The TVA Effect

Clean Energy Goals and Public Power

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Introduction

The Biden Administration has challenged the United States to reach 100% carbon-pollution free electricity by 2035,[1] and many investor-owned electric utilities (IOUs) and states have set similar goals.[2] Because most customers in the United States receive their power from IOUs,[3] these pledges have received the bulk of scholarly and media attention.[4] Clean energy goals from public power entities have received less scrutiny,[5] even as some scholars argue that the public power model is better at achieving the necessary transition to carbon-pollution free electricity.[6] These government-owned entities—including federal power agencies like the Tennessee Valley Authority (TVA), rural electric cooperatives, and municipal utilities—are rarely subject to Federal

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1 Exec. Order No. 14,057, 86 Fed. Reg. 70,935, 70,935 (Dec. 8, 2021).

2 *See Table of 100% Clean Energy States*, CLEAN ENERGY STATES ALL., https://perma.cc/FLH5-E3LN (last visited Sept. 24, 2023) (listing 22 states with goals to achieve 100% clean energy); *State Renewable Portfolio Standards and Goals*, NAT'L CONF. OF STATE LEGISLATURES (Aug. 13, 2021), https://perma.cc/EYD8-89DE. For examples of state laws, see, e.g., S.B. 19-236, Sunset Public Utilities Commission, Reg. Sess. 2019 (Colo. 2019), https://perma.cc/KTH2-2G78 (requiring Xcel Energy to submit a plan for 100% clean energy by 2030 to the Colorado Public Utilities Commission); S.B. 100, California Renewables Portfolio Standard Program: Emissions of Greenhouse Gases, Reg. Sess. 2018 (Cal. 2018), https://perma.cc/2P4G-KPPD (establishing state policy that zero-carbon resources supply all retail electricity sales in the state by 2045). For a discussion of public utility goals, see CARA BOTTORFF, NOAH VER BEEK & LEAH C. STOKES, SIERRA CLUB, THE DIRTY TRUTH ABOUT UTILITY CLIMATE PLEDGES 1 (Oct. 2022), https://perma.cc/D8GM-CGLV.

3 *See, e.g.*, AM. PUB. POWER ASS'N, 2022 PUBLIC POWER STATISTICAL REPORT 20 (2022), https://perma.cc/SE3C-NGZ7 (showing that in the U.S. power market, public power utilities serve about 14% of all customers and IOUs serve about 68% of all customers); Jim Rossi & Christopher Serkin, *Energy Exactions*, 104 CORNELL L. REV. 643, 647 (2019) (explaining that "existing energy law encourages most local communities to 'outsource' their energy supply decisions to private utilities").

4 *See, e.g.*, Julian Spector, *Another Major Utility Is Accelerating Its Transition to Renewables*, CANARY MEDIA (July 17, 2023), https://perma.cc/FT3T-3U8C (discussing the investor-owned utility DTE Energy's plans for clean energy); Julia Pyper, *Xcel Energy Commits to 100% Carbon-Free Electricity by 2050*, GREENTECH MEDIA (Dec. 4, 2018), https://perma.cc/JW32-M6FN (reporting on investor-owned utility Xcel Energy's carbon reduction commitment); Tom Kuhn, *America's Investor-Owned Utilities: We Can Achieve a 100% Clean Energy Future*, UTIL. DIVE (Jan. 26, 2021), https://perma.cc/CVY7-DUXR.

5 *But see Inflation Reduction Act May Spur Public Power Renewable Spending*, FITCH RATINGS (Aug. 16, 2022), https://perma.cc/4MTS-GAR2 (noting that public power entities are likely to invest more in renewable energy with "[t]he introduction of direct pay tax credits through the Inflation Reduction Act (IRA)"); *Public Power Utilities and the Inflation Reduction Act*, SIERRA CLUB (Dec. 2022), https://perma.cc/4P77-ZSZT (explaining how public power entities can use IRA tax credits for renewable energy).

6 *See, e.g.*, Alexandra Klass & Rebecca Wilton, *Local Power*, 75 VAND. L. REV. 93, 156–58 (2022); Shelley Welton, *Public Energy*, 92 N.Y.U. L. REV. 267, 275–77, 304 (2017); Shelley Welton, *Grasping for Energy Democracy*, 116 MICH. L. REV. 581, 598–99 (2018); Shelley Welton, *Decarbonization in Democracy*, 67 U.C.L.A. L. REV. 56, 119–20 (2020); *see also* SMART ELEC. POWER ALL., COMMUNITY SOLAR PROGRAM DESIGN MODELS 8 (2018) ("In terms of the number of community solar programs, cooperative utilities have been trailblazers. At present, 160 cooperative utilities have a program in their territory. This far exceeds the total in investor-owned utilities (31 programs) and public power utilities (37 programs) combined."); Uma Outka, *Cities and the Low-Carbon Grid*, 46 ENV'T L. 105, 133–46 (2016) (considering the challenges for public utilities interested in clean energy and the process of "green" municipalization).

Energy Regulatory Commission (FERC) or state public utility commission oversight.[7] But scholars have argued that the public ownership of these entities may make them more responsive to customer interests and, in turn, more likely to embrace the clean energy transition.[8]

This paper considers the broader question of public power entities' ability to drive the clean energy transition through an examination of clean energy goals in the TVA fence line. In 1933, Congress created TVA as an executive branch corporate agency and instrumentality of the United States.[9] The government-owned corporation maintains a monopoly over electricity generation and transmission in its service territory, which covers most of Tennessee and parts of Alabama, Georgia, Kentucky, Mississippi, North Carolina, and Virginia.[10] For the 153 public power companies to which TVA provides wholesale electricity—termed "local power companies" (LPCs) within TVA territory—and the 10 million people living in the TVA region,[11] achieving clean energy goals largely depends on TVA's decisions about generation and permissible alternative sources of wholesale electricity.[12]

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7 *See, e.g.*, Shelley He et al., *How Does Restructuring of Electricity Generation Affect Renewable Power?*, 43 ENERGY L.J. 125, 143–44 (2022) (discussing limited state oversight of public power utilities like municipal utilities and rural cooperatives); *see also* 16 U.S.C. § 824(a) (2018) (outlining the scope of FERC's regulatory powers over transmission and sale of electricity).

8 *See, e.g.*, Welton, *Public Energy*, *supra* note 6, at 304. *But see* Miriam Fischlein et al., *Carbon Emissions and Management Scenarios for Consumer-Owned Utilities*, 12 ENV'T SCI. & POL'Y 778, 785 (2009) (finding that public power entities' "average carbon intensity is not significantly different from the industry as a whole"); He et al., *supra* note 7, at 152 (noting that the results of a quantitative assessment of the relationships between generation restructuring, electricity ownership, and renewable energy deployment showed that "high level of public ownership in general does not affect the relationship between renewable power investment and generation restructuring").

9 Tennessee Valley Authority Act of 1933, Pub. L. No. 73-17, 48 Stat. 58 (1933) (codified as amended at 16 U.S.C. §§ 831–831ee); *see also About TVA*, TENN. VALLEY AUTH., https://perma.cc/9WUL-2MYG (last visited Aug. 25, 2023)

10 *See About TVA*, *supra* note 9.

11 *Id.*

12 *See*, *e.g.*, MEMPHIS, TENN. & SHELBY CNTY., TENN., MEMPHIS AREA CLIMATE ACTION PLAN: 2022 ANNUAL REPORT 10 (2022), https://perma.cc/Y4XX-Q9YK (listing as a step to achieving the City's grid decarbonization goals that the City must "[a]dvocate for TVA to increase the amount of renewable energy sources—particularly wind and solar—in its portfolio, whether through Renewable Energy Certificates, Power Purchase Agreements for renewable power, or development/ownership of new renewable energy generation assets"); CITY OF KNOXVILLE, 2021 ENERGY AND SUSTAINABILITY WORK PLAN 13 (2022), https://perma.cc/LJG2-SK3X (noting that success in investing in renewables at scale will be measured, in part, by the TVA generation mix); *see also* Mike Reicher, *5 Tennessee Takeaways from New Global Emissions Study on City Greenhouse Gas Emissions*, THE TENNESSEAN (Feb. 18, 2019), https://perma.cc/DT65-TUZP ("Mary Beth Ikard from the Nashville Mayor's Office of Transportation and Sustainability said reducing emissions is dependent on how the Tennessee Valley Authority supplies energy to Nashville.").

This paper examines TVA's effect on clean energy goals within the TVA fence and how interpretation of the TVA Act and other federal laws have given TVA control over the energy transition in the region. TVA's congressionally granted market monopoly has constrained LPCs' influence over the regional power supply. TVA itself has not set decarbonization goals in line with national ambitions, and LPCs in its service territory have pursued clean energy primarily through one-off projects. Similarly, few cities in the region have set goals for clean energy, despite demonstrated interest in climate change mitigation. The combination of TVA's slow decarbonization, the potential chilling effect of state regulatory environments, and LPCs' small influence over generation and transmission may be limiting LPC and local clean energy commitments. Comparisons to similarly situated local governments and utilities outside the TVA region highlight the likely inhibitory effect of TVA's policies on clean energy ambitions. Policy changes to address the barriers to clean energy uptake that TVA has created and to foster greater LPC control of the energy supply could encourage more robust clean energy goals within the TVA fence line.

The Potential of Public Power

Some scholars and public power advocates have argued that public ownership of electric utilities could help with decarbonization. Because the decision to embrace clean energy is often a political issue that is difficult to quantify according to the metrics used in current electric utility regulatory regimes, creating utilities with greater democratic accountability rather than a profit focus could encourage the switch to clean energy. In other words, public ownership allows voters to prioritize political issues—like decarbonization—above economic ones like returns on investment that may undervalue clean energy.[13]

Changing market dynamics and the Inflation Reduction Act (IRA) could offer more opportunities for public power entities to embrace clean energy and generate their own electricity. Direct pay provisions in the IRA allow tax-exempt and governmental entities, like public power

[13] *See, e.g.*, Welton, *Public Energy*, *supra* note 6, at 319–20, 336; *see also* Outka, *supra* note 6, at 155–56; *Corporations Can't "Confine" Our Future*, PUBLIC POWER NY (Apr. 28, 2023), https://perma.cc/LGL4-3ZA8 (arguing that public ownership would better realize clean energy goals).

companies, to access tax credits for renewable energy without needing a partner with tax liability.[14] Under the IRA, public power companies can receive the cash value of clean energy tax credits incentivizing both the production of clean energy and investment in new clean energy projects.[15] Public power companies with existing fossil fuel infrastructure can also take advantage of the Energy Infrastructure Reinvestment Program, through which the Department of Energy provides loans to projects that will reduce carbon emissions and retool existing fossil fuel infrastructure.[16]

The challenge for most public power entities is how much influence they can wield over the electricity supply. Today, most public power companies are distribution-only utilities.[17] For example, TVA owns generation and transmission assets and contractually limits LPCs to selling only retail electricity to consumers. These municipal and rural cooperatives own the distribution lines through which they sell this retail electricity, but they rarely own their own high-voltage transmission lines or generating facilities.[18] The LPCs in the TVA fence are not alone: almost all public power entities in the United States depend on other companies for their transmission.[19] In some cases, investor-owned utilities provide the transmission necessary to connect public power entities to clean energy generation.[20] Although the IRA makes new funding opportunities available to public power entities, whether they have the ambition and ability to take advantage depends on their existing contracts for energy generation and transmission.

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[14] *See* U.S. DEP'T OF TREASURY, INTERNAL REVENUE SERV., 5817-G, CLEAN ENERGY TAX INCENTIVES: ELECTIVE PAY ELIGIBLE TAX CREDITS (2023), https://perma.cc/PHD2-UULE; *Direct Pay Through the Inflation Reduction Act*, THE WHITE HOUSE, https://perma.cc/Z2DF-YVDF (last visited Sept. 26, 2023).

[15] *See* Justin D. Cook, John Caleb Bell & John Flis, *Inflation Reduction Act: Direct Payments to Nonprofits and Political Subdivisions for Clean Energy Projects*, BRICKER & ECKLER (Feb. 24, 2023), https://perma.cc/4EMJ-S25X.

[16] *See* Rebecca Leber, *Biden's $250 Billion Lure to Clean Up the Dirty Legacy of Fossil Fuels*, VOX (July 26, 2023), https://perma.cc/89BT-8YWG.

[17] AM. PUB. POWER ASS'N, PUBLIC POWER FOR YOUR COMMUNITY 10 (2016).

