SOLAR IN THE SOUTHEAST

Fourth Annual Report

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INTRODUCTION

"Solar in the Southeast" illuminates the critical role of utilities in the growing southeastern solar market. Southeastern states, particularly Alabama, Florida, Georgia, Mississippi, North Carolina, South Carolina, and Tennessee, grant monopoly utilities, rather than a competitive marketplace, the responsibility and control over power supplies. Consequently, the location of a home or business is the primary determinant not only of which utility will supply the electricity, but also the amount of solar within that portfolio.

To provide an equitable, unbiased comparison of various-sized utilities throughout the Southeast, SACE has ranked utilities on the basis of **watts per customer** (W/C) of solar power sourced to customers. SACE has also calculated and forecast total installed capacity of solar power (in megawatts, MW) particularly for state comparisons.

The purpose of this report is to document current progress and trends at both utility and state levels, as well as identify policies and practices to drive continued solar growth in the Southeast.

ABOUT SACE

The Southern Alliance for Clean Energy (SACE) is a nonprofit organization that promotes responsible and equitable energy choices to ensure clean, safe, and healthy communities throughout the Southeast. As a leading voice for energy policy in our region, SACE is a regional organization focused on transforming the way we produce and consume energy in the Southeast.

Proper citation for this report: "Southern Alliance for Clean Energy (2021). *Solar in the Southeast, Annual Report.*"

TABLE OF CONTENTS

EXECUTIVE SUMMARY

UTILITIES

- **Duke Energy Progress (DEP)** has earned the top slot on the large utility leaderboard for all four "Solar in the Southeast" annual reports. **Dominion Energy South Carolina** (formerly SCE&G) has occupied the second slot for the last two years. *Page 6*

- **Tampa Electric** continued its rapid rise in solar ratio (watts per customer) to achieve the top three for 2020. **Georgia Power** is poised to battle for that slot by the end of this forecast period (2024).

STATES

- **Florida** will eclipse **North Carolina** for most installed solar capacity in the Southeast this year (2021) – falling just short of accomplishing that in 2020. *Page 11*

- Several large solar projects have been announced for **Mississippi**; a more western solar portfolio will be advantageous for multi-state utilities like Southern Company and the Tennessee Valley Authority (TVA).

POLICIES MATTER

North Carolina has been the Southeast leader in installed solar capacity up to and including 2020. A state-level **renewable portfolio standard** enacted in 2007 deserves credit for catalyzing this momentum. SACE supports the call for a **federal Clean Electricity Standard (100% by 2035)** which will expand that success and replicate clean energy, jobs and economic development consistently across the region. *Page 12*

SUSTAINABLE PROGRESS

The solar industry demonstrated resiliency. Despite a global pandemic, solar in the Southeast continued its dramatic expansion in 2020. **Distributed solar** was more significantly impacted by the pandemic yet still grew by approximately **300 MW**. And **utility-scale solar** had a record year, almost **3,700 MW**. Total solar capacity for the Southeast in 2020 was **12,696 MW** on a full-year operational equivalent basis, resulting in an average solar ratio of **423 watts per customer** across the region. *Page 5*

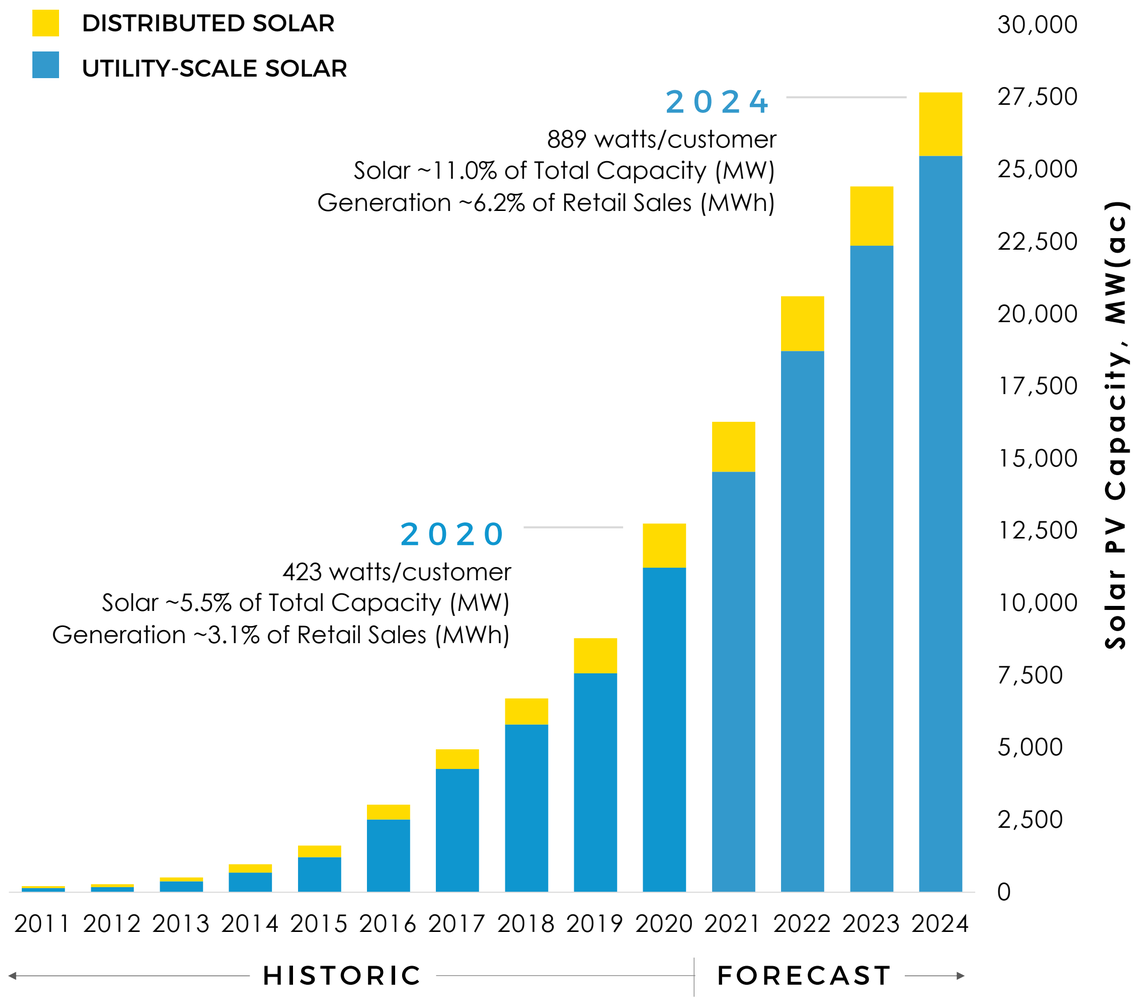
SUNRISERS

Knoxville Utilities Board (KUB) and **Mississippi Power** debuted on the **SunRiser** list, these utilities demonstrated the highest solar ambition (measured as the increase in their W/C solar ratio for the four-year forecast period). **Tampa Electric** is the only utility to earn the SunRiser designation all four years of reporting. *Page 8*

SUNBLOCKERS

Alabama Power has joined the **North Carolina Cooperatives** with the **SunBlocker** designation. This dubious distinction applies to the large utility systems whose plans for the next four years (2024) will leave them below the region average from last year (2020). *Two of the utilities that had been designated SunBlockers for all three previous reports (**TVA** and **Seminole Electric**) emerged, slightly, from that dishonorable category.*

SOUTHEAST SOLAR CAPACITY FORECAST



ANOTHER RECORD YEAR

Solar in the Southeast increased by almost 4 gigawatts (GW) or 4,000 megawatts (MW) in 2020. The Southeast achieved an average solar ratio of 423 watts per customer. Total solar capacity for the Southeast in 2020 was 12,696 MW on a full-year operational equivalent basis.

