Power Sector Competitiveness Dashboard (PSCD) Methodology

Version 1.0 (December 2025)

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How to cite the Power Sector Competitiveness Dashboard

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Parajon, E., Gowdy, T.M., Weintraut, B., Deshmukh, M., Ewing, J., Zwane, A.P. 2025. *Power Sector Competitiveness Dashboard (PSCD) Dataset, Version 1.0.* Nicholas Institute for Energy, Environment & Sustainability, Duke University. Available at: https://nicholasinstitute.duke.edu/project/power-sector-competitiveness-dashboard

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Parajon, E., Gowdy, T.M., Weintraut, B., Deshmukh, M., Ewing, J., Zwane, A.P. 2025. *Power Sector Competitiveness Dashboard (PSCD): Methodology Version 1.0.* Nicholas Institute for Energy, Environment & Sustainability, Duke University. Available at: https://nicholasinstitute.duke.edu/project/power-sector-competitiveness-dashboard/methodology

Abstract

This document provides an overview of the methodological approach for the Power Sector Competitiveness Dashboard.

The Power Sector Competitiveness Dashboard (PSCD) offers a set of indicators that measure the current state of power sector competitiveness in the Southeast.

This document provides an overview of the methodological approach for the Power Sector Competitiveness Dashboard (PSCD). For this dashboard, competitiveness refers to the extent to which state policies, regulatory structures, and market arrangements create conditions that support or hinder consumer or community choice, distributed generation, multi-actor market participation, investment decision-making, and sharing of regional

resources. Competitiveness is presented as a continuum of practices and factors shaping how utilities, regulators, producers, and consumers interact.

The PSCD offers a set of indicators that measure the current state of power sector competitiveness in the Southeast (Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, and West Virginia), a region where vertically integrated utilities dominate and state policies often limit competition unlike parts of the country with established regional transmission organizations (RTOs) or independent system operators (ISOs) that facilitate wholesale markets and regional coordination (Chen, 2020; Konschnik & Chen, 2020). These indicators include consumer choice, electricity market characteristics, the role of independent entities, and participatory dynamics. Consumers include residential, commercial, and industrial customers.

Indicators

The fifteen indicators of the dashboard encompass three categories, defined as:

- Consumer: (Captures consumer-facing policies and programs that empower individual consumers or large energy users to make decisions about their electricity usage, providers, or rate structure).
- Structure: (Captures regulatory frameworks and utility sector features that impact or characterize the state electricity sector broadly).
- Regional Market: (Captures participation in multi-state energy markets and transmission organizations that manage large-scale electricity dispatch and components of their governance that support broad involvement).

The indicators listed in Table 1 build upon the continuum concept developed by Konschnik and Chen 2020. We expanded upon this framework using our definition of competitiveness.

Category	Indicator
Consumer	Third-Party Power Purchase Agreements
Consumer	Net Metering
Consumer	Utility Green Tariffs
Consumer	Residential Retail Choice
Consumer	Commercial and Industrial Retail Choice
Structure	Option for Municipal Ownership of Utilities
Structure	Presence of a Consumer Advocate
Structure	Community Choice Aggregation
Structure	Customer Concentration: All Utilities
Structure	Customer Concentration: Generation

Structure	Interconnection Standards
Structure	Procurement Requirements
Regional Market	Market Participation
Regional Market	Civil Society Participation Role in Wholesale Market
Regional Market	State Authority Role in Wholesale Market

Table 1: List of indicators

Methods Overview

The dashboard analysis utilizes and aggregates a combination of novel data collection, leverages existing policy analyses/literature, and/or combination of these. Methods are specific to each indicator. Our rubrics are intended to be straightforward measures of complex issues through the lens of competitiveness.

Data Access

Data is available for download in comma-separated values (CSV) format. See the applicable link and select 'Get the data.'

Type	Link
Regional	State rankings, category scores (%), overall scores (%)
Regional	Regional indicator values and totals by state
State	Alabama indicator values and regional mean
State	Arkansas values and regional mean
State	Florida values and regional mean
State	Georgia values and regional mean
State	Kentucky values and regional mean
State	Louisiana values and regional mean
State	Mississippi values and regional mean
State	North Carolina values and regional mean
State	South Carolina values and regional mean
State	Tennessee values and regional mean
State	Virginia values and regional mean
State	West Virginia values and regional mean

Table 2: Data availability

For policy summaries and justifications by indicator for each state, see the relevant state page on the dashboard.

Indicator: Third-party Power Purchase Agreements (PPAs) | Consumer Category

The **Third-Party Power Purchase Agreements** indicator evaluates whether states permit customers to enter into agreements with third-party developers that install and operate energy systems on the customer's property and sell power generated to the customer at a contracted rate.

Relevance to competitiveness: Power purchase agreements enable individual consumer choice as an additional financing mechanism for the adoption of distributed generation (e.g. solar) and purchase of generated electricity from third-party providers, in lieu of the incumbent utility.