[18] *See id.*; *cf.* Uma Outka, *Cities and the Low-Carbon Grid*, 46 ENV'T L. 105, 119–20 (discussing the typical assets public power entities own). TVA has permitted some arrangements in which municipal utilities own solar energy facilities and sell the power to TVA for resale back to the larger TVA grid. *See* KAREN L. DELONG ET AL., RR 23-002, UNIV. TENN. INST. OF AGRICULTURE, EVALUATING POTENTIAL LAND USE OF UTILITY-SCALE PHOTOVOLTAICS (SOLAR PANELS) ON FARMLAND IN TENNESSEE 2–4, 19 (2023), https://perma.cc/66QY-5H8M. But these installations require the approval and participation of TVA and do not change transmission ownership in the region.

[19] *See* AM. PUB. POWER ASS'N, *supra* note 17, at 10.

[20] *See* Susan Partain, *Challenging Costs: Public Power Hedges Transmission Expenses*, AM. PUB. POWER ASS'N (July 15, 2020), https://perma.cc/7KHT-SAH7.

TVA's Monopoly Power

The Tennessee Valley Authority's service territory offers a clear example of the transmission and generation constraints on public power entities' uptake of clean energy. TVA's influence over the clean energy transition in the Southeast derives from both federal law and TVA's use of that authority. TVA interprets two provisions of federal law—the TVA "fence" and the "anti-cherry picking" mandate—to provide it with a monopoly over energy generation and transmission in its territory. TVA's all-requirements contracts with LPCs have helped strengthen this power even as they also offer LPCs some generation flexibility. Current law, therefore, provides TVA with control over the energy mix within its service territory and little risk of defection or effective decarbonization pressure from LPCs.

I. THE ELECTRICITY SYSTEM IN TVA'S FOOTPRINT

TVA was the result of a New Deal-era effort to improve navigation on the Tennessee River and encourage economic development in the historically impoverished region.[21] Over time, the TVA Act's authorization for the government-owned corporation[22] to "produce, distribute, and sell electric power" became TVA's primary focus.[23] TVA both generates and transmits wholesale electricity to its customers. As of May 2023, TVA's generation portfolio included 3 nuclear plants, 5 coal-fired plants, 17 natural gas facilities, 29 hydroelectric dams, a diesel-fired generator site, a pumped storage facility, and 13 solar photovoltaic facilities.[24] Power purchase agreements provide

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[21] *See* Tenn. Valley Auth., Annual Report (Form 10-K), at 9 (Nov. 15, 2022) [hereinafter TVA 2022 10-K], https://perma.cc/Q89Z-G6K2.

[22] TVA exists somewhere outside the clear public/private dichotomy. *See* Michael P. Vandenbergh, Jim Rossi & Ian Faucher, *The Gap-Filling Role of Private Environmental Governance*, 38 VA. ENV'T L.J. 1, 19 (2020). The corporation's sole stockholder is the United States. *See* Comment, *The Tennessee Valley Authority Act*, 43 YALE L.J. 815, 818 (1934); Tenn. Valley Auth. v. Hill, 437 U.S. 153, 157 (1978). However, the corporation's revenue comes solely from its electricity sales. *See About TVA*, *supra* note 9. Federal courts have concluded that TVA is both a government entity and an entity that can be sued in its corporate capacity. *See* Ashwander v. Tenn. Valley Auth., 297 U.S. 288, 315 (1936) (referring to TVA as "an agency of the Federal Government"); Edwards v. Tenn. Valley Auth., 255 F.3d 318, 322 (6th Cir. 2001) (stating that TVA is a "wholly-owned corporate agency and instrumentality of the United States" and that the corporation can be sued in its corporate name); Posey v. Tenn. Valley Auth., 93 F.2d 726, 727 (5th Cir. 1937) ("Notwithstanding the corporate entity and its subjection to suit, the Authority is plainly a governmental agency of the United States, and except as Congress may otherwise consent, is free from state regulation or control.").

[23] *See* 16 U.S.C. § 831d(l) (2018); TVA 2022 10-K, *supra* note 21, at 9.

[24] Integrated Resource Plan and Environmental Impact Statement, 88 Fed. Reg. 32,265, 32,266 (May 19, 2023).

the rest of the necessary electricity.[25] Today, TVA's electricity sales exceed $12 billion annually, with the bulk of this revenue coming from sales to 153 LPCs located throughout most of Tennessee and parts of Alabama, Georgia, Kentucky, Mississippi, North Carolina, and Virginia.[26] TVA also sells power directly to large industrial customers and federal installations.[27] LPCs—locally owned distribution utilities or rural cooperatives—are parties to long-term, all-requirements contracts with TVA that govern much of their relationship, including wholesale prices and use of alternative suppliers.[28] These customers receive wholesale electricity through TVA's roughly 16,000 circuit miles of transmission lines.[29] LPCs then provide the electricity to local customers through LPC-owned and -maintained distribution systems at rates specified in their contracts with TVA.[30]

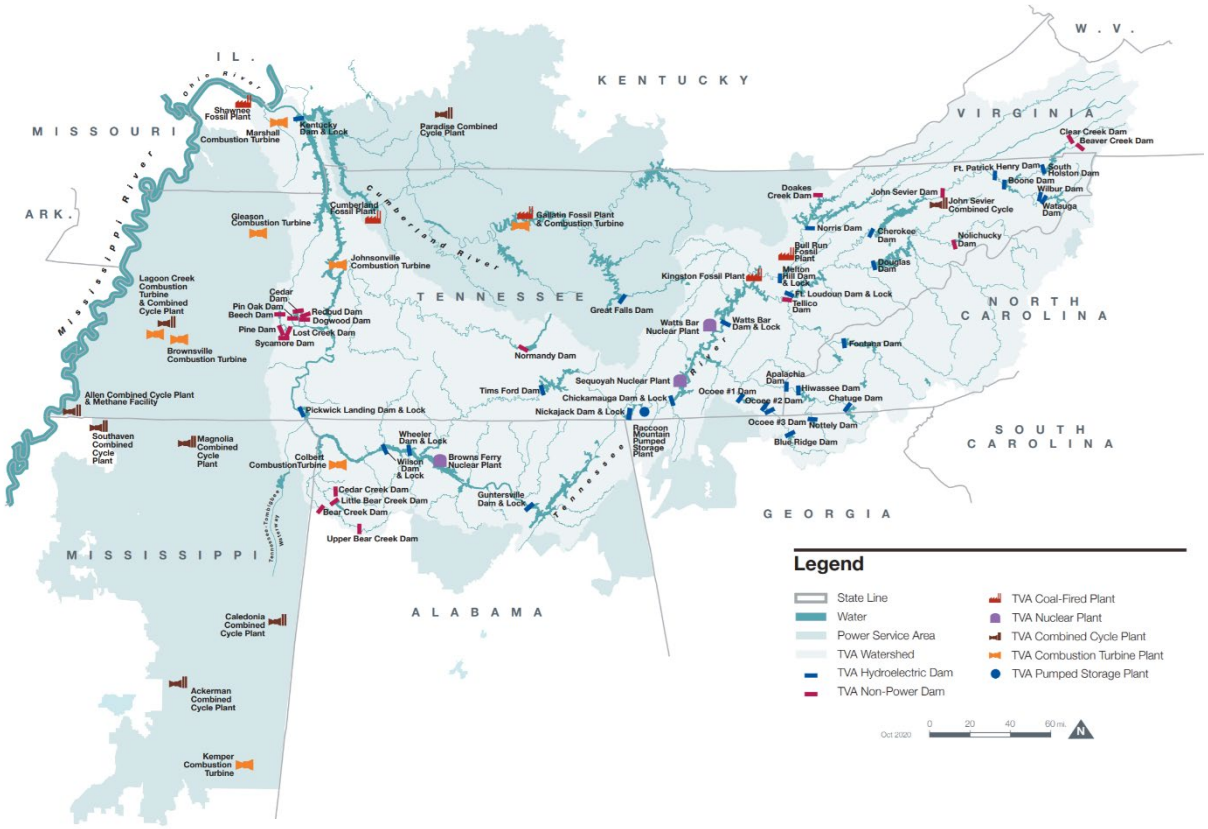

Figure 1 – TVA's Service Territory (Source: *About TVA*, *supra* note 2).

[25] *Id.*
[26] *See* TVA 2022 10-K, *supra* note 21, at 10–11.
[27] *Id.* at 12
[28] *See id.* at 11.
[29] Integrated Resource Plan and Environmental Impact Statement, *supra* note 24, at 32,266.
[30] *See* TVA 2022 10-K, *supra* note 21, at 11.

II. FEDERAL LAW AND TVA MONOPOLY POWER

Two provisions of federal law define TVA's power in relation to the LPCs that it serves. The first is the "fence" provision of the TVA Act. This 1959 amendment to the TVA Act prohibits TVA from selling its electricity into the wholesale market outside of the area for which it was the primary source of wholesale power on July 1, 1957.[31] This fence was originally intended to protect private utilities from TVA competition,[32] and TVA remains able to purchase some of its power from other utilities.[33]

TVA's interpretation of the anti-cherry-picking exemption in the Federal Power Act (FPA) creates TVA's monopoly on wholesale electricity generation and transmission inside the fence. Typically, FERC can require utilities to allow interconnection to their systems or can issue an electricity wheeling order, which requires a utility to provide wholesale transmission services to competitors at rates that promote economic efficiency.[34] But the anti-cherry picking provision states that no such orders can apply to "an electric utility which is prohibited by Federal law from being a source of power supply . . . outside an area set forth in such law."[35] In other words, the fact that federal law constrains TVA to operation within the fence means that TVA is exempt from FERC requirements to provide other wholesale electric utilities access to its transmission lines.[36]

Because TVA is not required to allow utilities from outside its service area to use its transmission lines, possible competitors must build entirely new transmission lines if they wish to provide power inside the service area. [37] The anti-cherry-picking provision, therefore, effectively eliminates any competition for TVA within the fence. However, TVA may at any time to

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31 16 U.S.C. § 831n-4(a) (2018); *see also* Fig. 1.

32 Hardin v. Ky. Utils. Co., 390 U.S. 1, 7 (1968) ("[P]rotection of private utilities from TVA competition was almost universally regarded as the primary objective of the limitation.")

33 *See* Tenn. Valley Auth., Annual Report (Form 10-K), at 13 (Nov. 15, 2018), https://perma.cc/39LS-WCMA (showing that during the 2018 fiscal year, TVA's power sales included about 13% of purchased power from other electric power suppliers, based on kilowatt hours).

34 16 U.S.C. § 824j(b) (2018).

35 *See id.* § 824k(j).

36 *See id.*; *see also* Order on Petition, Athens Utils. Bd. v. Tenn. Valley Auth., 177 FERC ¶ 61,021, para. 9 (Oct. 21, 2021) [hereinafter Athens Utils. Bd. FERC Order] (explaining that § 824k(j) "is sometimes referred to as the Anti-Cherry-picking Amendment and provides that the Commission may not compel TVA to wheel power if such power will be consumed within the Fence").

37 *See* Debra C. Jeter, Randall S. Thomas & Harwell Wells, *Democracy and Dysfunction: Rural Electric Cooperatives and the Surprising Persistence of the Separation of Ownership and Control*, 70 ALA. L. REV. 361, 417 (2018).

voluntarily wheel power for delivery within the fence if it so chooses. Because TVA has elected not to allow wheeling of power within the fence, the LPCs that purchase wholesale electricity for local distribution are left without the option to buy power from other wholesale suppliers.