DESPITE THE PANDEMIC

Utility-scale solar had a record year in the Southeast (approximately 3,700 MW). Distributed solar was more significantly impacted by the pandemic yet still grew by approximately 300 MW in 2020.

MAJOR PROJECT ANNOUNCEMENTS

Examples of major solar projects announced in 2020 (and early 2021) include: two, 200 MW projects in Mississippi (that will serve Starkville Electric Department, Knoxville Utilities Board, General Motors, and other TVA "Green Invest" customers); a separate 150 MW project in Mississippi will serve Facebook; Duke Energy Progress commissioned the 108 MW Trent River project in North Carolina. In January 2021, Duke Energy Florida received approval of its Clean Energy Connection program (ten projects totaling 750 MW).

FEDERAL POLICY OPPORTUNITIES

Decarbonization of the electric sector is a key aspect of President Biden's climate change strategy. A federal Clean Electricity Standard (CES) – 100% by 2035 – is envisioned in the American Jobs Plan.

LARGE UTILITY SYSTEM RANKINGS

SYSTEMS WITH > 500,000 CUSTOMERS	2020 W/C
DUKE ENERGY PROGRESS	1,952
DOMINION ENERGY SC	1,336
TAMPA ELECTRIC	769
GEORGIA POWER	669
DUKE ENERGY CAROLINAS	591
FLORIDA POWER & LIGHT	448
SOUTHEAST AVERAGE	**423**
DUKE ENERGY FLORIDA	272
OGLETHORPE POWER	252
TENNESSEE VALLEY AUTHORITY	105
SANTEE COOPER	83
NC ELECTRIC COOPERATIVES	74
ALABAMA POWER	67
SEMINOLE ELECTRIC CO-OP	45

Duke Energy Progress (DEP) and Dominion Energy South Carolina (DESC) retained the top two slots on the large utility system ranking for 2020. **Tampa Electric** increased its watts per customer ratio by two-thirds and secured its way into the top three for that base year, as well.

Looking out to 2024, SACE forecasts **Georgia Power** to earn the number three slot as it completes the 2,210 MW of solar approved in the last Integrated Resource Plan (IRP).

The latest Integrated Resource Plans (IRP) for both **Duke Energy Progress (DEP) and Duke Energy Carolinas (DEC)** reflect higher long-term solar ambition (2035) but lower solar expansion through 2024 compared to prior plans. That notwithstanding, DEP still tops our leaderboard for 2024. DEC, however, is projected to drop below the region average.

Tennessee Valley Authority (TVA) is now forecast to achieve 425 watts per customer in 2024 – just above the 2020 average for the region (423 W/C). **Alabama Power** joins the **North Carolina Cooperatives** with the SunBlocker designation.

SACE modified our forecast for **Tampa Electric** based on its most recent Ten-Year Site Plan and an inconsistency with the most recent annual filings to Energy Information Administration (EIA-860). Even with the lower 2024 forecast, Tampa Electric retained its coveted SunRiser status (Page 8).

These results combine utility-scale solar with distributed solar, which was more significantly impacted by the pandemic. The SACE forecasts have been updated accordingly.

SYSTEMS WITH > 500,000 CUSTOMERS	2024 FORECAST W/C
DUKE ENERGY PROGRESS	2,497
DOMINION ENERGY SC	1,886
GEORGIA POWER	1,724
TAMPA ELECTRIC	1,686
DUKE ENERGY FLORIDA	937
FLORIDA POWER & LIGHT	928
SOUTHEAST AVERAGE	**889**
DUKE ENERGY CAROLINAS	809
SANTEE COOPER	644
OGLETHORPE POWER	617
SEMINOLE ELECTRIC CO-OP	455
TENNESSEE VALLEY AUTHORITY	425
ALABAMA POWER	327
NC ELECTRIC COOPERATIVES	107

The 13 largest utility systems in the Southeast each serve more than 500,000 customers. *This includes individual investor owned utilities like Georgia Power, as well as the combination of utilities organized into cooperatives like Oglethorpe and the federally-owned Tennessee Valley Authority. Also studied, but not exceeding the 500,000 customer benchmark, are several regional municipal power agencies.*

FORECAST FOR SELECT UTILITY SYSTEMS

DUKE ENERGY LEADS THE SOUTHEAST

Duke Energy represented about 40% of solar in the Southeast during 2020 and remains the region leader in installed solar capacity. Duke Energy Florida (DEF) increased its short-term plan with the approval of the Clean Energy Connection program. But the Duke utilities in North Carolina and South Carolina have reduced their short-term solar plans.

SOUTHERN COMPANY CATCHING UP QUICKLY

The rapid increase in solar ratio forecast for Southern Company is predominantly due to 2,210 MW ordered for the Georgia Power IRP in 2019. Two projects recently approved in Mississippi contribute substantially to the solar ratio for Mississippi Power. SACE no longer anticipates Alabama Power to develop the full allocation of solar approved in 2015.