Sources:

- North Carolina Clean Energy Technology Center, DSIRE. (2025). "Third-Party Solar Power Purchase Agreement Policies" Accessed August 2025. https://ncsolarcen-prod.s3.amazonaws.com/wp-content/uploads/2025/11/DSIRE_3rd-Party-PPA_Nov2025.pdf
- Louisiana Public Service Commission. (2024). "Sleeved Power Purchase Agreements - R-35462." Accessed October 2025. https://lpscpubvalence.lpsc.louisiana.gov/portal/PSC/ViewFile?fileId=w2%2fxvxM727E%3d

Year(s): Policy status as of 2025.

Coding scheme:

Score	Description
1 point	Permitted by state
0.5	Partially allowed by state, such as solar leases only permitted, only for tax-exempt organizations, or sleeved PPAs only
0	Disallowed/restricted by state OR Unclear/Unknown

Table 3: Coding scheme for third-party power purchase agreement indicators

Indicator: Net Metering | Consumer Category

The **Net Metering** indicator evaluates the extent to which states enable or limit billing systems that provide credits to owners of distributed generation (e.g., solar) that return excess electricity generation to the grid.

Relevance to competitiveness: The presence of net metering provides greater incentives for consumers to pursue distributed generation and expands the diversity of generation sources contributing to the grid. By enabling customers to offset consumption with self-supplied power, net metering incentivizes alternative generation options and broadens the set of actors participating in the electricity system.

Sources:

- North Carolina Clean Energy Technology Center, DSIRE. (2025). "Programs - Net Metering." Accessed October 2025. https://programs.dsireusa.org/system/program?type=37

Year(s): Policy status as of December 2024.

Coding scheme:

Score	Description
1 point	State policy that enables or requires net metering (no aggregated demand limits)
0.75	State policy enables or requires net metering but with limitations above 1% aggregated demand
0.5	State policy enables or requires net metering but with limitations at or below 1% aggregated demand
0.25	No state policy exists (but utility program(s) exists)
0	Prohibits net metering entirely or no policy or program in place (and no utility program(s) exists)

Table 4: Coding scheme for Net Metering indicator

Exception: if a state has a limit based on system ownership-type, individual scores for each ownership type will be assessed and the state score will be an average of those two scores.

Indicator: Utility Green Tariffs | Consumer Category

The **Utility Green Tariffs** indicator measures the prevalence of the largest utilities in a state that allow large commercial and industrial customers to buy electricity generated from renewable energy projects at a special rate.

Relevance to competitiveness: Green tariffs enable consumer choice through a "utility offering in regulated markets [that] provides larger-energy customers an option to meet their varying sustainability and renewable energy goals, reduce long-term energy risks, and demonstrate a commitment to the development of new renewable energy projects" (EPA 2023).

Sources:

- U.S. Environmental Protection Agency (2023), "Utility Green Tariffs." Accessed August 2025 .https://www.epa.gov/green-power-markets/utility-green-tariffs

Specific utility programs:

- Clean Energy Buyers Association (2023), "Availability of Utility Green Tariff Programs." Accessed August 2025. https://cebuyers.org/solutions/procure-clean-energy/green-tariffs/

Commercial & Industrial sales data

- U.S. Energy Information Administration (2023). "Annual Electric Power Industry Report, Form EIA-861 detailed data, Accessed files." Accessed October 2025. https://www.eia.gov/electricity/data/eia861/ (and state profile pages)

Year(s): Policy status as of 2023.

Coding scheme:

In lieu of uptake data, we present program availability across the state's largest utilities (defined below), as a means to assess the general availability of choice to opt into green tariffs. We leverage EIA Data (Form-861) to first determine the total Commercial and Industrial (C&I) electricity sales volume (MWh) for all electric utilities within the state that offer active green tariff programs. This aggregated sales volume forms the numerator. Next, we rely on the same EIA data to find the total C&I electricity sales volume (MWh) across the top five largest utilities statewide (ranked by C&I sales volume), which serves as the denominator. Dividing the participating utilities' C&I sales volume by the top five largest utilities statewide C&I sales volume yields a fraction, which is then multiplied by 100 to present the result as the percentage of the share of the top five largest utilities' C&I

electricity market (by sales volume) covered by utilities with green tariff offerings as informed by CEBA and EPA analysis.

Score	Description
1 point	>80% of C&I sales (top 5 largest utilities only) from participating top 5 utilities
0.75	50-79.9% of C&I sales (top 5 utilities only) from participating utilities
0.5	25-49.9% of C&I sales (top 5 utilities only) from participating utilities
0.25	0.1-24.9% of C&I sales (top 5 utilities only) from participating utilities
0	None of the top 5 utilities in the state offer a green tariff program

Table 5: Coding scheme for Utility Green Tariffs indicator

Indicator: Residential Retail Choice | Consumer Category

The **Residential Retail Choice** indicator evaluates whether state policy enables residential customers to choose alternative electricity suppliers other than the incumbent utility.