Some LPCs have argued that the anti-cherry picking provision does not create a blanket prohibition on FERC orders requiring TVA to give third parties access to its transmission systems.[38] In 2021, a group of LPCs—Athens Utilities Board, Gibson Electric Membership Corporation, Joe Wheeler Electric Membership Corporation, and Volunteer Energy Cooperative—petitioned FERC to order TVA to provide access to its transmission system at prevailing rates so that the LPCs could access alternative electricity supplies outside the TVA fence.[39] They asserted that another provision of the FPA—section 211A—provides FERC with the discretion to compel an unregulated transmitting utility like TVA to provide transmission services to third parties.[40] FERC, in a three-to-one vote, "decline[d] to order unbundled transmission service to [the Local Power Companies]."[41] The Commission noted that section 211A provides it with discretion to issue orders requiring a utility to provide transmission services, and, in this instance, the Commission had chosen "not to exercise" that discretionary authority.[42] Notably, FERC did not explicitly reject the LPCs' argument that FERC could use section 211A to order TVA to provide access to its transmission system. Although voting to dismiss the utilities' petition, FERC Chairman Richard Glick criticized TVA's fence as "a vestige of a bygone era" that prevents the utility's customers from shopping for cheaper or cleaner power.[43] He also urged Congress to consider enacting legislation to eliminate the fence and enable LPCs to access alternative sources of supply.[44] In a dissent, FERC Commissioner Allison Clements said FERC had the authority to approve the petition and that approving it was in the public interest.[45]

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[38] *See* Ethan Howland, *FERC Rejects Utilities' Request to Open TVA to Competition*, UTIL. DIVE (Oct. 22, 2021), https://perma.cc/FWX5-KVNP.
[39] *See* Athens Utils. Bd. FERC Order, *supra* note 36, para. 1.
[40] *Id.* paras. 21–26.
[41] *Id.* para. 1.
[42] *Id.* para. 90.
[43] Order on Petition, Athens Utils. Bd. v. Tenn. Valley Auth., 177 FERC ¶ 61,021, para. 2 (Glick, concurring).
[44] *Id.*
[45] Order on Petition, Athens Utils. Bd. v. Tenn. Valley Auth., 177 FERC ¶ 61,021, para. 1 (Clements, dissenting).

III. TVA'S CONTRACTS WITH LPCS

The relationship between TVA and LPCs has grown more lopsided with the introduction of new standard power supply contracts. Section 10 of the TVA Act authorizes the utility to sell surplus electricity to states, municipalities, and corporations under contracts "for a term not exceeding twenty years."[46] In 2019, TVA started offering long-term agreements to LPCs to purchase electricity exclusively from TVA for a term of twenty years, but provisions in the new standard agreement make the contract term longer in practice. First, the standard agreement includes a provision for its automatic renewal each year.[47] Second, the agreement requires the LPC to provide 20 years' notice to terminate the agreement.[48] Third, the agreement creates a large risk to providing notice: from the date that TVA receives the termination notice, it has "no obligation to make or complete any additions to or changes in any transformation or transmission facilities for service" to the local distribution utility.[49] Critics of the new long-term agreements have argued that these provisions create a "never ending contract."[50]

The long-term agreement offers some benefits to LPCs. TVA provides monthly bill credits throughout the contract, effectively reducing the cost of wholesale electricity for LPCs.[51] Additionally, the contract allows LPCs to self-generate up to 5% of their own electricity through a flexibility provision. [52] This "flexibility" still leaves most of the LPCs' local power mix up to

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46 16 U.S.C. § 831i (2018); *see also* Protect Our Aquifer v. Tenn. Valley Auth., 554 F. Supp.3d 940, 945 (W.D. Tenn. 2021).

47 *See Protect Our Aquifer*, 554 F. Supp.3d at 945; Daniel Tait & Joe Smyth, *TVA Attempts to Chain Local Power Companies to Longer Contracts in Effort to Prevent Defection Risk*, ENERGY & POL'Y INST. (Sept. 22, 2019), https://perma.cc/QWR6-TA2T. For an example of this 20-year contract, see Long-Term Agreement, City of Huntsville, Alabama and Tennessee Valley Authority, TV-54501A (Jan. 17, 2020), https://perma.cc/MSW6-VWTT [hereinafter Huntsville Agreement].

48 *See* Huntsville Agreement, *supra* note 47, § 1 ("Municipality may terminate this contract at any time upon not less than 20 years' prior written notice, and TVA may terminate this contract upon not less than 20 years' prior written notice, and TVA may terminate this contract upon not less than 20 years' prior written notice.")

49 *Id.*

50 *SELC Challenges TVA's Long-term Contract Decision*, S. ENV'T L. CTR. (Aug. 18, 2020), https://perma.cc/BQ5H-YGAW.

51 *See* Proposed TVA Board Resolution, Long-Term Agreement § 2(a), (d) (Aug. 22, 2019) [hereinafter Long-Term Agreement], https://perma.cc/YA2C-Y4BS.

52 *See* Tait & Smyth, *supra* note 47; Long-Term Agreement, *supra* note 51, § 2(e).

TVA, but the company has touted the provision as a means for LPCs to "add[] locally sourced energy for their customers."[53]

Although the contracts are controversial, legal challenges to the agreements and public pressure on LPCs to reject them have had mixed results. Most of LPCs have signed on to the new long-term contracts.[54] In 2020, southern conservation groups sued TVA, alleging that the long-term agreements' creation of an essentially never-ending contract violates the TVA Act's prohibition on contracts longer than 20 years and that TVA failed to conduct a required environmental analysis under the National Environmental Policy Act.[55] However, a federal judge in February 2023 found the plaintiff groups lacked standing and granted summary judgment to TVA.[56]

Utility Clean Energy Goals & Progress

Utilities are under increasing pressure to decarbonize.[57] Although there is no federal law setting greenhouse gas emission limits on utilities, the Biden Administration has set a goal of zero carbon emissions from the electricity sector by 2035.[58] Utilities and governments alike have set their own goals for decarbonization and renewable energy deployment.[59] Proponents of public power have suggested that publicly owned utilities are more likely to embrace such goals and act on them than

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53 *TVA Board Adopts Principles of Public Power Flexibility*, TENN. VALLEY AUTH. (Feb. 13, 2020), https://perma.cc/STH7-9RAE.

54 *See* Caroline Eggers, *The Memphis and TVA Breakup Saga Is About Money. But It's Also About Pollution and Environmental Racism*, WPLN NEWS (Oct. 6, 2022), https://perma.cc/6E9Q-SQLR (stating that, as of publication, "TVA says 146 of it 153 local power companies have already signed similar evergreen contracts").

55 Protect Our Aquifer v. Tenn. Valley Auth., 554 F. Supp.3d 940, 946 (W.D. Tenn. 2021).

56 Protect Our Aquifer v. Tenn. Valley Auth., No. 20-cv-02615, 2023 WL 1459265, at *1 (W.D. Tenn. Feb. 1, 2023).

57 *See* Alec Tyson, Cary Funk & Brian Kennedy, *Americans Largely Favor U.S. Taking Steps to Become Carbon Neutral by 2050*, PEW RSCH. CTR. (Mar. 1, 2022), https://perma.cc/9VH5-Y4JP (finding that "69% of U.S. adults prioritize developing alternative energy sources, such as wind and solar, over expanding the production of oil, coal and natural gas").

58 Exec. Order No. 14,057, 86 Fed. Reg. 70,935, 70,935 (Dec. 8, 2021).

59 *See, e.g.*, *GMP Launches Vision to Have 100% Renewable Energy by 2030*, GREEN MOUNTAIN POWER (Apr. 13, 2019), https://perma.cc/CBN9-9D8F (announcing the goal of a Vermont utility, Green Mountain Power, to have a 100% renewable energy supply by 2030); *Duke Energy Aims to Achieve Net-Zero Carbon Emissions by 2050*, DUKE ENERGY (Sept. 17, 2019), https://perma.cc/8MYC-EELX (setting a public goal of achieving net-zero carbon emissions by 2050); *see also* ALL. FOR A SUSTAINABLE FUTURE, HOW CITIES LARGE AND SMALL ARE TAKING ACTION 21 (Jan. 2020), https://perma.cc/FZR6-SYC5 (finding that of 177 U.S. cities surveyed, 39% have set a citywide renewable energy goal). Environmental advocates have criticized many utilities' renewable energy pledges as little more than greenwashing. *See generally* BOTTORFF, VER BEEK & STOKES, *supra* note 2.

are investor-owned utilities.[60] The layered public power regime in the TVA fence line, however, suggests that without opportunities for public accountability and control of the energy supply, public power entities will face challenges embracing clean energy.

This part considers the clean energy goals within the TVA fence. Given TVA's virtual monopoly on power generation in its service territory, TVA's generation portfolio planning, decarbonization goals, and decommissioning schedule have an enormous impact on decarbonization in the region. This part assesses both TVA's steps to decarbonize and whether—and to what extent—LPCs and local governments within the TVA fence have set goals for carbon-pollution free energy. Although these goals do not offer the full story on decarbonization efforts in the TVA region, they offer a window into the ability these public power entities and associated municipalities believe they have to increase clean energy.

I. TVA CLEAN ENERGY PROGRESS AND GOALS

TVA has no enforceable emissions reduction goal, but it has publicized its plans to lower carbon emissions and its aspirations for deeper reductions. Measured against a 2005 baseline, TVA achieved a 63% decrease in carbon emissions in 2020,[61] primarily through the retirement of coal-fired power plants and the addition of new nuclear generation.[62] The company has a strategy to reach a 70% reduction from the 2005 baseline by 2030 and asserts that it "see[s] a path to achieve approximately 80% reduction by 2035, through innovation and technologies."[63] Similarly, TVA "aspire[s] to achieve net-zero carbon emissions by 2050,"[64] fifteen years after the Biden Administration's goal of a zero-emissions electricity sector.

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60 *See, e.g.*, Welton, *Public Energy*, *supra* note 6, at 277.

61 TENN. VALLEY AUTH., LEADERSHIP & INNOVATION ON A PATH TO NET-ZERO: TVA AND THE ENERGY SYSTEM OF THE FUTURE 8 (May 6, 2021) [hereinafter TVA PATH TO NET ZERO], https://perma.cc/N8WK-FHKM.

62 *See id.*; HEATHER POHNAN & MAGGIE SHOBER, S. ALL. FOR CLEAN ENERGY, TRACKING DECARBONIZATION IN THE SOUTHEAST: FIFTH EDITION 8 (Aug. 2023) [hereinafter TRACKING DECARBONIZATION IN THE SOUTHEAST 2023], https://perma.cc/3HEV-KRGA.

63 TVA PATH TO NET ZERO, *supra* note 61, at 4.

64 *Id.* at 5.

TVA's current portfolio and planned natural gas buildout show a shift from rapid to more gradual decarbonization. Most of TVA's power is carbon-emissions free, but very little of that electricity comes from renewable sources.[65] In 2022, just 5% of TVA electricity came from power purchase agreements for renewable energy, while 35% came from TVA-owned fossil fuel plants.[66] TVA has acknowledged that under least-cost planning assumptions all of its coal-fired plants will retire by 2035.[67] But even where TVA is replacing those plants, it has not prioritized clean energy alternatives. Instead, TVA "replaces coal nearly one-for-one with gas."[68]

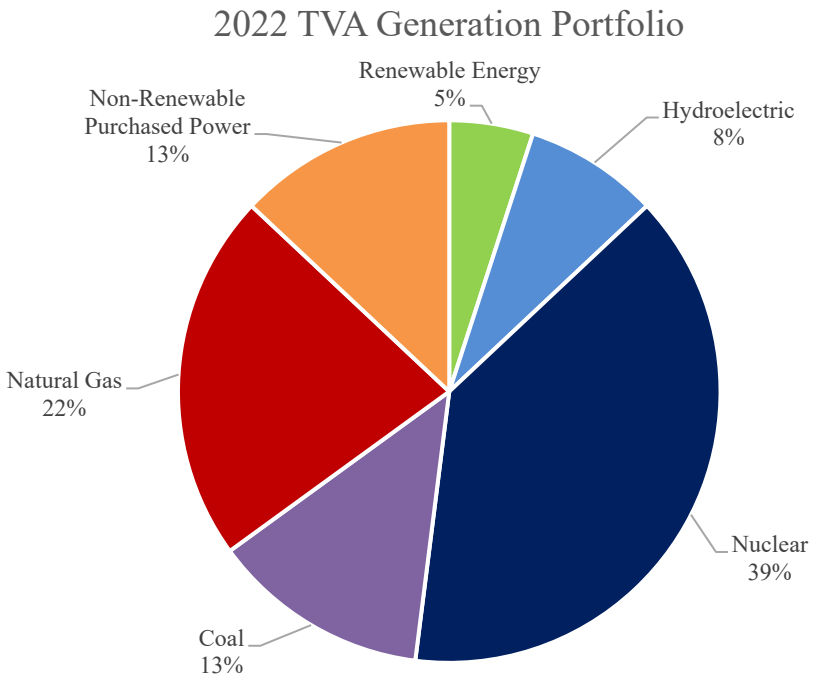

Figure 2 — Source of TVA's wholesale electricity sales (Source: Integrated Resource Plan and Environmental Impact Statement, *supra* note 24, at 32,266)

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65 TENN. VALLEY AUTH., 2019 INTEGRATED RESOURCE PLAN EXECUTIVE SUMMARY (2019), https://perma.cc/84LH-JQFE.