NEXTERA FOCUSES ON LARGE SCALE PROJECTS

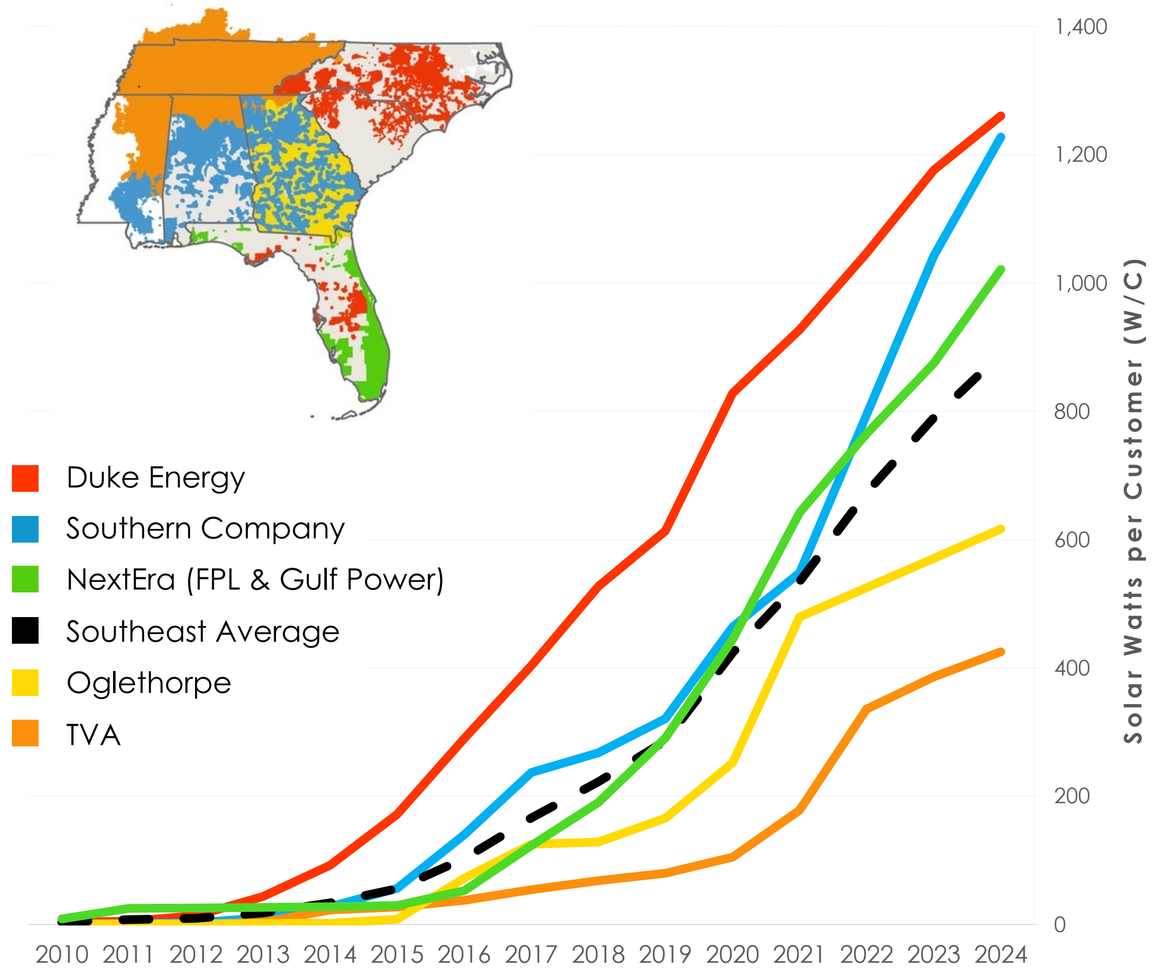
The combined Florida Power & Light (FPL) and Gulf Power utility exhibits a W/C solar ratio slightly higher than the region average. The most recent, combined Ten Year Site Plan for this utility demonstrates sustained growth anticipated by the previously announced "30-by-30" solar plan.

CORPORATE LEADERSHIP BENEFITS OGLETHORPE

Almost 400 MW of solar is scheduled for completion in 2021 to serve the Georgia co-ops and their customers (via Oglethorpe Power, Green Power EMC). Current plans suggest a flatter trajectory between 2022-2024. Walton EMC projects for Facebook continue to earn SunRiser status.

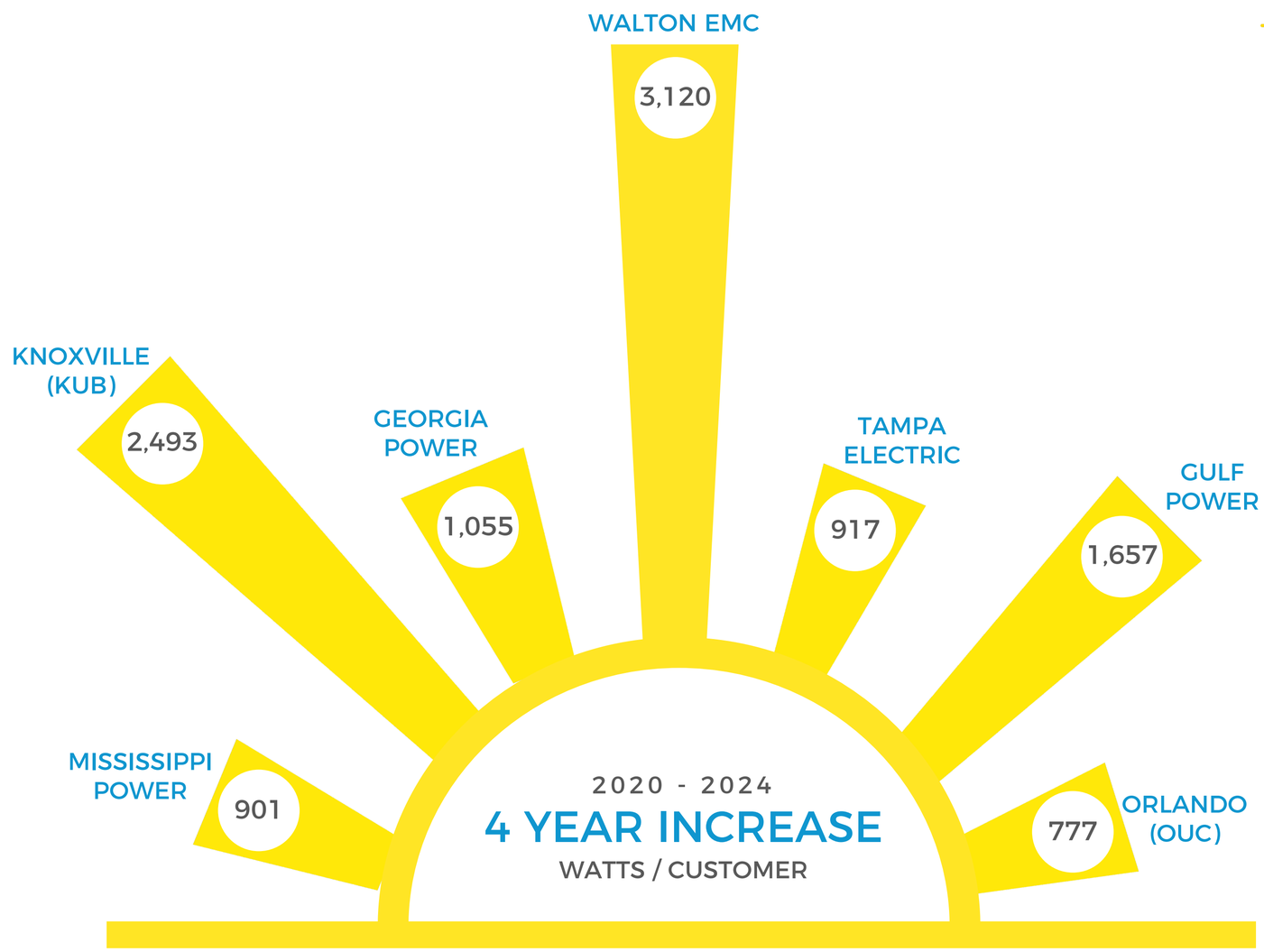
TENNESSEE VALLEY AUTHORITY STILL LAGS

TVA will be quadrupling solar capacity by 2024, yet continues to trail the other large utility systems in the Southeast. By 2024, SACE projects TVA to reach the 2020 region average, the SunBlocker designation no longer applies.