Relevance to competitiveness: This indicator evaluates whether residential customers may select an alternative electricity supplier rather than receiving bundled service from the incumbent utility, expanding supply options for these customers.

Sources:

- American Coalition of Competitive Energy Suppliers, ACCES (n.d.). "Find Your Perfect Energy Choice with ACCES' Interactive Map." Accessed August 2025. https://competitiveenergy.org/consumer-tools/state-by-state-links/
- Dominion Energy (n.d.). "Energy Choice." Accessed September 2025. https://www.dominionenergy.com/virginia/rates-and-tariffs/energy-choice
- National Renewable Energy Lab (2018). "An Introduction to Retail Electricity Choice in the United States." https://docs.nrel.gov/docs/fy18osti/68993.pdf

Year(s): Policy status as of 2025.

Coding scheme:

We assessed existing state-level retail choice analyses (NREL 2018, ACCES n.d., Dominion Energy n.d.) and scored according to our coding scheme based on the presence of enabling policy, presence of limitations, and/or lack of policy or preventative policy for residential customers.

Score	Description
1 point	State policy actively enables residential customers to choose among utilities or competitive suppliers, with minimal restrictions. Includes widespread access to alternative providers or retail choice.
0.5	State policy allows residential choice, but with significant limitations (e.g., only certain areas, limited kWh per customer, or enrollment caps).
0	No state policy or utility program enabling residential alternative choice exists, or state law explicitly prohibits residential customer choice.

Table 6: Coding scheme for Residential Retail Choice indicator

Indicator: Commercial & Industrial Retail Choice | Consumer Category

The **Commercial and Industrial Retail Choice** indicator evaluates whether state policy enables commercial and industrial customers to choose alternative electricity suppliers other than the incumbent utility.

Relevance to competitiveness: This indicator evaluates whether commercial & industrial customers may select an alternative electricity supplier rather than receiving bundled service from the incumbent utility, expanding supply options for these customers.

Sources:

- American Coalition of Competitive Energy Suppliers, ACCES (n.d.). "Find Your Perfect Energy Choice with ACCES' Interactive Map." Accessed August 2025. https://competitiveenergy.org/consumer-tools/state-by-state-links/
- Dominion Energy (n.d.). "Energy Choice." Accessed September 2025. https://www.dominionenergy.com/virginia/rates-and-tariffs/energy-choice
- National Renewable Energy Lab (2018). "An Introduction to Retail Electricity Choice in the United States." https://docs.nrel.gov/docs/fy18osti/68993.pdf

Year(s): Policy status as of 2025.

Coding scheme:

We assessed existing state-level retail choice analyses (NREL 2018, ACCES n.d., Dominion Energy n.d.) and scored according to our coding scheme based on the presence of enabling policy, presence of limitations, and/or lack of policy or preventative policy for commercial & industrial customers.

Score	Description
1 point	State policy actively enables large-load customers to choose an alternative in-state utility or supplier, with minimal restrictions.
0.5	State policy permits large-load choice but imposes significant limitations (e.g., load thresholds, one-time election, geographic restrictions).
0	Policy prohibits choice entirely, or no policy exists.

Table 7: Coding scheme for Commercial and Industrial Retail Choice indicator

Indicator: Option for Municipal Ownership of Utilities | Structure Category

The **Option for Municipal Ownership of Utilities** indicator assesses whether state policy authorizes municipalities to form their own utility.

Relevance to competitiveness: Municipalization authority represents an often-overlooked form of customer choice. It enables residents to decide collectively whether to create a public power entity rather than continue service from an investor-owned utility, potentially reshaping local market structure and incentives (Konschnik and Chen 2020).

Based on a broad review of regional sources—including Briggerman et al. (2012), Konschnik and Chen (2020), and state code provisions—we operate from the position that all Southeastern states currently allow municipalities to establish a utility. We acknowledge the possibility of recent statutory changes not captured in our review and the fact that many of these statutes contain important procedural nuances. Future research could compare how easily municipalities can form utilities across states.

Sources:

- Ala. Code § 11-50-310. Accessed December 2025. https://law.justia.com/codes/alabama/title-11/title-2/chapter-50/article-9/section-11-50-311/
- Ark. Code § 14-200-109. Accessed December 2025. https://law.justia.com/codes/arkansas/title-14/subtitle-12/chapter-200/section-14-200-109/
- Briggerman, A., Costinescu, R., & Bond, A. (2012). *Survey of State Municipalization Laws*. Duncan & Allen on behalf of the American Public Power Association. https://www.publicpower.org/system/files/documents/muncipalization-survey_of_state_laws.pdf
- Fla. Stat. § 163.01 (Interlocal Act); Fla. Stat. ch. 361, Part II (Joint Electric Facilities). Accessed August 2025. https://www.flsenate.gov/laws/statutes/2021/163.01
- Ga. Code Ann. §§ 46-3-110 – 46-3-155. Accessed December 2025. https://law.justia.com/codes/georgia/title-46/chapter-3/article-3/
- Konschnik, K., & Chen, J. (2020). *Options on a Continuum of Competition for the Southeastern Electricity Sector*. NI Policy Brief 20-06. https://nicholasinstitute.duke.edu/sites/default/files/publications/Options-on-a-Continuum-of-Competition-for-the-Southeastern-Electricity-Sector.pdf
- Ky. Rev. Stat. § 96.520. Accessed December 2025. https://codes.findlaw.com/ky/title-ix-counties-cities-and-other-local-units/ky-rev-

st-sect-96-520/

- LA. Rev. Stat. § 19:102 (2024). Accessed December 2025. https://law.justia.com/codes/louisiana/revised-statutes/title-19/rs-19-102/