66 Integrated Resource Plan and Environmental Impact Statement, *supra* note 24, at 32,266.

67 TENN. VALLEY AUTH., AGING COAL FLEET EVALUATION 18 (May 2021), https://perma.cc/XJZ9-K9BJ.

68 TRACKING DECARBONIZATION IN THE SOUTHEAST 2023, *supra* note 62, at 8; *see also* Maggie Shober, *TVA Plans to Replace Cumberland Coal Plant with Another Fossil Fuel*, S. ALL. FOR CLEAN ENERGY (May 2, 2022), https://perma.cc/6GUU-Z29D; BOTTORFF, VER BEEK & STOKES, *supra* note 2, at 11 (giving TVA an "F" score on its coal and gas retirement and clean energy plan). The Center for Biological Diversity has emphasized that there is an economic cost to TVA's clean energy delay and has concluded that if TVA were to reduce electric-sector carbon emissions 100% by 2035, the Tennessee Valley could save $255 billion by 2050 and add roughly 15,600 jobs a year. CTR. FOR BIOLOGICAL DIVERSITY, TVA'S CLEAN ENERGY FUTURE 4 (2023), https://perma.cc/ZA3F-3CKP.

In 2023, TVA began a new generation planning process,[69] which offers an opportunity for the utility to consider adding more clean energy to its portfolio. The Integrated Resource Plan (IRP) studies how TVA will satisfy customer demand for electricity through 2050 and includes a programmatic Environmental Impact Statement (EIS).[70] The company completed its last IRP in 2019,[71] and this new planning process will finish in 2024.[72] The company has so far solicited public comment on "the scope of the EIS and environmental issues that should be addressed as part of this EIS."[73] TVA is simultaneously conducting a "Valley Pathways Study" that examines "all segments of the economy to accelerate the region's clean-energy economy," with the aim of fostering a national reputation "for innovation in new nuclear, renewable energy, electric vehicles, energy storage and hydrogen."[74] This study is separate from the IRP process and larger in scope.[75] TVA has explained that whereas IRP planning "seeks to set the strategic direction of how TVA will meet future electricity demand and achieve TVA's mission," the Valley Pathway Study is broader and examines "the various methods that the entire valley region could use to decarbonize."[76]

TVA has not signaled that it plans to change its current decarbonization trajectory in a meaningful way through either planning process. Despite criticism from environmental groups, TVA has continued its plan to replace coal-fired plants with gas plants.[77] Its approved solar projects so far are small,[78] and TVA has argued that its replacement of its Cumberland Fossil Plant

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69 Integrated Resource Plan and Environmental Impact Statement, *supra* note 24, at 32,265.

70 *Id.* at 32,226.

71 *See generally* TENN. VALLEY AUTH., 2019 INTEGRATED RESOURCE PLAN: VOLUME I – FINAL RESOURCE PLAN (2019), https://perma.cc/5AWJ-PFKM.

72 Integrated Resource Plan and Environmental Impact Statement, *supra* note 24, at 32,267.

73 *Id.* at 32,225–26.

74 *TVA's Clean Energy Energizes Region's Economic Growth*, TENN. VALLEY AUTH. (Feb. 16, 2023), https://perma.cc/8FF6-MCP7.

75 *See Valley Pathways Study*, TENN. VALLEY, AUTH., https://perma.cc/FK6Z-KDWS (last visited Sept. 1, 2023) (explaining that the "study will look beyond just TVA's electricity service" and "is a key component of advancing TVA's Strategic Intent to Decarbonize")..

76 *Valley Pathways Study Stakeholder Working Group Meeting 3*, TENN. VALLEY AUTH. (July 18, 2023), https://perma.cc/55B3-2RYC.

77 *See* Anila Yoganathan & Josh Keefe, *TVA Announces New Natural Gas Plant to Replace Cumberland Coal Plant*, KNOXVILLE NEWS SENTINEL (Jan. 11, 2023), https://perma.cc/X9SF-VR8J; Dave Flessner, *TVA's Plans to Build Natural Gas Plants Ignite Fiery Debate*, CHATTANOOGA TIMES FREE PRESS (Aug. 23, 2023), https://perma.cc/SYV7-DQWX.

78 *See, e.g.*, *TVA Board Approves Pilot Project to Build Solar Facility at Shawnee Fossil Site*, TENN. VALLEY AUTH. (Nov. 10, 2022), https://perma.cc/XZK8-P5RL. *But see TVA Celebrates 90th Anniversary, Outlines Plan*

with a combined-cycle natural gas facility is a step toward clean energy in the Tennessee Valley.[79] Its "green" programs—which TVA advertises as meeting customer demand for clean energy[80] and some critics describe as greenwashing[81]—are small compared to those of other utilities.[82] These include a "Green Switch" program[83] through which customers pay an additional $2 per month to switch a portion of their electricity to solar energy; a "Green Connect" program[84] through which TVA connects rooftop solar panel installers with interested customers; and a "Green Flex" program in which "businesses with high energy consumption" can purchase renewable energy certificates as offsets for their energy use.[85] But in recent years, TVA has also cut back on its clean energy programs. In 2011, TVA began the "Green Power Providers" program that allowed homeowners and businesses who generate electricity from solar panels to sell excess electricity back to TVA's grid at profitable rates.[86] TVA's gradual reduction of the incentive eventually put the incentive below retail rates and led to a drastic decline in participation.[87] On December 31, 2019, TVA stopped accepting new applications for the program.[88] TVA has asserted that the

to Double Solar Energy Capacity, Tenn. Valley Auth. (May 10, 2023), https://perma.cc/QNV6-WBW6 (reporting on TVA's plans to review about 6,000 megawatts of solar energy and energy storage and begin awarding bids).

79 *TVA Retiring Cumberland, Continues Transition to Clean Energy Future*, TENN. VALLEY AUTH. (Jan. 10, 2023), https://perma.cc/B3G2-26XP.

80 *See, e.g.*, TENN. VALLEY AUTH., FY 2022 TVA SUSTAINABILITY REPORT: DELIVERING SUSTAINABLE SOLUTIONS 24 (2022), https://perma.cc/9J54-6QSW.

81 *See, e.g.*, Dorothy Slater, *The Tennessee Valley Authority's Incentive Structure Keeps Residents Hooked on Fossil Fuels*, NEW REPUBLIC (Dec. 13, 2022), https://perma.cc/6CRZ-YHFB (criticizing TVA for advertising "green" programs while cutting solar incentives and investing in fossil fuels).

82 *See* BRYAN JACOB, S. ALLIANCE FOR CLEAN ENERGY, SOLAR IN THE SOUTHEAST: SIXTH ANNUAL REPORT 7 (2023), https://perma.cc/Y5VQ-4HWN ("TVA solar ambition obviously falls well below its peer utility systems."); *see also* Julian Spector, *Is the Biggest US Public Utility Finally Catching Up on Clean Energy?*, CANARY MEDIA (July 26, 2023), https://perma.cc/9HRU-QQEN ("TVA had 993 megawatts of utility-scale solar operating in its footprint as of June 30[, 2023], meaning its entire seven-state territory has installed about 22% less solar capacity than Connecticut."); Maggie Shober, *TVA Releases Final Long-Term Resource Plan, and We Are Underwhelmed*, S. ALL. FOR CLEAN ENERGY (June 29, 2019), https://perma.cc/S5FB-WWBK (noting that TVA's plans for building out renewable energy in the next 20 years are less ambitious than those of other utilities).

83 *Green Switch*, TENN. VALLEY AUTH., https://perma.cc/TM7M-77XV (last visited Aug. 25, 2023).

84 *Green Connect*, TENN. VALLEY AUTH., https://perma.cc/9QXE-XEFE (last visited Aug. 25, 2023).

85 *Green Flex*, TENN. VALLEY AUTH., https://perma.cc/SE9R-BKSW (last visited Aug. 25, 2023).

86 *Green Power Providers*, TENN. VALLEY AUTH., https://perma.cc/57KV-7NKU (last visited Aug. 25, 2023).

87 Caroline Eggers, *Nashville and Memphis Rank Near the Bottom for Solar Capacity. Here's Why*, 90.3 WPLN NEWS (May 12, 2022), https://perma.cc/RJ63-6FER.

88 *Green Power Providers*, *supra* note 86.

maturing market and falling prices for solar energy eliminated the need for the Green Power Providers program.[89]

Although TVA is a public power entity, few political or regulatory checks on its decisions exist. TVA is not subject to oversight from an independent public utility commission. The TVA Board of Directors has greater autonomy than those of most utilities, and it is the "single and final authority on many TVA power activities" like "power planning, ratemaking, and public involvement."[90] But recent developments, including the confirmation of six new members of the Board of Directors,[91] may encourage TVA to pursue decarbonization and renewable energy generation more aggressively. The six new board members, nominated by the Biden Administration, hold a range of different backgrounds, but several have experience with sustainability planning and ties to progressive labor and environmental causes.[92] It is possible that these new commissioners may encourage TVA to increase its goals for deploying clean energy.

II. CLEAN AND RENEWABLE ENERGY PLANS WITHIN THE TVA FENCE

TVA's sluggish decarbonization and limited clean energy commitment do not necessarily mean that its customers are uninterested in transitioning to clean and renewable energy. This section examines the extent to which LPCs, cities, and other groups within the TVA fence have adopted energy decarbonization goals and how these entities discuss TVA's role in achieving those goals. A survey of LPC renewable energy goals yielded no public-facing targets. But LPCs have some ways to pursue clean energy projects with the cooperation of TVA, suggesting that even without direct control over generation, these entities are finding ways to decarbonize. Several cities in the TVA fence have set clean energy goals despite TVA's control over generation and transmission in the region.

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89 *See Green Power Providers*, *supra* note 86.

90 U.S. GEN. ACCOUNTING OFF., B-206775, REPORT TO SENATOR JIM SASSER, TENNESSEE VALLEY AUTHORITY: OPTIONS FOR OVERSIGHT 1 (1982), https://www.gao.gov/assets/emd-82-54.pdf.

91 *Six New Members Join TVA Board of Directors*, TENN. VALLEY AUTH. (Jan. 4, 2023), https://perma.cc/9A2H-G92N.

92 Ricky Junquera, *Senate Confirms New Board Members to Tennessee Valley Authority Board of Directors*, SIERRA CLUB (Dec. 21, 2022), https://perma.cc/B7AC-E9JN.

A. Local Power Companies

TVA sells electricity to 153 LPCs. A survey of LPC websites and publicly available information found that no LPC within the TVA fence has publicly committed to a clean energy goal. Although many LPCs publicize their participation in one of TVA's "green" programs,[93] none of the distribution companies has targets for the proportion or amount of clean energy that they will deliver to customers. This dearth of measurable LPC clean energy targets is likely due to the TVA regulatory scheme—namely, the 5% generation flexibility provision in long-term agreements and TVA's transmission monopoly—that leaves LPCs little ability to control the sources of electricity they purchase.

Despite a lack of concrete clean energy goals, several LPCs have participated in renewable energy projects in partnership with TVA. Large industrial customers have driven several of these recent projects. In early 2021, Jack Daniel's Distillery partnered with TVA, the LPC Duck River Electric Membership Corporation, and Silicon Ranch to provide their Lynchburg distillery with 20 megawatts of solar energy through TVA's Green Invest Program.[94] TVA and the LPC Warren Rural Electric Cooperative Corporation have also partnered with Silicon Ranch to develop the largest solar-plus-storage facility in TVA's Kentucky service territory.[95] The solar farm will provide 145 megawatts of solar power for a Facebook data center and 28 megawatts for a General Motors plant.[96] Although projects managers do not expect to complete construction until winter 2024,[97] General Motors has already begun advertising the project as part of their "journey to source 100% renewable energy by 2035 to meet GM's global electricity needs."[98]

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93 *See, e.g.*, KNOXVILLE UTIL. BD., ENVIRONMENT, SOCIAL & GOVERNANCE REPORT 2022 at 9 (2022), https://perma.cc/8WV3-FA3S (noting the Knoxville Utilities Board's "commitment to purchase solar power through TVA's Green Invest Program on behalf of KUB customers"); *Green Switch*, LENOIR CITY UTIL. BD., https://perma.cc/NL3J-B4Y4 (last visited Sept. 2, 2023) (advertising the opportunity for customers to participate in TVA's Green Switch program); *Renewable Energy*, NASHVILLE ELEC. SERV., https://perma.cc/3CDA-3YYT (last visited Sept. 2, 2023) ("NES partners with TVA to offer renewable energy programs, including Nashville's first community solar park, that harness the power of natural resources.").