These five utility systems serve 74% of retail customers in the Southeast.

SOUTHEAST SOLAR MOMENTUM: SUNRISERS



SUNRISERS

- **Knoxville Utilities Board (KUB)** burst onto the scene with two, major solar announcements totaling 502 MW (first projects in Tennessee and Mississippi for 212 MW; followed by two more projects in Mississippi plus one in Tennessee for a total of 290 MW).
- **Mississippi Power** also earned SunRiser status for the first time. Two 78.5 MW projects (Moonshot and Cane Creek solar) were recently approved to deliver wholesale power to the Southern Company transmission grid.
- **Duke Energy Progress and Dominion Energy South Carolina** dropped off of the SunRiser list after each had been on it for three consecutive years.
- **Tampa Electric** is the only utility to earn the SunRiser designation all four years of reporting.

UTILITY	2020 W/C	**2024 W/C**
WALTON EMC	1,098	4,218
KNOXVILLE (KUB)	59	2,552
GULF POWER	400	2,057
GEORGIA POWER	669	1,724
TAMPA ELECTRIC	769	1,686
MISSISSIPPI POWER	856	1,757
ORLANDO (OUC)	357	1,134

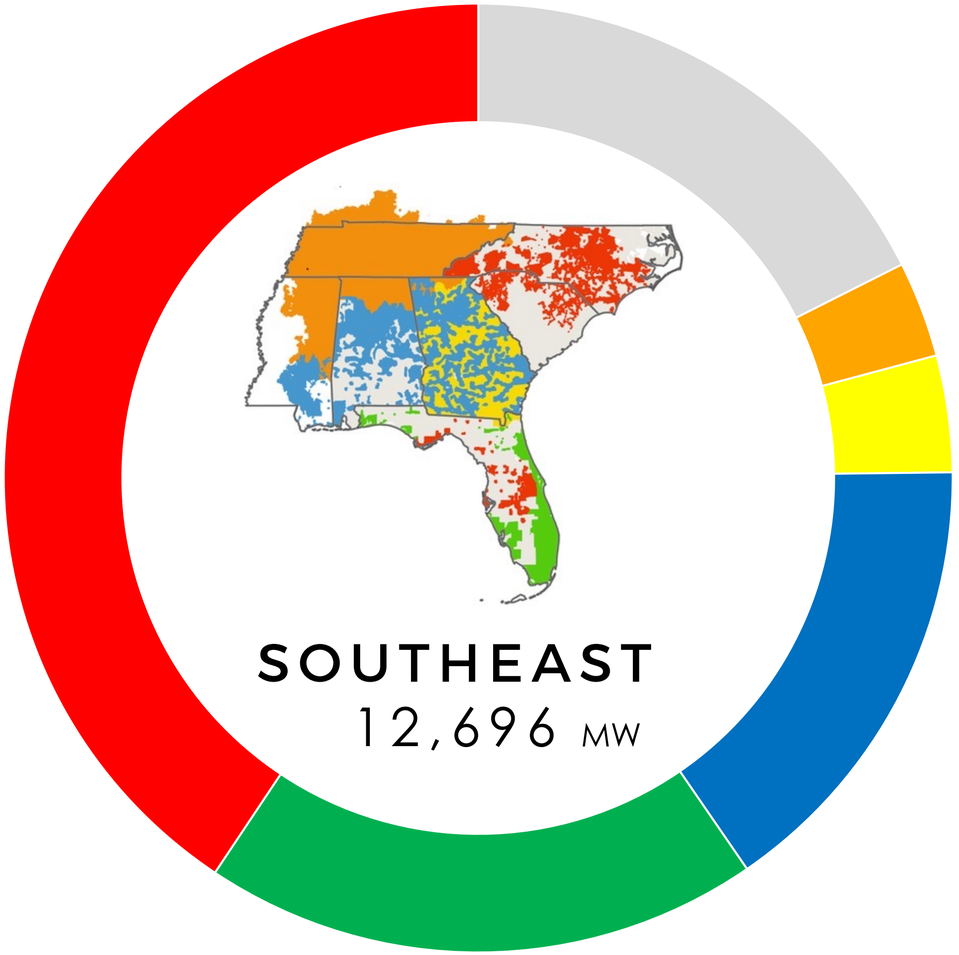
Minimum 100,000 customers

2020 SOUTHEAST SOLAR SNAPSHOT BY UTILITY

DUKE ENERGY
5,159 MW

NEXTERA (FPL + GULF POWER)
2,406 MW

SOUTHERN COMPANY
1,981 MW



OTHER UTILITIES
2,231 MW

TVA
415 MW