- Miss. Code Ann. tit. 21, ch. 27 (Municipally Owned Utilities). Accessed December 2025. https://law.justia.com/codes/mississippi/title-21/chapter-27/municipally-owned-utilities/

- N.C. Gen. Stat. § 159B (Joint Municipal Electric Power and Energy Act). Accessed December 2025. https://www.ncleg.gov/EnactedLegislation/Statutes/HTML/ByChapter/Chapter_159B.html

- S.C. Code § 6-23 (Joint Agency Act). Accessed December 2025. https://www.scstatehouse.gov/code/t06c023.php

- Tenn. Code § 7-52-103 (Municipal Electric Plant Law of 1935). Accessed December 2025. https://law.justia.com/codes/tennessee/title-7/local-government-functions/chapter-52/part-1/section-7-52-103/

- Va. Code § 56-265.1 (Utility Facilities Act). Accessed December 2025. https://law.lis.virginia.gov/vacodepopularnames/utility-facilities-act/

- W. Va. Code § 8-19-2 (Municipal and County Waterworks and Electric Power Systems). Accessed December 2025. https://code.wvlegislature.gov/8-19-2/

Year(s): Policy status as of 2020.

Coding scheme:

Score	Description
1 point	State policy enables municipalities to create municipal electric authorities
0	State policy does not enable municipalities to create municipal electric authorities, or no policy exists

Table 8: Coding scheme for Option for Municipal Ownership of Utilities indicator

Indicator: Presence of a Consumer Advocate | Structure Category

The **Consumer Advocate** indicator evaluates whether states have a consumer advocate office that represents consumer interests in utility proceedings.

Relevance to competitiveness:

We include the presence of a state utility consumer advocate as one dimension of promoting multi-actor participation in the electricity sector's regulatory process. This complements our two RTO governance indicators, which capture the roles of civil society organizations and state authorities in wholesale market governance. Together, these measures reflect an array of perspectives in regulatory and market decision-making and align with scholarship on how collaborative governance among actors with diverse interests can enable mutually beneficial solutions (Baldwin 2020).

State consumer advocates were formed starting in the 1970's in part to increase electricity competition (Katz and Schneider 2020) and give residential customers a collective voice in public utility commissions' proceedings. Empirical evidence shows that their presence is associated with lower utility returns on equity and lower residential rates (Fremeth et al. 2014).

Sources:

Data

- National Council on Electricity Policy (2021). "Public Utilities Commissions and Consumer Advocates: Protecting the Public Interest." https://pubs.naruc.org/pub/21475F72-1866-DAAC-99FB-1E3EE0593D06

Literature

- Baldwin, E. Why and How Does Participatory Governance Affect Policy Outcomes? Theory and Evidence from the Electric Sector, Journal of Public Administration Research and Theory, Volume 30, Issue 3, July 2020, Pages 365–382, https://doi.org/10.1093/jopart/muz033
- Fremeth, A.R., Holburn, G.L.F. & Spiller, P.T. The impact of consumer advocates on regulatory policy in the electric utility sector. Public Choice 161, 157–181 (2014). https://doi.org/10.1007/s11127-013-0145-z
- Katz, E. S., & Schneider, T. (2020). The increasingly complex role of the utility consumer advocate. Energy LJ, 41, 1. https://heinonline.org/HOL/P?h=hein.journals/energy41&i=33

Year(s): Policy status as of 2022.

Coding scheme:

Score	Description
1 point	State has a public consumer advocate
0	No policy or program in place

Table 9: Coding scheme for Presence of a Consumer Advocate indicator

Indicator: Community Choice Aggregation (CCA) | Structure Category

The **Community Choice Aggregation (CCA)** indicator measures the presence, or lack thereof, of state policy enabling municipal choice in procuring electricity from a provider other than the incumbent utility on behalf of the area's consumers.

Relevance to competitiveness: Community choice aggregation (CCA) is "an attractive option for communities that want more local control over their electricity sources, more green power than is offered by the default utility, and/or lower electricity prices" EPA n.d. . By enabling municipalities or counties to procure electricity on behalf of their residents and businesses, CCA programs introduce an alternative to the incumbent utility bundled service and diversify the entities capable of making procurement decisions. This expands local decision-making authority, increases the number of actors participating in resource selection, and can stimulate competition among suppliers. As a result, CCA aligns with our definition of competitiveness by widening market participation, enabling community-driven procurement strategies, and reducing reliance on a single provider.