94 *Tennessee Sunshine to Power Jack Daniel Distillery*, DUCK RIVER ELEC. MEMBERSHIP CORP. (Apr. 13, 2021), https://perma.cc/8BC5-Z4EV.

95 Tom Latek, *TVA to Build State's Largest Solar Site in South Central Kentucky*, KY. TODAY (Oct. 6, 2021), https://perma.cc/FYE4-AB6T.

96 *Id.*

97 *See Project Timeline*, LOGAN CNTY. SOLAR PROJECT, https://perma.cc/3S5N-2VEG (last visited Oct. 3, 2023).

98 *Let the Sunshine In: Kentucky Solar Project to Service Corvette Assembly Plant*, GEN. MOTORS, https://perma.cc/4KW7-2PH7 (last visited Aug. 30, 2023).

LPCs have also used TVA "green" programs and the new generation flexibility provision under their long-term agreements with TVA to develop their own solar projects. Solar developer Silicon Ranch has contracted with multiple LPCs to build new solar arrays, including a project with Bolivar Energy Authority and TVA for a 3.25 megawatt solar farm in Hardeman County, Tennessee, which will provide enough solar energy to power over 500 homes.[99] Similarly, the LPC BrightRidge partnered with Silicon Ranch and TVA pursuant to the 5% generation flexibility program to construct a 9-megawatt facility in Jonesborough, Tennessee.[100] Knoxville Utilities Board and Nashville Electric Service have both worked with TVA to construct community solar projects.[101]

Memphis Light, Gas, and Water (MLGW) has recently pushed back against TVA's new evergreen 20-year contract, in part due to public pressure from environmental groups and community activists. In September 2022, MLGW's senior leadership recommended keeping the TVA as the utility's power supplier.[102] However, during the public review period that followed, MLGW customers and civic organizations' representatives shared concerns through email, social media, and public meetings.[103] In December 2022, MLGW's Board of Commissioners unanimously voted to turn down the perpetual twenty-year contract offered, with the MLGW Board Chairman Mitch Graves stating that the contract was "too long of an agreement."[104] Unless MLGW decides to find an alternative source of energy, the utility will maintain its five-year rolling contract with TVA that requires five-years notice to terminate.[105]

Other LPCs are unlikely to follow Memphis's strategy because MLGW has a unique position in the TVA fence, both geographically and economically. MLGW, with over 440,000 electric

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[99] Valerie Swiantek, *Bolivar Energy Authority, Silicon Ranch, TVA Debut Bolivar Solar Farm*, SOLAR INDUS. MAG. (Mar. 21, 2023), https://perma.cc/B93J-NXV9.

[100] *BrightRidge and Silicon Ranch Break Ground on First Solar Project Under TVA Flexibility Program*, BRIGHTRIDGE (June 8, 2021), https://perma.cc/866A-C8KV.

[101] *See KUB Community Solar*, KNOXVILLE UTILS. BD., https://perma.cc/R85U-RVQ7 (last visited Oct. 3, 2023); *Case Study: NES Music City Solar*, LIGHTWAVE SOLAR, https://perma.cc/J9EZ-KEXT (last visited Oct. 3, 2023).

[102] *See MLGW Recommends Award of a 20-Year Contract to TVA*, MEMPHIS LIGHT, GAS & WATER (Sept. 1, 2022), https://perma.cc/NU38-39Y5.

[103] *See* Dulce Torres Guzman, *Memphis Utility Postpones Vote on TVA*, TENN. LOOKOUT (Nov. 11, 2022), https://perma.cc/64CG-8NT4; S. Env't. L. Ctr. et al. Letter to Memphis Light, Gas & Water Bd. of Cmm'rs (Sept. 30, 2022), https://perma.cc/HHS8-S2SV.

[104] Adrian Sainz, *Memphis Power Company Rejects TVA's Long-Term Deal*, AP (Dec. 7, 2022), https://perma.cc/JE58-GT6H.

[105] *Id.*

customers, is TVA's largest customer and represents 11% of TVA's total load.[106] Memphis is also on the very edge of TVA's footprint, enabling its LPC to purchase power from other providers if it were to void its contract with TVA and create new transmission lines.[107]

Ultimately, LPCs' limited bargaining power under the TVA regulatory scheme gives them little say in the generation sources supplying their electricity. The absence of clean energy portfolio plans or goals, therefore, makes sense given that no LPC can guarantee a particular energy mix from TVA. The only LPC challenging the prevailing contractual relationship between TVA and LPCs has a unique bargaining position within the footprint that other LPCs do not, so long as TVA's monopoly on wholesale electricity remains.

B. City and Metro Governments

Across the United States, over 180 cities and local governments have made clean energy goals.[108] Many of these cities have put those pledges into action, resulting in over 350 renewable energy deals and 8.28 gigawatts of renewable energy agreed to between 2015 and early 2020.[109] Those projects will provide "roughly the same electric generating capacity of Alaska, Hawaii, Rhode Island and Vermont combined."[110] But while many cities in the TVA fence have embraced decarbonization goals,[111] none as of April 2022 had signed onto the Sierra Club's 100% clean energy goal.[112] And many of the decarbonization plans of cities in the TVA fence exclude clean

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[106] *About*, MEMPHIS LIGHT, GAS & WATER, https://perma.cc/DU9S-LNSD (last visited Aug. 25, 2023).

[107] *See Economic Development*, TENN. VALLEY AUTH., https://perma.cc/SZC7-UPRV (last visited Aug. 30, 2023) (showing map of TVA territory, including Memphis's location near the fence line); Samuel Hardiman, *In a Big Step, Memphis Light, Gas and Water Will Go Out for Bids on Its Power Supply*, MEMPHIS COMM. APPEAL (Aug. 19, 2020), https://perma.cc/FZ9D-YWST (describing how MLGW's integrated resource plan considered the possibility of leaving TVA, building solar and gas generation, and constructing transmission lines to connect to the Midcontinent Independent System Operator).

[108] *See, e.g.*, *Ready for 100*, SIERRA CLUB, https://perma.cc/9CBV-H845 (last visited May 1, 2023) (noting that over 180 cities and towns have committed to 100% clean energy); *see also Green Power Partnership: Green Power Communities List*, U.S. ENV'T PROT. AGENCY (Jan. 20, 2023), https://perma.cc/KC76-5HBU (listing communities reporting their green power use as part of EPA's "green power communities" program).

[109] Tatsatom Gonçalves & Yuning Liu, *How US Cities and Counties Are Getting Renewable Energy*, WORLD RES. INST. (Jun. 24, 2020), https://perma.cc/XR2D-QBP4.

[110] *Id.*

[111] James Bruggers, *TVA's Push for Lengthy Utility Deals Could Set Back Green Initiatives in Tennessee Cities*, KNOX NEWS (Jan. 8, 2020), https://perma.cc/EHW6-9X7X.

[112] *See Check Out Where We Are Ready for 100%*, SIERRA CLUB (Apr. 22, 2022), https://perma.cc/8VXY-EV26 (showing no cities in the TVA fence that had committed to transitioning to 100% clean energy). The Sierra Club ended its Ready for 100 campaign in April 2022. *Id.*

energy goals. Below are some examples of cities within the TVA fence line that have made climate change mitigation and clean energy goals. These examples and analyses are not exhaustive. Nonetheless, these cities are some of the largest within Tennessee, the heart of TVA's monopoly territory, and are examples of the overall ability of cities within the fence line to develop clean energy and decarbonization plans.

1. Memphis, Tennessee

In April 2021, the Memphis City Council approved a Memphis Area Climate Action Plan that sets greenhouse gas reduction goals for the city and Shelby County.[113] Based on a 2016 benchmark, Memphis and Shelby County aim to reduce their emissions 51% by 2035 and reach a 71% reduction by 2050.[114] Notably, the plan also calls for increasing the proportion of carbon-free or clean energy—particularly solar and wind generation—in the city and county's electricity supply. The plan sets goals of 80% clean energy by 2035 and 100% by 2050.[115]

Memphis and Shelby County's Climate Action Plan identifies TVA as a crucial partner in—and potential barrier to—achieving these clean energy goals.[116] The plan notes that "[s]uccessful implementation will involve" TVA agreeing to increase the renewable energy sources in its portfolio and "exploring more flexible contract terms with TVA to potentially allow the purchase of renewable energy from other third-party providers."[117] Recent progress reports on the Memphis Area Climate Action Plan reiterate TVA's central role in achieving grid decarbonization, with the local governments in the position of "[a]dvocat[ing] for TVA to increase the amount of renewable energy sources . . . in its portfolio, whether through Renewable Energy Certificates, Power Purchase Agreements for renewable power, or development/ownership of a new renewable energy generation assets."[118] Even steps like local community shared solar projects producing wholesale

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[113] The Climate Action Plan was included in amendments to the Memphis 3.0 Comprehensive Plan, a joint planning document between Memphis and Shelby County. *See* Minutes, Telephonic Meeting of April 6, 2021 Recessed Meeting to April 20, 2021 Meeting of the City Council of Memphis ¶ 3 (Apr. 20, 2021), https://perma.cc/BT87-MZP4; *see also Memphis City Council Adopts Climate Action Plan*, S. ALL. FOR CLEAN ENERGY (Apr. 22, 2021), https://perma.cc/5MQJ-32NW.

[114] MEMPHIS, TENN. & SHELBY CNTY., TENN., MEMPHIS AREA CLIMATE ACTION PLAN 1 (2019), https://perma.cc/7T8U-5GEE.

[115] *Id.* at 66.

[116] *See id.* at 64–66.

[117] *Id.*

[118] MEMPHIS AREA CLIMATE ACTION PLAN: 2022 ANNUAL REPORT, *supra* note 12, at 10.

energy would require the cooperation and permission of TVA because MLGW's current contract provides that TVA is the area's sole supplier of electricity.[119] Memphis and Shelby County's ambitions, therefore, depend on TVA's willingness to embrace clean energy.

2. Nashville-Davidson County, Tennessee

Like Memphis, the Nashville-Davidson Metropolitan government has made general pledges to reduce greenhouse gas emissions. Former Nashville Mayor John Cooper joined the Global Covenant of Mayors in 2019, committing Nashville to "work toward reducing Nashville's community-scale emissions 30 percent by 2030 and 70 percent by 2050."[120] Mayor Cooper's 2022 "Sustainability Agenda" further pledged to cut the metropolitan government's greenhouse gas emissions by 80% from 2014 levels by 2050.[121] Although the government does not have renewable energy goals for the community, it has enacted renewable procurement goals for the government itself.[122] In 2019, the Metropolitan Council passed a bill requiring the Nashville-Davidson metropolitan government to increase the proportion of renewable energy powering its operations, with a goal of procuring 100% renewable energy for the government by 2041.[123] Taken together, these actions place pressure on TVA to incorporate more renewable energy into its plans over the next two decades.[124]

Nashville has taken some steps to expand renewable energy available in the region, even as the Nashville Electric Service's (NES) long-term agreement with TVA limits the metropolitan

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[119] *See* Tait & Smyth, *supra* note 47 ("As part of their current all-requirements contracts with TVA, local power companies are currently barred from buying energy from anyone except TVA or from generating their own.").

[120] *Mayor Cooper Announces Multiple Initiatives to Combat Climate Change and Promote Sustainability*, METRO. GOV'T OF NASHVILLE & DAVIDSON CNTY. MAYOR'S OFF. (Dec. 4, 2019), https://perma.cc/ZKL9-LAFG.

[121] *See Mayor Cooper Launches Early 2022 Sustainability Agenda*, METRO. GOV'T OF NASHVILLE & DAVIDSON CNTY. MAYOR'S OFF. (Feb. 1, 2022), https://perma.cc/KXF3-5ZL6; *see also* MAYOR COOPER'S SUSTAINABILITY ADVISORY COMM., REPORT ON METROPOLITAN GOVERNMENT OF NASHVILLE AND DAVIDSON COUNTY'S CLIMATE CHANGE MITIGATION ACTION PLAN 6 (2021), https://perma.cc/ZQT3-994S.

[122] Metro. Gov't of Nashville & Davidson Cnty., Ord. No. BL2019-1600 (2019) (as amended) [hereinafter BL2019-1600], https://perma.cc/FUN9-CUU5. The renewable energy procurement bill was part of a larger slate of green energy bills requiring electrification of the metropolitan government's vehicle fleet and setting efficiency standards for metropolitan government buildings. *See* Metro. Gov't of Nashville & Davidson Cnty., Ord. No. BL2019-1599 (2019) (as amended), https://perma.cc/QD99-255A (concerning energy efficiency in metropolitan-government-owned buildings); Metro. Gov't of Nashville & Davidson Cnty., Ord. No. BL2019-1598 (2019) (as amended), https://perma.cc/C8DJ-W355 (concerning metropolitan fleet electrification).