TVA also has 60 MW in Kentucky

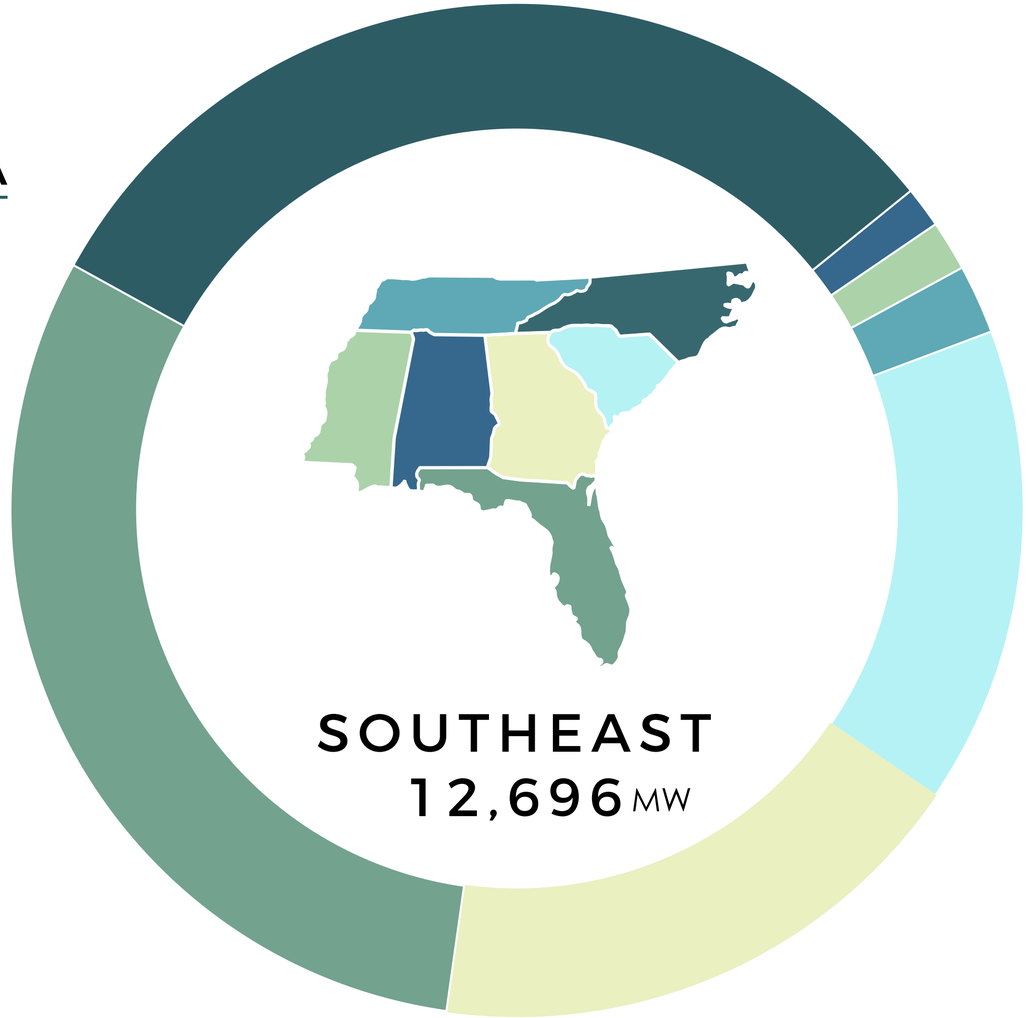
OGLETHORPE POWER
504 MW

2020 SOUTHEAST SOLAR SNAPSHOT BY STATE

NORTH CAROLINA
3,955 MW

FLORIDA
3,909 MW

GEORGIA
2,246 MW



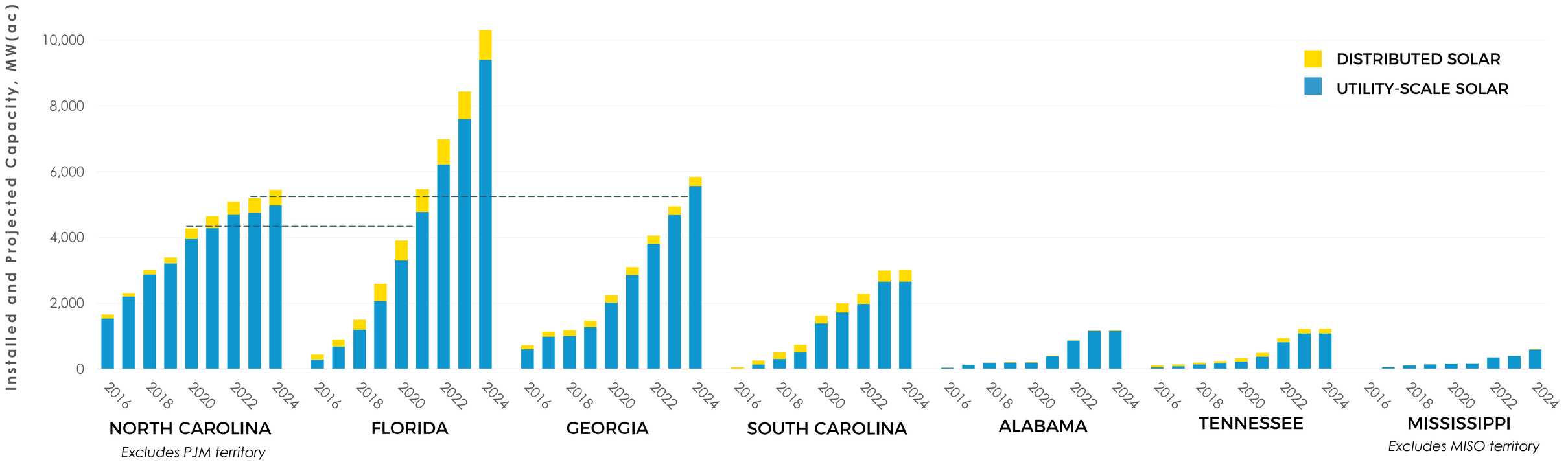
ALABAMA
166 MW

MISSISSIPPI
203 MW

TENNESSEE
280 MW

SOUTH CAROLINA
1,937 MW

FORECAST FOR SOUTHEAST STATES

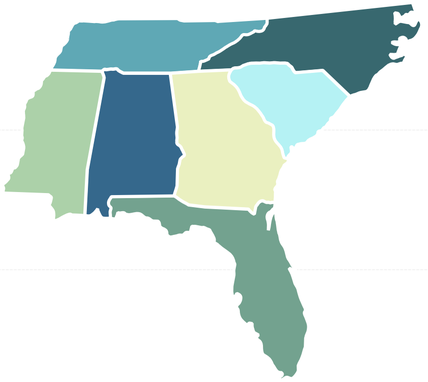


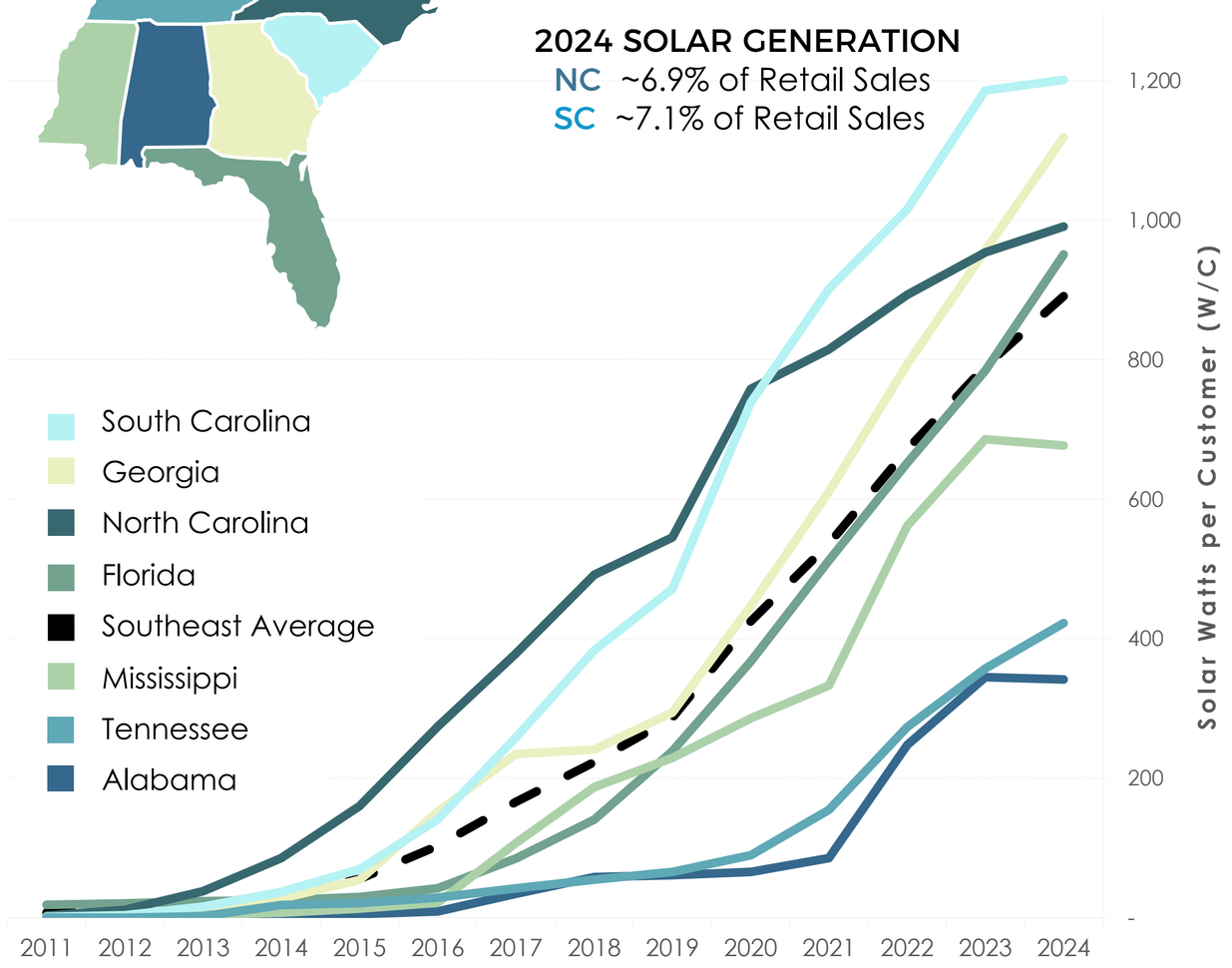
- North Carolina barely held on to its claim as Southeast solar leader in 2020. Examining states where the power is generated (rather than where the load is served), SACE accounted 4,269 MW for North Carolina – on a full-year, operational equivalent basis. *(Approximately 7% of that serves customers in South Carolina.)*
- Florida could boast 3,909 MW for 2020 – and will surpass North Carolina this year. Florida utilities continue to scale up their plans each year while North Carolina utilities are scaling back their near-term plans.
- Georgia is also poised to surpass North Carolina within this forecast period. This was not evident in last year's report but reflects additional fulfillment of solar ordered in the Georgia Power 2019 Integrated Resource Plan (IRP).