Sources:

- LEAN Energy (n.d.). "CCA By State." Accessed October 2025. https://www.leanenergyus.org/cca-by-state
- U.S. Environmental Protection Agency (n.d.) "Community Choice Aggregation." Accessed October 2025. https://www.epa.gov/green-power-markets/community-choice-aggregation

Year(s): Policy status as of 2021.

Coding scheme:

Score	Description
1 point	Community Choice Aggregation Permitted by State Policy
0	No Community Choice Aggregation Permitted in State Policy

Table 10: Coding scheme for Community Choice Aggregation indicator

Indicator: Customer Concentration | Structure Category

The **Customer Concentration** indicator assesses how concentrated each state's utility market overall is by calculating the Herfindahl-Hirschman Index (HHI) from customer counts, following Department of Justice antitrust guidelines.

Relevance to competitiveness: The Herfindahl-Hirschman Index (HHI) is a standard measure used to quantify the degree of market power or competitiveness in a market (Borenstein et al. 1999). This customer-based HHI captures the market concentration in terms of the shares of customers served by each utility in a state.

This indicator is complementary to the Generation HHI indicator, each providing a different sense of market share across each state's utility sectors, amongst the totality of competitiveness indicators.

Sources:

Data

- U.S. Energy Information Administration (2024), "Form EIA-860 detailed data with previous form data (EIA-860A/860B)," https://www.eia.gov/electricity/data/eia860/, Accessed October 2025
- U.S. Department of Justice (n.d.). "Herfindahl-Hirschman Index." Accessed October 2025. https://www.justice.gov/atr/herfindahl-hirschman-index

Literature

- Borenstein, S., Bushnell, J., & Knittel, C. R. (1999). Market Power in Electricity Markets: Beyond Concentration Measures. The Energy Journal, 20(4), 65-88. https://doi.org/10.5547/ISSN0195-6574-EJ-Vol20-No4-3 (Original work published 1999)

Year(s): Status as of 2024.

Coding scheme: Using EIA-860 data for utility data, we analyzed the number of utility customers per total customers in the state (excluding behind-the-meter entities). Within each state, utility market shares were determined by following DOJ Herfindahl-Hirschman Index (HHI) procedure and dividing the recorded customer counts by the sum of customer counts across all utilities in the state:

Customer market share (utility i in state s) = Utility i's customers in s / Total customers in state s

The customer concentration Herfindahl-Hirschman Index (HHI) was then computed as the sum of squared market shares (multiplied by 10,000).

We applied a scoring system based on the Department of Justice/FTC classifications for market concentration. States with an HHI below 1,000 receive a score of 1.00, indicating a market that is not concentrated. States with an HHI at or above 1,800 receive a score of 0.00, reflecting a highly concentrated market. Finally, states with HHI scores in the range of [1,000, 1,799] receive a score of 0.5 indicating a moderately concentrated market.

Score	Description
1 point	Not concentrated, HHI Range: < 1,000
0.5	Moderately concentrated, HHI Range: [1,000, 1,799]
0	Highly concentrated, HHI Range: ≥ 1800

Table 11: Coding scheme for Customer Concentration (HHI) indicator

Indicator: Generation Concentration | Structure Category

The **Generation Concentration** indicator assesses how concentrated each state's utility generation capacity is by calculating the Herfindahl-Hirschman Index (HHI) from customer counts and Department of Justice antitrust guidelines.

Relevance to competitiveness: The Herfindahl-Hirschman Index (HHI) is a standard measure used to quantify the degree of market power or competitiveness in a market (Borenstein et al. 1999). This generation-based HHI captures the market concentration in terms of generating capacity provided by each utility in a state.

HHI is calculated separately for customer counts and nameplate capacity, thus this indicator is complementary to the Customer Concentration HHI indicator, each providing a different sense of market share across each state's utility sectors, amongst the totality of competitiveness indicators.

Sources:

Data

- U.S. Energy Information Administration (2024). "Annual Electric Power Industry Report, Form EIA-860 detailed data, Accessed files." Accessed October 2025 . https://www.eia.gov/electricity/data/eia861/ (Schedules 4A & 4D)
- U.S. Department of Justice (n.d.). "Herfindahl-Hirschman Index." Accessed October 2025 . https://www.justice.gov/atr/herfindahl-hirschman-index

Literature

- Borenstein, S., Bushnell, J., & Knittel, C. R. (1999). Market Power in Electricity Markets: Beyond Concentration Measures. The Energy Journal, 20(4), 65-88. https://doi.org/10.5547/ISSN0195-6574-EJ-Vol20-No4-3 (Original work published 1999)

Year: Status as of 2024.

Coding scheme: Within each state, generating capacity for each utility was calculated by summing up the nameplate capacity for each generating unit owned by the utility. Following DOJ procedure, generation-based market shares were calculated as each utility's total nameplate capacity in a given state divided by that state's total nameplate capacity across all generating units:

Generation market share (utility i in state s) = Utility i's total nameplate capacity in State s / Total nameplate capacity in state s

The generation-based Herfindahl-Hirschman Index (HHI) was computed as the sum of squared market shares (multiplied by 10,000).