[123] *See* BL2019-1600, *supra* note 122.

[124] *See* Michael P. Vandenbergh, Jim Rossi & Ian Faucher, *The Gap-Filling Role of Private Environmental Governance*, 38 VA. ENV'T L.J. 1, 28–31 (2020).

government's options for switching the community to clean energy. Previously, all large-scale clean energy projects required TVA's approval and involvement under the all-requirements contract. For example, NES has previously worked with TVA on both a community solar project and a solar farm to serve Vanderbilt University.[125] NES's new perennial 20-year contract with TVA provides NES with "flexibility" in determining how up to 5% of its electricity is generated, which NES will use to expand clean energy in its service territory.[126] In September 2023, the NES Board approved a 5-year agreement with TVA pursuant to the flexibility provision. The agreement confirms NES's ability to purchase power from sources other than TVA in an amount up to 5% of NES's annual average power purchase from TVA.[127] The NES Board decision also outlines the utility's plans for the power: new solar panels on Nashville-Davidson Metropolitan government buildings; a new end-user renewable energy program, including rooftop solar; and a new 135 megawatt solar farm.[128]

3. Knoxville, Tennessee

Knoxville—where TVA has its headquarters[129]—has had success in expanding clean energy, although it has not established concrete clean energy commitments. In 2019, Knoxville enacted goals to reduce greenhouse gas emissions from city operations by 50% by 2030 and community-wide emissions by 80% by 2050 as compared to a 2005 baseline.[130] Two years later, Knoxville Mayor Indya Kincannon's climate change working group released a proposed plan for reducing emissions.[131] Among the recommendations is to "[d]evelop or amplify opportunities to invest in renewables at scale," but the report does not identify goals for the proportion of clean energy in

[125] *See* Nate Rau, *Nashville's First Community Solar Power Project Heading to Madison*, THE TENNESSEAN (Jan. 5, 2018), https://perma.cc/9JXP-EVA2; *University Joins Silicon Ranch, NES, TVA to 'Flip the Switch' on Vanderbilt I Solar Farm*, VAND. UNIV.: MYVU NEWS (Apr. 14, 2023), https://perma.cc/CTN5-R4AA.

[126] *See* Caroline Eggers, *NES Plots Future for Solar, Beyond TVA*, 90.3 WPLN NEWS (Apr. 4, 2023), https://perma.cc/M2GF-KUUP.

[127] *See* Nashville Elec. Power Bd., Regular Meeting Agenda at 20 (Sept. 27, 2023) [hereinafter, NES Bd. Meeting] (on file with author). For NES, this allows the utility to purchase or generate 70 megawatts. *Id.*

[128] *Id.* at 46–47.

[129] *See* TVA 2022 10-K, *supra* note 21, at 1.

[130] *See* Tyler Whetstone, *Knoxville City Leaders Announce Ambitious Climate Goals for 2030, 2050*, KNOXVILLE NEWS SENTINEL (June 5, 2019), https://perma.cc/3MEX-CARR; *Climate Change*, CITY OF KNOXVILLE, https://perma.cc/V7LU-82GP (last visited Sept. 4, 2023).

[131] CITY OF KNOXVILLE, TENN., 2021 ENERGY & SUSTAINABILITY WORK PLAN (2021), https://perma.cc/V5PL-KELK.

Knoxville's energy mix.[132] Nevertheless, clean energy projects have been a large part of the City's efforts to meet its emission reduction goals. Separate from the Knoxville Utilities Board's (KUB) planned community solar projects and existing solar facilities, the city itself owns five solar arrays.[133] The city also promotes residents' ability to participate in KUB's green programs with TVA, including Green Switch Match, Green Switch, and Green Flex.[134] Through TVA's Green Invest program, KUB plans to bring 502 megawatts of solar energy online to help the city reach its emission reduction goals.[135] Once the projects are complete, solar energy will meet at least 14% of KUB customers' electricity demand.[136]

4. Chattanooga, Tennessee

As with the other cities in the TVA fence line surveyed, Chattanooga has made general pledges to reduce carbon emissions but has not focused its decarbonization efforts on its electricity supply. The Chattanooga City Council adopted the city's Climate Action Plan in March 2023, setting a goal of achieving net-zero by 2050.[137] The plan does not set goals for clean energy, and energy is not one of its four main categories for action.[138] But the plan identifies ways that the city can partner with TVA to create new renewable energy projects. Chattanooga notes in the plan that it should negotiate with TVA for a contract under TVA's Green Invest program, which would allow the city and partners to build a new renewable energy project.[139]

C. The Effect of State Legislative Environments

State legislative efforts to impede the clean energy transition may offer some additional explanation for the limited clean energy ambitions of local governments and LPCs in the TVA region. Throughout the United States, state legislatures have passed laws prohibiting local

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[132] *Id.* at 13.
[133] *Clean Energy*, CITY OF KNOXVILLE, TENN., https://perma.cc/PR3Z-VUX5 (last visited Aug. 30, 2023).
[134] *Id.*
[135] *See Green Invest Partnership with TVA*, KNOXVILLE UTILS. BD., https://perma.cc/9BFN-5L8B (last visited Oct. 4, 2023).
[136] *Id.*
[137] CITY OF CHATTANOOGA, TENN., CHATTANOOGA CLIMATE ACTION PLAN 21 (2023), https://perma.cc/QN4Q-MLQL; *see also* Dave Flessner, *Chattanooga Rolls Out Updated Climate Action Plan*, CHATTANOOGA TIMES FREE PRESS (Mar. 7, 2023), https://perma.cc/6GPE-BYN9.
[138] *See generally* CHATTANOOGA CLIMATE ACTION PLAN, *supra* note 137.
[139] *See id.* at 29.

governments from banning natural gas in new construction.[140] Tennessee passed such a measure in 2020 even though no local government in the state had imposed such a ban.[141] Other states with some territory in the TVA fence have similarly passed preemption laws targeting electrification efforts.[142] The Tennessee legislature has also enacted laws preempting local governments from banning fossil fuel projects, prohibiting the use of natural gas, or regulating pipeline safety[143] and laws requiring local governments with renewable energy goals to include natural gas as a source of renewable energy.[144] Even without TVA's control of the energy mix, these state preemption measures may discourage local governments from setting clean energy goals. LPC clean energy goals, however, are harder for the state government to reach as the state does not directly regulate the companies. Steps that TVA takes to encourage LPCs to embrace clean energy therefore may support a region-wide transition to clean energy even in the face of state recalcitrance.

III. CLEAN ENERGY GOALS OUTSIDE THE TVA FENCE

That utilities and local governments inside the TVA fence line have few and limited goals for clean energy does not necessarily mean that this lack of clean energy ambition is the result of TVA policy. Such a survey merely shows that few plans exist and that local governments acknowledge their limited power to implement clean energy goals. But a comparison to similarly situated utilities and local governments outside TVA territory suggests that ambitions are greater where regulators have encouraged clean energy development and competition, where politically responsive public power entities have greater control over generation and transmission, or where such entities can contract for clean energy. Where regulators have not embraced clean energy and

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[140] *See* Klass & Wilton, *supra* note 6, at 109–10; Rebecca Leber, *An "Attack on American Cities" Is Freezing Climate Action in Its Tracks*, VOX (Sep. 29, 2021), https://perma.cc/XLH4-RQBX.

[141] Klass & Wilton, *supra* note 6, at 109–110.

[142] *See, e.g.*, An Act Relating to Energy Source Availability, H.B. 207, 2021 Reg. Sess. (Ky. 2021), https://perma.cc/SGQ3-HSHL (Kentucky law prohibiting all local law "that has the purpose or effect of prohibiting, discriminating against, restricting, limiting, or impairing, based upon the energy source, a consumer's ability to use" a utility service); An Act to Establish the "All Fuels Act of 2021," H.B. 632, 2021 Reg. Sess. (Miss. 2021), https://perma.cc/9URF-3FKX (Mississippi law preventing municipalities from banning "a service based upon the type or source of energy to be delivered to the individual customer"); An Act Relating to Energy Services, H.B. 446, 2021 Reg. Sess. (Ala. 2021), https://perma.cc/M3UG-V4KQ (Alabama law prohibiting municipal gas bans).

[143] An Act to Amend Tennessee Code Annotated, Title 4, Title 5, Title 6, Title7, Title 13, Title 65, and Title 68, Relative to Development, S.B. 2246, 2022 Reg. Sess. (Tenn. 2022), https://perma.cc/H9UX-CYFE.

[144] An Act to Amend Tennessee Code Annotated Title 4, Title 5, Title 6, Title 7, Title 13, Title 64, Title 65, Title 67, and Title 68, Relative to Energy, H.B. 946, 2023 Reg. Sess. (Tenn. 2023), https://perma.cc/JJS3-EUDG.

put few restrictions on investor-owned utilities' efforts to discourage clean distributed generation, local clean energy goals resemble the weak aspirations found in the TVA territory. In places with greater competition and regulatory support for clean energy, local governments and utilities are more quickly transitioning to clean energy, in contrast to the TVA region.

A. Birmingham, Alabama

Birmingham, Alabama, which sits south of the TVA fence, has signaled an interest in clean energy despite the fossil fuel-heavy energy mix in the region. In 2018, Birmingham Mayor Randall Woodfin pledged to support a goal of 100% sustainable energy in the city.[145] This goal is purely aspirational and merely pledges the city to "work towards" the 100% sustainable energy goal, with no concrete timeline or tangible decarbonization goals. Nevertheless, this target exceeds any of those seen in the TVA fence line. Birmingham's comprehensive plan also notes that the city can meet its goal of greater energy and resource efficiency in government operations in part by "expand[ing] the use of renewable energy sources for city operations."[146]

The vagueness of Birmingham's goals makes sense given the challenges for clean energy deployment in the state and the city's limited influence over the energy supply. The Alabama Power Company, a subsidiary of the Southern Company, is an investor-owned utility that serves not only Birmingham, but also most of Alabama.[147] In 2018, the Southern Company set a goal to achieve "low- to no-carbon emissions by 2050," which it defined as an "80% to 100% reduction in [greenhouse gas] emissions."[148] In 2020, the Southern Company revised its goal to reaching net zero emissions by 2050.[149] Alabama Power has committed to supporting those systemwide goals.[150] But Alabama Power has also been slow to embrace clean energy and has created stumbling blocks to the adoption of clean energy through distributed generation. The utility is

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145 *Alabama Mayors for 100% Sustainable Energy Pledge,* ALA. CITIES FOR SUSTAINABLE ENERGY (Mar. 14, 2018), https://perma.cc/89HD-REQB; *Mayor Randall Woodfin Pledges to Transition Birmingham to 100% Sustainable Energy*, SIERRA CLUB (June 30, 2018), https://perma.cc/P8TF-3YEQ.

146 CITY OF BIRMINGHAM, ALA., *Sustainability and Green Practices, in* CITY OF BIRMINGHAM COMPREHENSIVE PLAN 6.2 (2013), https://perma.cc/9L8Y-C7H4.

147 ALA. POWER, 2021 ANNUAL REPORT at I-6 (2021), https://perma.cc/X8GC-42YR.

148 SOUTHERN CO., IMPLEMENTATION AND ACTION TOWARD NET ZERO 4 (Sept. 2020), https://perma.cc/3TE4-HX76.

149 *Id.*

150 *2021 Sustainability Report*, ALA. POWER, https://perma.cc/C8MK-GZHQ (last visited Sept. 7, 2023).

investor-owned and vertically integrated utility, meaning that it controls generation, transmission, and distribution of electricity within its territory,[151] and Alabama law provides the utility with a monopoly in that service area.[152] In practice, this means that customers are locked into utility service for electricity generated predominantly by fossil fuel sources. In 2020, the Southern Company's generation mix was 51% gas, 17% coal, 17% nuclear, and 15% renewables and other.[153] Although TVA boasts more carbon-free energy, the Southern Company has a roughly equal proportion of renewable energy in its portfolio. Approximately 4% of the Southern Company's electricity came from solar and wind facilities in 2021, which is only slightly below the 5% of TVA's energy mix reported to come from renewable energy.[154]

Further challenges for clean energy arise from the absence of state regulation supporting decarbonization. Alabama remains one of the few states without a net metering policy or other system for compensating customers for power they supply to the distribution grid.[155] Furthermore, state regulators have not pushed Alabama Power to increase its investments in clean energy. Instead, the state allows the utility to charge customers a fee for connecting their solar panels to the distribution grid.[156] Alabama Power has been more enthusiastic about renewable energy projects it owns, as seen with its 2021 approval from the Alabama Public Service Commission (PSC) for an 80-megawatt solar project in Butler County and an expansion of the utility's

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[151] *See* The Southern Company et al., Annual Report (Form 10-K), at I-1 (Feb. 16, 2023) [hereinafter Southern Co. Annual Report], https://perma.cc/3CBQ-U47T.