- Alabama Municipal Electric Authority (AMEA) has a 100 MW project due this year and PowerSouth has commissioned 80 MW in the state, as well. A more western solar portfolio will be advantageous for Southern Company and TVA; yet the forecast solar penetrations for Alabama and Tennessee, in particular, remain considerably below the region average. *Page 12*

POLICIES BEHIND THE PERFORMANCE

- Policy drivers have been inconsistent across the Southeast. **SACE supports the call for a federal Clean Electricity Standard (100% by 2035).** Fully decarbonizing the power sector, along with electrification, would reduce U.S. greenhouse gas emissions by 70-80%, creating millions of jobs, cleaning our air and water, protecting public health, lowering electric bills, and securing energy independence.
- The increasing prevalence of contractual relationships across state lines **may warrant additional scrutiny to ensure proper accounting and transparency.** For example, more than half of the solar for KUB (Knoxville/TN) is being constructed in Mississippi.

STATE	2020 W/C	**2024 W/C**
SOUTH CAROLINA	739	1,201
GEORGIA	447	1,119
NORTH CAROLINA	758	991
FLORIDA	367	951
SOUTHEAST	**423**	**889**
MISSISSIPPI	286	677
TENNESSEE	90	422
ALABAMA	66	342





** This analysis excludes the portion of Kentucky served by TVA. Similarly, the PJM portion of North Carolina is excluded as is the MISO portion of Mississippi*