We applied a scoring system based on the Department of Justice/FTC classifications for market concentration. States with an HHI below 1,000 receive a score of 1.00, indicating a market that is not concentrated. States with an HHI at or above 1,800 receive a score of 0.00, reflecting a highly concentrated market. Finally, states with HHI scores in the range of [1,000, 1,799] receive a score of 0.5 indicating a moderately concentrated market.

Score	Description
1 point	Not concentrated, HHI Range:< 1,000
0.5	Moderately concentrated, HHI Range: [1,000, 1,799]
0	Highly concentrated, HHI Range: ≥ 1800

Table 12: Coding scheme for Generation Concentration (HHI) indicator

Indicator: Interconnection Standards | Structure Category

The **Interconnection Standards** indicator measures the presence, or lack thereof, of a state interconnection standard or guideline for investor-owned utilities, or in the absence of a state policy, whether the state's largest utility has one.

Relevance to competitiveness: Consistent, accessible interconnection processes also expand market participation by lowering "soft costs" associated with unclear or overly complex requirements. Many states have net metering policies but lack complementary interconnection rules, leaving implementation to utilities (NREL 2025). By measuring the presence of a policy, we capture a state's baseline support for enabling more actors, especially distributed generation, to participate in the electricity sector, aligning with our definition of competitiveness.

Sources:

- North Carolina Clean Energy Technology Center, DSIRE (2024, 2025). "Programs" (Interconnection). Accessed November 2025. https://programs.dsireusa.org/system/program?type=14
- Ingram, Michael, Akanksha Bhat, and David Narang (2021). A Guide to Updating Interconnection Rules and Incorporating IEEE Standard 1547. Golden, CO: National Renewable Energy Laboratory. NREL/TP-5D00-75290. https://www.nrel.gov/docs/fy22osti/75290.pdf
- National Renewable Energy Laboratory (2025). Renewable Energy System Interconnection Standards. Accessed November 2025. https://www.nrel.gov/state-local-tribal/basics-interconnection-standards
- Sheaffer, P. (2011). "Interconnection of Distributed Generation to Utility Systems: Recommendations for Technical Requirements, Procedures and Agreements, and Emerging Issues." Regulatory Assistance Project. https://www.raponline.org/wp-content/uploads/2023/09/rap-sheaffer-interconnectionofdistributedgeneration-2011-09.pdf?

Year(s): Policy status as of February 2025.

Coding scheme:

Ideally, interconnection performance would be measured using real-world interconnection queue data, but current open datasets are too limited in quality to support this approach. We therefore focus on evaluating whether a state has Interconnection Standards or Guidelines in place. While policy alone does not guarantee faster interconnection, clear and

transparent standards reduce risk for developers and investors and thus provide greater certainty for renewable energy deployments (NREL, 2025).

Sheaffer (2011) notes that state-level interconnection policies typically apply only to investor-owned utilities (IOUs). When a state's largest utility is *not* an IOU, a State Standard may not apply. In those cases, if the state's largest utility has its own interconnection process, we score that process equivalent to a State Standard.

Conversely, if a state's largest utility *is* an IOU but the state does not have a State Standard, we score the state based on the largest utility's interconnection process (if one exists) as equivalent to a State Guideline.

A 'limit' indicates that the state's interconnection rules establish a system size limit (kW or MW capacity) for which there is a process in place for interconnection.

Coding scheme:

Score	Rule
1.0 point	State Standard with no system size restriction(s), or if state's largest utility is a non-investor owned utility (i.e. public utility), the utility's guideline/policy/procedure with no system size limit
0.66	State Standard with system size restriction(s), or if state's largest utility is a non-investor owned utility (i.e. public utility), the utility's guideline/policy/procedure with no system size limit
0.33	State Guidelines, or a guideline/policy/procedure from the state's largest utility if no State Standard/Guideline but largest utility is investor-owned.
0	None

Table 13: Coding scheme for Interconnection Standards indicator

Indicator: Procurement Requirements | Structure Category

The **Procurement Requirements** indicator measures the presence, or lack thereof, of state rules on how utilities may acquire new generation sources. This can include requiring or encouraging competitive procurement for all or some new generation in lieu of defaulting to a default utility-led approach.

Relevance to competitiveness: Utilities now face an unprecedentedly complex procurement landscape: rapidly expanding technology options, combined with new policy and regulatory priorities, are reshaping how resources are selected and forcing procurement processes to evolve (RMI). Meeting these demands requires moving beyond legacy, noncompetitive, self-build, fossil-centric approaches toward open, competitive processes that invite a wider range of developers, technologies, and demand- and supply-side solutions (RMI 2020).