[152] *See id.* at I-6, I-8; *see also* Ala. Power Co. v. Citizens of State of Ala., 527 So. 2d 678, 680, 683 (Ala. 1988) (discussing the state's power to grant territorial franchises to electric utilities and Alabama Power's territory).

[153] SOUTHERN CO., COMPANY OVERVIEW FACT SHEET (Feb. 2021), https://perma.cc/L8PY-M3J8. The "renewables and other" category includes wind, solar, hydro, biomass, landfill gas, and fuel cells. *See* SOUTHERN CO., ELECTRIC OPERATIONS: ENERGY PORTFOLIO TRANSITION & SCENARIO PLANNING (2023), https://perma.cc/46H2-HSJK.

[154] *See* TRACKING DECARBONIZATION IN THE SOUTHEAST 2023, *supra* note 62, at 6.

[155] *See* Lyndsey Gilpin, *Why Alabama Still Lags the Rest of the Southeast on Solar*, ENERGY NEWS NETWORK (Apr. 6, 2017), https://perma.cc/63E6-PVHL.

[156] *See* Order at 22–24, Bankston v. Ala. Power Co. (*In re* Rate Rider RGB), No. 32767 (Ala. Pub. Serv. Comm'n Oct. 16, 2020). In 2020, the Alabama Public Service Commission approved Alabama Power's monthly charge of $5.41 per kilowatt of solar capacity installed. *Id.* FERC later denied environmental groups' petition for an enforcement action against the Public Service Commission, but Commissioners Richard Glick and Allison Clements cautioned that the solar charges may violate the Public Utility Regulatory Policies Act of 1978. *See* Notice of Intent Not to Act, Bankston v. Ala. Pub. Serv. Comm'n, 175 FERC ¶ 61,181 (June 1, 2021).

renewable generation certificate program.[157] However, the Alabama PSC has pushed back against some of Alabama Power's proposed solar buildout while approving new natural gas facilities.[158]

B. Asheville, North Carolina

Asheville, which lies in Buncombe County, sits just east of TVA's fence line. The city has a goal to power all municipal operations with renewable energy by 2030.[159] Buncombe County has adopted a similar resolution setting a goal of reaching 100% renewable energy for county operations by 2030 and for the entire community by 2042.[160] Asheville has publicized actions taken in furtherance of its renewable energy goal,[161] including the installation of a 57.5-kilowatt solar array, the city's first locally sited renewable energy project.[162]

Duke Energy subsidiaries serve the city and county.[163] Duke Energy Carolinas and Duke Energy Progress are investor-owned utilities that control generation, transmission, and distribution and are subject to the regulation of the North Carolina Utilities Commission.[164] As of 2021, renewable energy made up only 4% of Duke Energy Carolinas' portfolio and 9% of Duke Energy Progress's portfolio.[165] For both utilities, about half of their resource mix was fossil fuels that year.[166] Nevertheless, like TVA's aspiration to achieve net-zero by 2050,[167] Duke has a net-zero by 2050 goal that includes not only its Scope 1 emissions, but also Scope 2 and certain Scope 3

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[157] *See* Kim Chandler, *Lawsuit Says Alabama Blocking Solar Power with Unfair Fees*, AP (July 13, 2021), https://perma.cc/H9LX-R6RS*; Alabama Public Service Commission Greenlights More Large-Scale Solar*, S. ENV'T L. CTR. (June 15, 2023), https://perma.cc/6APF-23EY.

[158] *See* Dennis Pillion, *Alabama Power $1.1 Expansion Approved, Except Solar Projects*, AL.COM (June 17, 2022), https://perma.cc/23F4-X9H6.

[159] Resolution 18-279, Resolution Establishing a 100% Renewable Energy Goal for the City of Asheville (Oct. 23, 2018), https://perma.cc/5URJ-P8DK.

[160] CADMUS GRP., DRAFT REPORT, MOVING TO 100 PERCENT: RENEWABLE ENERGY TRANSITION PATHWAYS ANALYSIS FOR BUNCOMBE COUNTY AND THE CITY OF ASHEVILLE (July 31, 2019), https://perma.cc/56Q9-GBR2; *100% Renewable Energy*, BUNCOMBE CNTY., N.C., https://perma.cc/FGQ8-ZDMS (last visited Oct. 4, 2023).

[161] *Energy: 100% Renewable Energy Initiative*, CITY OF ASHEVILLE (Mar. 14, 2023), https://perma.cc/WJS8-5VKH.

[162] *Id.*; Polly McDaniel, *City of Asheville 'Flips the Switch' on Solar Panels at Renovated Transit Station*, CITY OF ASHEVILLE (Oct. 2, 2020), https://perma.cc/H6N6-HAMV.

[163] *See North Carolina Service Territory*, DUKE ENERGY (2017), https://perma.cc/3RMU-LAWD. Duke Energy subsidiaries—Duke Energy Progress and Duke Energy Carolinas—both serve customers in Buncombe County. *Id.* For clarity and in keeping with how North Carolina's Energy Plan discusses the relevant actors, this paper discusses Duke Energy as the relevant entity. *See* N.C. DEP'T OF ENV'T QUALITY, NORTH CAROLINA CLEAN ENERGY PLAN: POLICY & ACTION RECOMMENDATIONS 21 (Oct. 2019), https://perma.cc/PF8V-EU2C.

[164] *See* Duke Energy et al., Annual Report (Form 10-K), at 22 (Feb. 27, 2023), https://perma.cc/TS3P-MJB4.

[165] TRACKING DECARBONIZATION IN THE SOUTHEAST 2023, *supra* note 62, at 5.

[166] *Id.*

[167] *See* TVA CARBON REPORT, *supra* note 45.

emissions.[168] To further that goal, Duke plans to limit its energy generated from coal to represent less than 5% of total generation by 2030 and to stop using coal entirely by 2035.[169]

Regulation and legislation promoting clean energy in North Carolina are likely contributing factors to Duke Energy's plans for increasing its renewable energy portfolio and Asheville and Buncombe County's clean energy goals. In 2021, North Carolina passed House Bill 951, which requires the North Carolina Utilities Commission to "take all reasonable steps to achieve . . . carbon neutrality by the year 2050" and allows utilities to securitize some of their remaining debt on operational coal units, which could make those units easier to retire.[170] TVA, as a federal entity, is not subject to the state portfolio requirements, whereas Duke Energy is. North Carolina also has a strong net-metering policy applicable to utilities that fall under the jurisdiction of its utilities commission, meaning that Duke Energy must pay solar panel owners for the power the panels contribute to the distribution grid.[171] State law also require utilities to purchase 45% of their solar power from small solar producers.[172]

C. Athens-Clarke County, Georgia

On May 21, 2019, the Athens Clarke-County consolidated government (ACC) adopted a resolution committing the government to meeting 100% of its electricity needs with clean and renewable energy by 2035 and meeting all other community electricity demand with 100% clean and renewable energy by 2050.[173] ACC approved a plan to implement these goals based on

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[168] *Duke Energy Expands Clean Energy Action*, DUKE ENERGY (Feb. 9, 2022), https://perma.cc/J6U2-92NE.

[169] *Id.*; *see also* Emma Penrod, *Duke Energy Proposes New Solar, Wind and Nuclear, But Environmentalists Decry Reliance on Gas*, UTIL. DIVE (May 17, 2022), https://perma.cc/FMB8-VUAJ.

[170] 2021 N.C. Sess. Law 165 § 1. Some environmental advocates have argued that the law, although reflecting a step in the right direction, is insufficiently ambitious. *See, e.g.*, Maggie Shober, *North Carolina's HB 951: Improved But Still Problematic*, S. ALL. FOR CLEAN ENERGY (Oct. 7, 2021), https://perma.cc/9PLH-MDZN (praising the intent of the bill but arguing that the final version is "watered down" and less enforceable than necessary).

[171] *See* Iulia Gheorghiu, *Duke Net Metering Agreement with Renewables Advocates Expected to Increase North Carolina Solar Adoption*, UTIL. DIVE (Dec. 1, 2021), https://perma.cc/8VS7-RJLQ.

[172] 2021 N.C. Sess. Laws 165 § 1(2)(b).

[173] Minutes, Special Called Sess. of Mayor and Comm'n of the Unified Gov't of Athens-Clarke Cnty., Ga. (May, 21, 2019), https://perma.cc/TFG6-T878; ATHENS-CLARKE CNTY., DRAFT CLEAN & RENEWABLE ENERGY PLAN 6 (2022), https://perma.cc/5E89-CDX3.

community input on August 2, 2022.[174] Other Georgia cities, including Atlanta and Savannah, have made similar pledges to achieve 100% clean energy.[175]

Four electric utilities—Georgia Power, Jackson EMC, Walton EMC, and Rayle EMC—serve customers in Clarke County.[176] Jackson EMC, Walton EMC, and Rayle EMC are public power entities and members of Green Power EMC, a not-for-profit corporation that finds and negotiates renewable power purchase agreements for its members.[177] Through that partnership, the utilities have, as of January 2023, made renewable energy purchase agreements with large industrial customers, brought on line 975 megawatts of solar energy, and planned for almost double that capacity in the coming years.[178] Georgia Power, an investor-owned utility and subsidiary of the Southern Company, sells the largest share of electricity in the county.[179] Because it is subject to the regulation of the Georgia Public Service Commission (PSC), Georgia Power must develop and submit an IRP every three years that outlines how the utility will meet energy demands in the next two decades.[180] In 2022, the Georgia PSC approved Georgia Power's latest IRP.[181] This IRP includes a plan for retiring almost all of Georgia Power's coal plants by 2028, adding 2,300 megawatts of renewable energy resources in the next three years, and adding 6,000 megawatts of renewable energy resources by 2035.[182] Although Georgia Power does not have a goal for achieving a particular proportion of clean energy in its generation portfolio, it has stated that it

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[174] Cary Ritzler, *Georgia Cities Set Big Goals for Renewable Energy*, S. ALL. FOR CLEAN ENERGY (Oct. 11, 2022), https://perma.cc/98FK-LBV7.

[175] *Id.*; CITY OF ATLANTA MAYOR'S OFF. OF RESILIENCE, CLEAN ENERGY ATLANTA 6 (2019) https://perma.cc/BDT5-QK5E; *100% Savannah*, SAVANNAH, https://perma.cc/9UZZ-3BGE (last visited Sept. 7, 2023).

[176] *See* DRAFT CLEAN & RENEWABLE ENERGY PLAN, *supra* note 173, at 22.

[177] *See About Green Power EMC*, GREEN POWER EMC, https://perma.cc/Z76U-8YGY (last visited Sept. 26, 2023); *Georgia's EMCs*, GREEN POWER EMC, https://perma.cc/MVG9-BJTC (last visited Sept. 26, 2023) (listing Jackson EMC, Walton EMC, and Rayle EMC as members).

[178] Meris Lutz, *Big Business Wants Solar Energy. Can Georgia Utilities Keep Up?*, ATLANTA J.-CONST. (Jan. 17, 2023), https://perma.cc/47KN-UB5L.

[179] DRAFT CLEAN & RENEWABLE ENERGY PLAN, *supra* note 173, at 22.

[180] *See* GA. CODE ANN. § 46-3A-2 (2022); GA. COMP. R. & REGS. 515-3-4.06 (2022). Georgia regulations define "integrated resource planning" as, in part, "[a] utility resource planning process in which an integrated combination of demand-side and supply-side resources is selected to satisfy future energy service demands in the most economic and reliable manner while balancing the interests of utility customers, utility shareholders, and society-at-large." *Id.* 515-3-4.02(25).

[181] *See* Order Adopting Stipulation, In re Georgia Power's 2022 Integrated Resource Plan, No. 44160, at 16 (Ga. Pub. Serv. Comm'n July 29, 2022).