STATE PROFILES

ALABAMA

FLORIDA

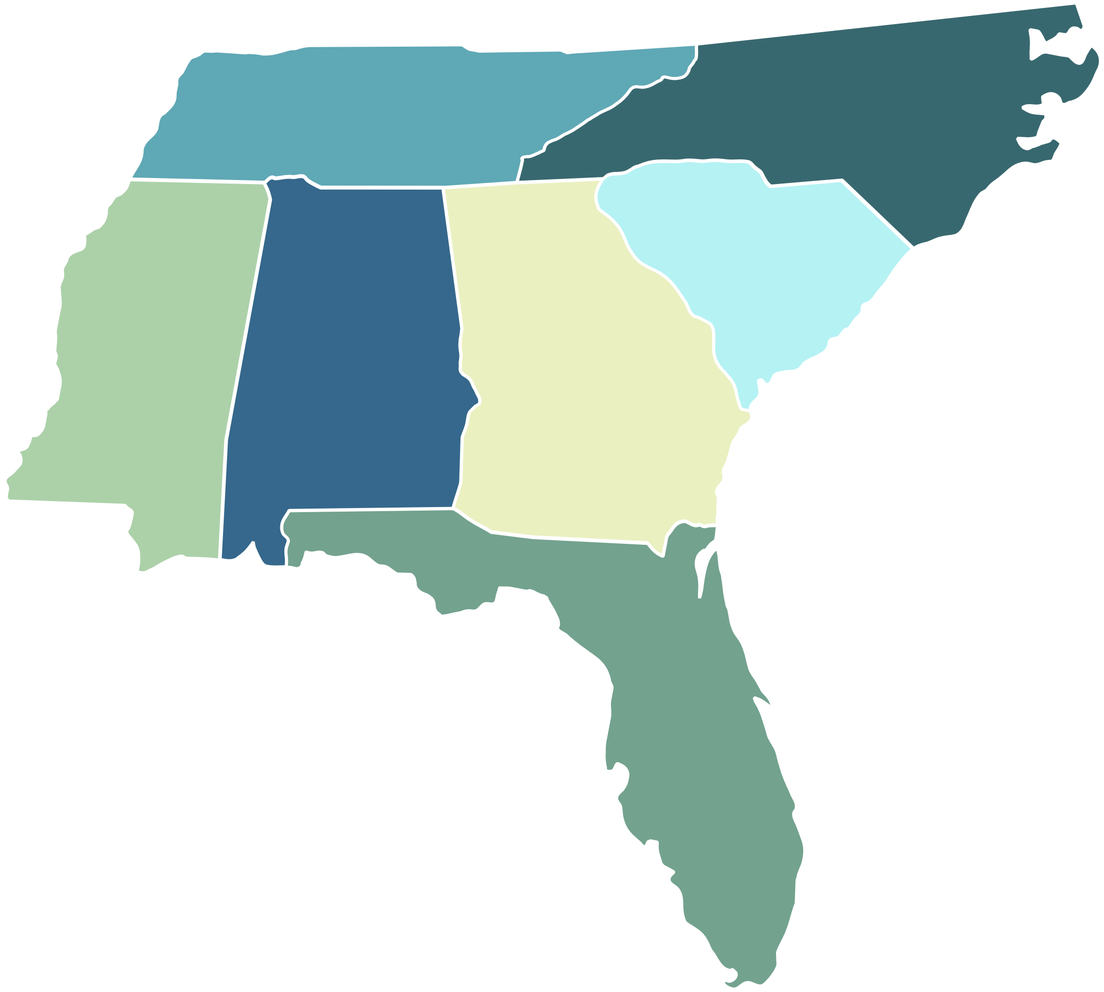
GEORGIA

MISSISSIPPI

NORTH CAROLINA

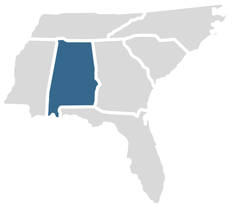
SOUTH CAROLINA

TENNESSEE



ALABAMA

LOWER FORECAST FOR 2024



UTILITY-SCALE SOLAR, MW

UTILITY	2020	**2024**
ALABAMA POWER	97	**497**
TVA	59	**220**
POWERSOUTH	0	**63**

DISTRIBUTED SOLAR, MW

UTILITY	2020	**2024**
ALABAMA POWER	4	**6**
TVA	6	**10**
POWERSOUTH	0.4	**0.5**

- Alabama again exhibits the lowest state average solar ratio across the Southeast. This is true for both 2020 as well as the projection for 2024.
- The forecast solar penetration for Alabama remains considerably below the region average. Alabama's state average for 2024 is now forecast to be lower than SACE projected in last year's report.
- Alabama Power appears unlikely to pursue the full capacity of solar approved by the PSC in 2015.

SOLAR WATTS PER CUSTOMER

UTILITY	2020	**2024**
SOUTHEAST AVERAGE	*423*	***889***
TVA	113	**368**
STATE AVERAGE	*66*	***342***
ALABAMA POWER	67	**327**
POWERSOUTH	1	**181**

- TVA projects for Facebook and Google (377 MW) continue in the state. As indicated previously, however, the majority of this solar power will actually serve load in Tennessee rather than Alabama.
- Similarly, part of the 80 MW project for PowerSouth will proportionately serve that utility's load in Florida.
- Alabama Municipal Electric Authority (AMEA) has a 100 MW project due next year.
- Distributed solar will continue to struggle in Alabama even after the pandemic due to anti-solar policies imposed by TVA and Alabama Power.

FLORIDA

BECOMING NUMBER ONE

	UTILITY-SCALE SOLAR, MW		DISTRIBUTED SOLAR, MW	
UTILITY	2020	**2024**	2020	**2024**
FLORIDA POWER & LIGHT	2,051	**4,403**	179	**264**
DUKE ENERGY FLORIDA	301	**1,501**	212	**319**
TAMPA ELECTRIC	518	**1,233**	67	**101**
GULF POWER	157	**902**	19	**29**
SEMINOLE	2	**300**	31	**47**
JACKSONVILLE (JEA)	38	**288**	17	**26**
ORLANDO (OUC)	68	**272**	21	**33**
LAKELAND	15	**65**	9	**11**
TALLAHASSEE	62	**62**	8	**10**
GAINESVILLE (GRU)	3	**53**	25	**26**
POWERSOUTH	0	**18**	5	**7**

- Florida fell just shy of overtaking North Carolina in 2020 for the most installed solar. On the full-year operational equivalent basis, SACE recorded 3,909 MW for Florida compared to 3,955 MW serving load in North Carolina. Page 10. Florida will become number one this year.
- Gulf Power, Tampa Electric and Orlando Utilities Commission each earned SunRiser status. Tampa Electric is the only utility to receive that prestigious distinction in all four years of our reporting.

SOLAR WATTS PER CUSTOMER

UTILITY	2020	**2024**
GULF POWER	400	**2,057**
TAMPA ELECTRIC	769	**1,686**
ORLANDO (OUC)	357	**1,134**
STATE AVERAGE	367	**951**
DUKE ENERGY FLORIDA	272	**937**
FLORIDA POWER & LIGHT	448	**928**
SOUTHEAST AVERAGE	423	**889**
GAINESVILLE (GRU)	287	**838**
JACKSONVILLE (JEA)	124	**693**
TALLAHASSEE	584	**589**
LAKELAND	178	**554**
SEMINOLE	45	**455**
POWERSOUTH	42	**211**

- The forecast for Duke Energy Florida remains below the state average even with approval of its 750 MW Clean Energy Connection program.
- The solar contract for Seminole will be fully enacted by 2024 so the SunBlocker designation no longer applies.
- The Florida PSC agreed to maintain its successful net metering policy. However, the pandemic has tempered the forecast for this segment.

GEORGIA

RAPID GROWTH FOR THE NEXT FOUR YEARS

UTILITY-SCALE SOLAR, MW

UTILITY	2020	**2024**
GEORGIA POWER	1,533	**4,270**
OGLETHORPE	475	**1,290**
TVA	5	**21**
MEAG	0	**0**

DISTRIBUTED SOLAR, MW

UTILITY	2020	**2024**
GEORGIA POWER	186	**214**
OGLETHORPE	29	**46**
TVA	7	**11**
MEAG	4	**6**

- The Georgia state average solar ratio (watts per customer) continues to trend above the Southeast average. SACE projects Georgia will surpass North Carolina on this solar ratio within this forecast period.
- Georgia Power began offering a form of solar net metering ("monthly netting") for the first time in July 2020. A bill introduced late in the 2021 legislative session (SB299) would expand this program for Georgia Power and other utilities, too.

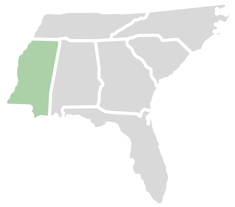
SOLAR WATTS PER CUSTOMER

UTILITY	2020	**2024**
GEORGIA POWER	669	**1,724**
STATE AVERAGE	*447*	***1,119***
SOUTHEAST AVERAGE	*423*	***889***
OGLETHORPE	252	**617**
TVA	87	**207**
MEAG	14	**20**

- Constructive collaboration with Georgia Transmission Corporation deserves credit for enabling the rapid solar expansion for Facebook via Walton EMC. The Oglethorpe system will continue to benefit from additional projects via Green Power EMC. *Page 7*
- TVA serves approximately 150,000 retail customers in north Georgia, but the utility-scale solar is installed out-of-state. "Green Invest" projects in the other TVA states mathematically reduce the solar ratio for Georgia.
- The Municipal Electric Authority of Georgia (MEAG) may contract solar for the City of LaGrange, Walmart, and potentially others. That project is not yet reflected in this report, but the MEAG ratio should increase in future years.

