion in the United States) and

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[199] *Id.* at 8–9.

[200] Schafer, *supra* note 193; David Roberts, *Florida's Outrageously Deceptive Solar Ballot Initiative, Explained*, VOX, https://www.vox.com/science-and-health/2016/11/4/13485164/florida-amendment-1-explained (updated Nov. 8, 2016, 10:55 AM); BALLOTPEDIA, *Florida Solar Energy Subsidies and Personal Solar Use, Amendment 1 (2016),* https://ballotpedia.org/Florida_Solar_Energy_Subsidies_and_Personal_Solar_Use,_Amendment_1_(2016) [https://perma.cc/6NHC-KEAL] (last visited Apr. 7, 2022).

[201] Cmty. Power Network Corp. v. JEA, 327 So.3d 412, 413 (Fl. Dist. Ct. App. 2021); *See also* Clark Mindock, *Fla. Court Tosses Solar Group's Net Metering Challenge*, LAW 360 (Sept. 10, 2021), https://www.law360.com/articles/1420713/fla-court-tosses-solar-group-s-net-metering-challenge [https://perma.cc/7V98-FSNL].

[202] Michelle Lewis, *Florida Power & Light Blows Up Its Last Coal Plant, Will Replace With Solar*, ELECTREK (June 17, 2021), https://electrek.co/2021/06/17/florida-power-light-blows-up-its-last-coal-plant-will-replace-with-solar/ [https://perma.cc/8TZG-KGG3].

plans for nearly 40% of all of its power to be net zero by 2030 as part of its "30-by-30" plan to install 30 million solar panels by 2030.[203] On June 16, 2021, FPL demolished its last existing coal-fired plant, the Indian Cogeneration Plant in Martin County.[204] The company announced that it plans to build a solar center in its place.[205]

However, Florida residents organized against now-approved substantial rate increases that FPL says are necessary to support its "30-by-30" plan.[206] The approved rates represent a $4.9 billion revenue increase for FPL over the next four years and will represent an 18% increase in consumer electric bills by 2025.[207] With 5.6 million customer accounts, FPL's clientele represents more than half of Florida's population.[208] Floridians Against Increased Rates (FAIR), a newly-established organization, opposed the rate hikes with significant backing.[209] However, FPL argued that FAIR is a shell organization whose leaders do not live in areas served by FPL, requesting that the membership information be disclosed.[210] In turn, FAIR attempted to protect their membership information as confidential trade secret information, including member names,

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[203] Jordan Kirkland, *Public Service Commission unanimously approves 4-year rate agreement for Florida Power and Light*, THE CAPITOLIST (Oct. 26, 2021), https://thecapitolist.com/public-service-commission-unanimously-approves-4-year-rate-agreement-for-florida-power-and-light/ [https://perma.cc/KC66-KSL7]; Lewis, *supra* note 202.

[204] Lewis, *supra* note 202.

[205] *Id.*

[206] Ron Hurtibise, *Your monthly FPL bill will be 18% higher by 2025*, CATALYST MIAMI (Oct. 27, 2021), https://www.catalystmiami.org/your_monthly_fpl_bill_will_be_18_higher_by_2025 [https://perma.cc/8Q25-SZMD].

[207] *Id.*

[208] Mark Harper, *Floridians Against Increased Rates says it will appeal FPL's increase starting in January*, THE DAYTONA BEACH NEWS-JOURNAL, https://www.news-journalonline.com/story/news/local/volusia/2021/12/29/florida-public-service-commission-approved-fpl-rate-hike-challenged/9032348002/ [https://perma.cc/4H8J-DZTL] (last updated Dec. 29, 2021, 2:07 PM).

[209] Kirkland, *supra* note 203.