[182] *See Georgia Power's Transformational Plan for State's Energy Future Approved, Helps Ensure Company Will Continue to Meet Needs of Customers and State*, GA. POWER (July 21, 2022), https://perma.cc/RZ63-Z6MQ.

plans to retire its coal capacity by 2028 and to add additional capacity from power purchase agreements with existing natural gas facilities.[183] As of 2021, the utility's resource mix was 66% fossil-fuel power and 5% solar and wind resources.[184]

Favorable state policies cannot entirely explain the local interest in renewable energy. Georgia lacks a clean or renewable energy portfolio standard.[185] In 2020, state regulators required Georgia Power to introduce a monthly net metering program providing a higher rate than had previously existed for power produced. But regulators have yet to expand the program, which provides just 5,000 spots for net metering for the over 2.5 million Georgia Power customers.[186]

D. Public Power Renewable Energy Goals Far from the TVA Fence

Several public utilities, although far from the TVA fence line, offer a glimpse of public power entities' clean energy potential when they have greater influence over—or even control of—transmission and generation. Local interest in clean energy can become achievable commitments where these utilities are able to make choices about the sources of their electricity. Austin Energy, the Nebraska Municipal Power Agency, and Kit Carson Electric Cooperative all have ambitious clean energy goals and are taking steps to realize those goals through their power over generation and transmission.

Austin Energy—a public utility owned by Austin, Texas[187]—offers an example of how clean energy ambitions can flourish with utility transmission access and generation choice. Austin is working toward a community-wide goal to reach net-zero greenhouse gas emissions by 2040,[188] and local resolutions have led its utility to develop a plan to achieve 100% carbon-free electricity generation by 2035.[189] In the fiscal year of 2022, half of Austin Energy's electricity came from

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[183] Iulia Gheorghiu, *Georgia Power to Go Coal-Free by 2028, Double Renewables by 2035, But Advocates Decry Gas Plans*, UTIL. DIVE (Feb. 3, 2022), https://perma.cc/L4R4-JFWL.

[184] TRACKING DECARBONIZATION IN THE SOUTHEAST 2023, *supra* note 62, at 6.

[185] *See Georgia: Renewable Portfolio Standard*, STATE POL'Y OPPORTUNITY TRACKER (July 2, 2021), https://perma.cc/P9A9-27EZ (showing that the state has no portfolio standard).

[186] Drew Kann, *Report: Solar Energy Is Growing in Georgia, But There's More to the Story*, ATL. J.-CONST. (June 15, 2023), https://perma.cc/L2B4-VUN5.

[187] *See Austin Energy by the Numbers*, AUSTIN ENERGY (July 20, 2022), https://perma.cc/R4EH-8G37; *Service Area Map*, AUSTIN ENERGY, https://perma.cc/KK37-9LR3 (last visited Aug. 30, 2023).

[188] CITY OF AUSTIN, AUSTIN CLIMATE EQUITY PLAN 6 (Sept. 2021), https://perma.cc/FK3C-NVK6.

[189] AUSTIN ENERGY, AUSTIN ENERGY RESOURCE, GENERATION AND CLIMATE PROTECTION PLAN TO 2030 (2020), https://perma.cc/3LSX-368Y; *Environmental Excellence*, AUSTIN ENERGY, https://perma.cc/R33P-UKW3 (last visited Aug. 30, 2023); *see also* Welton, *Public Energy*, *supra* note 6, at 333–34.

renewable sources.[190] Austin Energy also operates a "GreenChoice" program that allows customers to subscribe a renewable energy plan that matches their demand to purchased wind energy.[191] Unlike the LPCs in the TVA footprint, Austin Energy owns and operates its own transmission system and several power plants.[192] It is also able to purchase renewable energy from Texas's independent wholesale energy market.[193]

Even public power entities serving numerous municipalities have made commitments to embrace clean energy. The Municipal Energy Agency of Nebraska (MEAN) has a goal of achieving a carbon-neutral power resource portfolio by 2050.[194] MEAN is a not-for-profit wholesale power supplier to 69 community members in Colorado, Iowa, Nebraska, and Wyoming,[195] and its leadership has emphasized that its current clean energy goal was the result of these members' lobbying for a more robust clean energy portfolio.[196] Indeed, several communities that MEAN serves have their own clean energy goals or have already succeeded in securing 100% renewable energy.[197] Aspen, Colorado, for example, has touted an electricity system using 100% renewable energy since 2015, with most of that power acquired from MEAN.[198]

Traditional distribution-only utilities may also find a pathway to more clean energy by investing in their own generation assets. Kit Carson Electric Cooperative, a member-owned electric distribution cooperative based in Taos, New Mexico, does not have its own transmission lines, but the Cooperative's growing solar assets have supported its clean energy ambitions.[199] In

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[190] *Environmental Excellence*, *supra* note 189.
[191] *Id.*
[192] *Austin Energy by the Numbers*, *supra* note 187.
[193] *See Renewable Power Generation*, AUSTIN ENERGY (May 23, 2022), https://perma.cc/X88T-5DMX.
[194] MUN. ENERGY AGENCY OF NEB., A 2050 CARBON NEUTRAL VISION 3 (2020), https://perma.cc/A5XA-WC5D.
[195] *Members/Participants*, MUN. ENERGY AGENCY OF NEB., https://perma.cc/3FUR-Q9US (last visited Sept. 26, 2023).
[196] *MEAN's 2050 Carbon Neutral Vision*, MUN. ENERGY AGENCY OF NEB., https://perma.cc/98ZM-6XBK (last visited Sept. 26, 2023).
[197] *See, e.g.*, Matthew Bennett, *Glenwood to Become 7th City in the US to Be 100 Percent Powered by Renewable Energy*, ASPEN TIMES (May 27, 2019), https://perma.cc/XYD4-YVC3 ("In April, City Council unanimously approved a resolution to purchase Glenwood Springs Electric's power needs entirely through wind power supplied by the Municipal Energy Agency of Nebraska (MEAN)."); Bella Biondini, *Gunnison to Achieve 100% Renewable Energy*, GUNNISON TIMES (Mar. 29, 2023), https://perma.cc/Y8C6-5PEN.
[198] CITY OF ASPEN UTILITIES, ASPEN'S PATH TO 100% RENEWABLE ELECTRICITY (2020), https://perma.cc/XRX4-JSLB.
[199] *About Us*, KIT CARSON ELEC. COOP., https://perma.cc/N3XR-WTVV (last visited Sept. 26, 2023).

2016, the Cooperative set a goal of achieving 100% daytime solar energy by 2022.[200] Reaching that goal required the Cooperative to exit a Tri-State Generation and Transmission Association that limited its members to only 5% solar energy production.[201] The Cooperative partnered with a new wholesale provider to deploy new solar projects and battery storage to meet its energy needs.[202]

Policy Recommendations

Public power entities may be more responsive than IOUs to public interest in clean energy, especially with the additional financial incentives of the IRA. But the sluggish embrace of clean energy and limited clean energy goals in TVA's fence line show that public control alone is insufficient. TVA's current approach to clean energy does not provide the flexibility necessary for the public power distributors it serves to embrace renewable energy goals. Instead, TVA's contracts with its LPCs inhibit clean energy development at both the local government and LPC levels. The effect of this inflexibility is evident. For example, a recent report on solar capacity per capita in American cities ranked Nashville sixty-fourth and Memphis fifty-seventh out of just sixty-seven cities.[203]

Empowering public power entities and the communities they serve to adopt clean energy will require providing them greater influence over transmission and generation. Although policies will differ depending on the precise regulatory environment, there are general policy pathways to promote clean energy adoption and ambitions. The small amount of flexibility TVA has offered LPCs already shows how local control over energy supply can help public power entities live up to their potential as clean energy leaders.

First, TVA could remove or increase the 5% cap on self-generation—the TVA Flexibility program—in its long-term power agreements with LPCs. Such a change would require coordinated lobbying from LPCs. Although certain LPCs will inevitably have more bargaining power, TVA

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[200] *Id.*
[201] *Id.*
[202] *100% Daytime Solar Energy by 2022*, KIT CARSON ELEC. COOP., https://perma.cc/PW5M-EXG9 (last visited Sept. 26, 2023).
[203] ADRIAN PFORZHEIMER & JOHANNA NEUMANN, ENV'T AM. RSCH & POL'Y CTR. & FRONTIER GRP., SHINING CITIES 2022: THE TOP U.S. CITIES FOR SOLAR ENERGY 20 (Apr. 2022), https://perma.cc/8BW3-XFPB.

traditionally gives LPCs the same benefits under its standard long-term agreement. TVA has already adjusted the Flexibility program to allow LPCs to aggregate large, utility scale projects.[204] The change avoids a situation in which land-constrained LPCs could not develop large renewable energy projects. This and other changes to Flexibility program suggest that TVA may be willing to make meaningful alterations to the generation cap as well.

TVA should support LPCs in accessing new financing opportunities for clean energy. LPCs are eligible for direct financing of clean energy production and investment under the IRA, but the process of applying for that funding may be challenging for some LPCs. TVA should educate LPCs on the funding opportunities and further clarify the types of projects that LPCs can undertake pursuant to their all-requirements contracts with TVA. Clarifying—and ideally expanding—the 5% cap on self-generation along with identifying available financial resources will allow LPCs to take greater ownership of their electricity supply while maintaining a critical role for TVA.

Less impactful perhaps, but still useful to the clean energy transition, would be for TVA to reintroduce its Green Connect Program. Incentivizing residential customers to supplement renewable energy development is an important piece of encouraging clean energy goals overall. Green Connect raises some equity concerns in that it will primarily benefit home-owning residents who can afford to install rooftop solar. Therefore, TVA could pair the Green Connect program with greater opportunities for LPC dispersed power projects like community solar that have broader benefits to customers.

A more drastic policy option is for FERC to open the TVA fence to competitors. Several commentors and petitioners in the 2021 FERC case made compelling legal arguments for FERC's statutory power to allow for competition within the TVA fence. FERC declined to issue such an order, but it did not foreclose the possibility. If FERC commissioners decided to open the TVA fence, TVA would be required to compete with outside wholesale suppliers, driving TVA to develop more affordable renewable energy options for LPCs and their industrial customers.

The most impactful approach would be congressional action. Congress could pass new legislation either opening the TVA fence to outside competition or mandating a renewable energy goal for TVA. Although bills to amend the TVA Act to increase competition have reached

[204] *See* NES Bd. Meeting, *supra* note 127, at 20.

Congress before, there appears to be little interest in major legislative reform. But growing frustration with TVA's slow adoption of clean energy and FERC's signal that congressional action would be helpful may set the stage for statutory amendments.

Equally unlikely but similarly helpful would be TVA's voluntary agreement to wheel outside power into the TVA fence. As discussed above, there is no statutory ban on TVA wheeling power from outside the TVA fence to its LPCs within the footprint. However, allowing wheeling within the fence would cut against TVA's profit incentives, and TVA is unlikely to take such a step regardless of public or LPC pressure for more renewable energy options.

LPCs have a direct role to play in changing the regulatory dynamics in the TVA fence. LPCs could attempt to renegotiate their contracts with TVA to further increase their flexibility to self-generate and purchase clean energy. The terms of the evergreen 20-year contracts make renegotiation unlikely for the vast majority of LPCs. Nonetheless, LPCs should advocate for more flexible, meaningful opportunities for renewable energy development under the long-term contracts and aggressively pursue clean energy projects. Smaller LPCs, which lack the resources of bigger municipal utilities like Nashville Electric Service or Memphis Light, Gas & Water, could increase their capacity to pursue clean energy projects by forming an intermediary organization. Existing organizations like the Tennessee Valley Public Power Association could serve as a conduit for such a group. Collective action through such an intermediary would allow rural cooperatives and smaller municipal utilities to pool resources and spread the risk of investment in new projects.

Conclusion

Public power entities will play a key role in the clean energy transition. However, constraints on public power entities' influence over transmission and generation can make it difficult for them to realize clean energy ambitions. TVA provides an important case study, showing how even a public wholesale power entity can limit the clean energy transition among the public power companies it serves. The current regulatory landscape within the TVA footprint—particularly the limited flexibility for LPCs in their electricity supply—makes it difficult for local governments or LPCs to commit to or pursue clean energy options. Regulatory reforms and strong action by either

TVA, FERC, or Congress is necessary to provide space for clean energy projects and ambitions to succeed in the Southeast. More generally, policymakers should be attuned to how transmission and generation resources available to a utility, not just its status as a public power company, may influence its clean energy goals and achievements.

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