Competitive procurements offer a structured "market test" that can deliver power that best fits customer needs at the best financial terms, lower the costs of meeting energy and environmental goals by imposing market discipline on risk-bearing suppliers, and give regulators stronger confidence in the prudence of utility decisions (Tierney & Schatzki 2009).

Sources:

Data from:

- Lauren Shwisberg, Mark Dyson, Grant Glazer, Carl Linvill, and Megan Anderson, How to Build Clean Energy Portfolios: A Practical Guide to Next-Generation Procurement Practices, RMI, 2020, http://www.rmi.org/insight/how-to-build-clean-energy-portfolios
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    - Used data by sector by state and/or utility data for total customers per state
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    - Used to identify utility service areas and assign them to states
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    - MISO: https://www.ferc.gov/participation-midcontinent-independent-system-operator-miso-processes

- PJM: https://www.ferc.gov/industries-data/electric/electric-power-markets/pjm
- SPP: https://www.ferc.gov/industries-data/electric/electric-power-markets/spp

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Year(s): Procurement practices (2020), market proportional participation (2022).

Coding scheme:

Score	Description
1 point	All-source solicitations or state has >66% of customers participating in a wholesale market
0.66	Single-source competitive solicitations or no competitive solicitation requirements but has >33% of customers participating in a wholesale market
0.33	No competitive solicitation requirements (except limited competitive procurement for renewables)
0	No competitive solicitation requirements

Table 14: Coding scheme for Procurement Requirements indicator

Indicator: Market Participation | Regional Market Category

The **Market Participation** indicator evaluates the extent that a state's utility(ies) participates in a bilateral trading market, such as the Southeast Energy Exchange Market (SEEM), and/or a wholesale electricity market such as a regional transmission organization (RTO)/independent system operator (ISO).

Relevance to competitiveness: Market participation, leveraging regional resources to meet demand (bilateral transactions or wholesale market) or forming/joining an RTO or ISO (wholesale market) are part of the continuum of competition (Konschnik and Chen 2020). Further, RTOs/ISOs can enhance "competition for wholesale transactions through a regional organized market, depending on details, is likely to lower wholesale costs, provide nonincumbent generators with easier access to the system, and improve power system efficiency and flexibility" (Chen 2020).

To conduct the analysis, we followed this process:

1. Identify RTO/ISO coverage:
    a. MISO: Kentucky, Arkansas, Mississippi, Louisiana
    b. PJM: Kentucky, North Carolina, Tennessee, Virginia and West Virginia
    c. SPP: Arkansas, Louisiana
2. Filtered the *"Cntrl_Area"* variable from Oak Ridge National Laboratory (2021) to isolate utilities operating within **MISO**, **PJM**, and **SPP** (Southwest Power Pool) across Southeastern states.
3. Merged this information with EIA customer data to estimate the percentage of each state's total customers served by utilities within RTO/ISO boundaries.
4. Incorporate SEEM participation:
    a. Identified active SEEM participating utilities from the SEEM territory map (e.g., Alabama Power, Duke Energy Florida, Georgia Transmission, TVA, etc.).
    b. As the Southeast Energy Exchange Market (SEEM) is organized at the utility rather than the state level, and because detailed, publicly available data on the extent or intensity of participation at the state level are limited, we opted for a binary indicator of SEEM involvement. Moreover, SEEM trading volume data is available only at the utility-level, not at the state-level, further limiting the availability of data at our desired resolution (Potomac Economics 2025; SEEM n.d.)
    c. Thus, we then assigned a binary variable for SEEM participation (SEEM Coded = 1 if the state has one or more utilities participating in SEEM; 0 if not).
5. Combine data

a. Each state receives two values:
    a. RTO Coded Point Value: numerical representation of RTO/ISO customer coverage (0, 0.4, 0.6, 0.8, 1.0).
    b. SEEM Coded: binary indicator (1 = SEEM participation, 0 = none).
b. Scores were then combined using the information in the scoring rubric detailed below.

Sources:

Data

- U.S. Energy Information Administration (EIA) (2023) Form-861. Accessed October 2025. https://www.eia.gov/electricity/data.php#sales
    - Used data by sector by state and/or utility data for total customers per state
- Oak Ridge National Laboratory (2021). "Electric Retail Service Territories," Accessed October 2025. https://openenergyhub.ornl.gov/explore/dataset/electric-retail-service-territories/information/
    - Used to identify utility service areas and assign them to states
- Federal Energy Regulatory Commission (FERC) (n.d.): Supplementary data to verify RTO/ISO control areas in the Southeast and market participation coverage. Accessed October 2025.
    - MISO: https://www.ferc.gov/participation-midcontinent-independent-system-operator-miso-processes
    - PJM: https://www.ferc.gov/industries-data/electric/electric-power-markets/pjm
    - SPP: https://www.ferc.gov/industries-data/electric/electric-power-markets/spp
- Southeast Energy Exchange Market (SEEM) (n.d.). "Southeast Energy Exchange Market Territory Map," Accessed October 2025. https://southeastenergymarket.com/
    - SEEM participation coverage was obtained from the SEEM Territory Map

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Year(s): Status as of December 2022.