[210] Garnie Holmes, *Regulators Eye Group Fighting FPL Rate Hike*, FLA. MUN. ELEC. ASS'N (Sept. 7, 2021), https://www.flpublicpower.com/news/regulators-eye-group-fighting-fpl-rate-hike [https://perma.cc/J4F2-E9S2].

mailing addresses, email addresses, and telephone numbers.[211] On September 17, 2021, the FPSC ultimately denied FAIR's request, requiring them to release information of member individuals and businesses.[212] FAIR has since filed an appeal to FPSC's decisions, which will bring the case to the Florida Supreme Court.[213]

Florida's public power companies are also pursuing solar farms.[214] Six of Florida's 16 municipal electric utilities joined forces under the Florida Municipal Solar Project and have installed two large solar centers with plans to install three more.[215] In total, the project will lead to the installation of 1.5 million solar panels and 375 megawatts, powering up to 75,000 Florida homes.[216]

IV. CONCLUSION

This analysis suggests that Florida's route to a carbon-pollution-free energy sector will be through large-scale solar farms constructed and managed by public cooperatives and the largest investor-owned utilities in the state. Even then, the state will only be partially carbon-pollution free by 2035.[217] Further, Floridian opposition against substantial rate hikes intended to pay for those solar farms suggests a lack of voter support for such a top-down model toward renewables.

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[211] *Id.*

[212] In re: Petition for rate increase by Florida Power & Light Company, No. PSC-2021-0364-FOF-EI, at 8 (Sept. 17, 2021), http://www.psc.state.fl.us/library/filings/2021/11265-2021/11265-2021.pdf [https://perma.cc/3WLT-WHTC].

[213] Jim Saunders, *FPL rate hike fight goes to Florida Supreme Court*, ORLANDO SENTINEL (Dec. 29, 2021, 10:50 AM), https://www.orlandosentinel.com/news/os-ne-florida-power-light-rate-increase-appeal-20211229-lsnztalqtrhgrojp5wxvrwpot4-story.html [https://perma.cc/9E9U-FZ2Y].

[214] *Large-Scale Solar Project in Florida Marks One Year of Operations*, FLA. MUN. POWER ASS'N (June 23, 2021), https://fmpa.com/large-scale-solar-project-in-florida-marks-one-year-of-operations/ [https://perma.cc/E7U6-GXSP].

[215] *Id.*

[216] *Id.*

[217] Recall that FPL is the largest investor-owned utility in Florida and their goal is to be only 40% carbon pollution free by 2030, compared to the 100% carbon pollution free goal of Biden's executive order. Lewis, *supra* note 202.

There is greater potential for a carbon-pollution-free energy sector if the ten-year moratorium on offshore energy exploration (which includes wind and wave energy) is reversed since wind and wave energy are viable options in Florida. Regulations favoring, rather than hindering, net-metering and rooftop solar panels might also increase Florida's potential for reaching a carbon-pollution-free energy sector and perhaps ease customer dissatisfaction with rate hikes evident throughout the state. However, net metering will also come with a cost when electric utilities are forced to upgrade the grid to accommodate the back-and-forth flow of electricity.

As is true throughout the nation, it will not be an easy task to bring Florida's energy sector to carbon-pollution-free by 2035. Florida's complex array of energy production politics should serve as a case study and guide to Biden's administration as they develop a plan to reach their carbon-pollution-free energy sector goal. Politically, the consequences of failing to act will need to be absolutely clear before a substantial change is made, and they will need to be greater than the increased flooding, hurricane events, and loss of biodiversity that states like Florida are already experiencing.[218] Collaborative and inclusive planning that reimagines the electric utility's role without deeming it obsolete will be essential. It will take a village to get us to carbon-pollution-free, and all should be invited.

[218] *See* Jake Cline, *Can DeSantis Tackle Climate Change Without Admitting It's Real?*, SIERRA: THE MAGAZINE OF THE SIERRA CLUB (Feb. 23, 2021), https://www.sierraclub.org/sierra/can-desantis-tackle-climate-change-without-admitting-it-s-real-resilient-florida [https://perma.cc/J7ZB-JPJC].