Coding Scheme:

Score	***Description***	***Criteria***
1 point	Substantial RTO Participation	≥90% of customers in an RTO/ISO
0.8	Majority RTO participation	50-89.9% of customers in an RTO/ISO
0.6	Moderate RTO participation	25-49.9% of customers in an RTO/ISO
0.4	SEEM w/ minimal RTO participation	Active SEEM participation; 0.1-24.9% RTO/ISO coverage
0.2	SEEM-only, no RTO	Active SEEM participation, 0% RTO/ISO coverage
0	No market participation	0% RTO/ISO coverage; not in SEEM

Table 15: Coding scheme for Market Participation indicator

Indicator: Civil Society Participation Role in Wholesale Market | Regional Market Category

The **Civil Society Participation Role in Wholesale Market** indicator measures on the ability for civil society organizations (e.g. environmental organizations) to participate within the governance structure of a wholesale market (regional transmission organization (RTO) / independent system operator (ISO)), when states participate in such a market, formalizing multi-actor participation in the process.

Relevance to competitiveness: Formal opportunities for civil society participation through membership, access to meetings, and information impact which stakeholders can engage effectively in market governance (Lenhart and Fox 2022). Including additional organizations in these processes supports multi-actor participation aligning with our definition of competitiveness (Lenhart and Fox 2022).

Sources:

- American Electric Power (n.d.). "Tennessee Economic Development." Accessed October 2025. https://www.aep.com/economic-development/regions/tennessee/
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Year(s): Civil society participation role (2022) and wholesale market customer count data (2023).

Coding scheme:

We use the civil society participation role classifications by Lenhart and Fox 2022. For states that span multiple wholesale markets (and/or have partial participation), scores were calculated following the coding scheme below and weighted averages based on whole market participation. Customer proportional values by state were calculated by Oak Ridge National Laboratory for all states, minus Louisiana and Tennessee. Additional data sources were needed for specific utility customer counts in these states.

A state receives a score based on the RTO/ISO it is in. If a state is in multiple markets, the score is a weighted average of those (proportional to customer counts). If a state is partially in a market(s) and with an area not participating in a market, the score is a weighted average of those (proportional to customer counts). If a bilateral market has open governance structures like a wholesale market, applicable points would be assigned – but similar participation opportunities were not found.

Score	**Civil Society Participation Role**
1 point	Open Membership (MISO*, CAISO)
0.66	Limited voting participation with broad stakeholders (ISO-NE, SPP*)
0.33	Non-voting participation only (PJM)*
0	No formal participation / state not in RTO

*Southeast-relevant markets

Table 16: Coding scheme for Civil Society Participation Role in Wholesale Market indicator

Indicator: State Authority Participation Role in Wholesale Market | Regional Market Category

The **State Authority Role in Wholesale Market** indicator measures how formal a state's role within the governance structure of a wholesale market (regional transmission organization (RTO) / independent system operator (ISO)), when states participate in such a market, formalizing multi-actor participation in the process.

Relevance for competitiveness: Multi-actor governance can enhance legitimacy and civil society engagement while improving the quality of market decisions (Lenhart and Fox 2022). Including state authorities in wholesale market governance supports broader stakeholder participation, aligning with our definition of competitiveness by promoting multi-actor involvement in market design and system planning.

Sources:

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Year(s): State authority participation role (2022) and wholesale market customer count data (2023).

Coding scheme:

We use the state authority participation role classifications by Lenhart and Fox 2022. For states that span multiple wholesale markets (and/or have partial participation), scores were calculated following the coding scheme below, and scores are weighted by the proportion of customers served in each market. Customer proportional values by state were calculated by Oak Ridge National Laboratory for all states, minus Louisiana and Tennessee. Additional data sources were needed for specific utility customer counts in these states. A state receives a score based on the RTO/ISO it is in. If a state is in multiple markets, the score is an average of those. If a state is partially in a market(s), but partially not in a market, it will be an average of those.

If a bilateral market has open governance structures like a wholesale market, applicable points would be assigned – but similar participation opportunities were not found.

Score	**State Authority Role in Wholesale Market**	**Wholesale Market Placement**
1 point	Statutory	(CAISO, ERCOT)
0.66	Delegated	(MISO*, SPP*)
0.33	Advisory	(ISO-NE, NYISO, PJM*)
0	No formal role for states / not in a wholesale market	

*Southeast-relevant markets

Table 17: Coding scheme for State Authority Participation Role in Wholesale Market indicator

Acknowledgements.

We thank Nicholas Institute for Energy, Environment & Sustainability staff member Josh Wilson for essential contributions in developing the dashboard website.

We thank the following Duke University students for their key research contributions to this project: Alex López, Yicheng (Catherine) Wang.

We thank colleagues at World Resources Institute for their input on this project and participants at the Southeast Power Sector Competition & Policy Workshop for their feedback.

Funding support was provided by the Arthur M. Blank Family Foundation.

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