MISSISSIPPI

GO WEST; LARGE SOLAR



UTILITY-SCALE SOLAR, MW

UTILITY	2020	**2024**
MISSISSIPPI POWER	158*	**316**
TVA	39	**174**

DISTRIBUTED SOLAR, MW

UTILITY	2020	**2024**
MISSISSIPPI POWER	3	**5**
TVA	2	**2**

- **SACE has removed an extra 52 MW project inadvertently attributed to Mississippi Power in prior reports (Sumrall II).*
- Mississippi Power appears on the SunRiser list for the first time. Page 8. The Mississippi PSC recently approved two 78.5 MW projects (Moonshot and Cane Creek solar) to deliver wholesale power to the Southern Company transmission grid.
- The highly anticipated Mississippi Power IRP revealed how significantly over-capacity that system is. The plan anticipates retiring 976 MW of fossil fuel capacity from 2023-2027 (including a 502 MW coal unit by the end of 2027) without the need to replace that capacity.

SOLAR WATTS PER CUSTOMER

UTILITY	2020	**2024**
MISSISSIPPI POWER	856*	**1757**
SOUTHEAST AVERAGE	423	**889**
STATE AVERAGE	286	**677**
TVA	99	**400**

Note: The Southeast region for SACE does not include the portion of Mississippi in the MISO territory served by Entergy Mississippi.

- Mississippi has attracted attention from utilities and developers alike. A more western solar portfolio will be advantageous for multi-state utilities like Southern Company and TVA, which serves the northern part of the state including approximately 430,000 customers.
- TVA has commissioned several large solar projects in Mississippi. Two, 200 MW projects in the state will serve Starkville Electric Department, Knoxville Utilities Board, General Motors, and other TVA "Green Invest" customers. A separate 150 MW project in Mississippi is being developed for Facebook.
- Starkville will have one of the highest solar ratios in the Southeast, but is too small to be considered as a SunRiser.

NORTH CAROLINA

RELIQUISHING THE LEAD

	UTILITY-SCALE SOLAR, MW		DISTRIBUTED SOLAR, MW	
UTILITY	2020	**2024**	2020	**2024**
DUKE ENERGY PROGRESS	2,452	**3,159**	114	**170**
DUKE ENERGY CAROLINAS	1,063	**1,468**	160	**238**
NC ELECTRIC COOPERATIVES	58	**84**	23	**33**
NC EASTERN MUNICIPAL	63	**63**	2	**3**
TVA	1	**4**	17	**27**
NC MUNICIPAL POWER	0	**0**	1	**2**

- 2020 was the last year North Carolina will be able to claim it has the most installed solar of any state in the Southeast. As anticipated, Florida will overtake North Carolina in 2021.
- The state still deserves leadership credit for catalyzing the solar movement – particularly with the Renewable Energy and Energy Efficiency Portfolio Standard (REPS) in 2007. As the only such standard in the Southeast, this experience leaves North Carolina well prepared for a potential federal Clean Electricity Standard.
- The NC Electric Cooperatives retain designation as a Southeast SunBlocker, with the lowest solar ambition among large utilities.

Note: The Southeast region for SACE does not include the portion of North Carolina in the PJM territory served by Dominion Energy.

SOLAR WATTS PER CUSTOMER

UTILITY	2020	**2024**
DUKE ENERGY PROGRESS	1,876	**2,401**
STATE AVERAGE	*758*	***991***
SOUTHEAST AVERAGE	*423*	***889***
DUKE ENERGY CAROLINAS	564	**773**
TVA	446	**703**
NC EASTERN MUNICIPAL	259	**260**
NC ELECTRIC COOPERATIVES	74	**107**
NC MUNICIPAL POWER	8	**12**

- Duke Energy Progress' (DEP) and Duke Energy Carolinas' (DEC) current Integrated Resource Plans (IRPs) – which cover operations in South Carolina, as well – reflect higher long-term solar ambition (2035) but lower solar expansion through 2024 compared to prior plans.
- DEP has remained atop the leaderboard of large Southeast utilities for all four years of "Solar in the Southeast" reporting. Page 6. SACE forecasts DEP to remain number one through 2024.

SOUTH CAROLINA

PSC HONORING ENERGY FREEDOM ACT

UTILITY-SCALE SOLAR, MW

UTILITY	2020	**2024**
DOMINION ENERGY SC	840	**1,183**
SANTEE COOPER	48	**577**
DUKE ENERGY PROGRESS	407	**525**
DUKE ENERGY CAROLINAS	389	**537**

DISTRIBUTED SOLAR, MW

UTILITY	2020	**2024**
DOMINION ENERGY SC	149	**219**
DUKE ENERGY CAROLINAS	47	**70**
SANTEE COOPER	32	**48**
DUKE ENERGY PROGRESS	14	**20**

- All seven members of the Public Service Commission of South Carolina (PSC-SC) are new since 2017. Recent decisions have illustrated this body's predisposition to honor the Energy Freedom Act (EFA).
- One such example was the PSC decision in December 2020 to reject the Integrated Resource Plan (IRP) proposed by Dominion Energy South Carolina (DESC) for failing to properly consider coal plant retirements and broad adoption of clean energy resources.

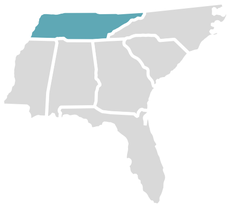
SOLAR WATTS PER CUSTOMER

UTILITY	2020	**2024**
DUKE ENERGY PROGRESS	2,593	**3,312**
DOMINION ENERGY SC	1,336	**1,886**
STATE AVERAGE	*739*	***1,201***
DUKE ENERGY CAROLINAS	682	**933**
SOUTHEAST AVERAGE	*423*	***889***
SANTEE COOPER	83	**644**

- More recently, the PSC rejected the so-called "Frankenstein monster" that DESC proposed to replace net metering in the state. Instead the Commission approved an alternative proposal advocated by a group of joint clean energy intervenors.
- The PSC-SC also approved a similar "Solar Choice Metering" tariff proposed by Duke Energy Progress and Duke Energy Carolinas which was supported by clean energy advocates and represents the next evolution of solar net metering.
- These recent decisions are encouraging and should help sustain the rapid growth of solar (illustrated by the graph on page 12) along with the corresponding jobs and economic development – precisely what the Energy Freedom Act was intended to promote.

TENNESSEE

KNOXVILLE STEPS UP, STATE STILL LAGS



UTILITY-SCALE SOLAR, MW

UTILITY	2020	**2024**
TVA	176	**1,297**

DISTRIBUTED SOLAR, MW

UTILITY	2020	**2024**
TVA	104	**145**

- Knoxville Utilities Board (KUB) burst onto the SunRiser list (page 8) with two, major solar announcements totaling 502 MW (270 MW of this is being constructed in Mississippi). KUB leveraged the TVA "Green Invest" program to secure this solar capacity.
- Green Invest allows large customers in the Tennessee Valley to contract for projects through TVA. General Motors is another example of this program securing 100 MW (also from Mississippi) for its plant in Spring Hill, Tennessee. *(GM has subsequently announced another 28 MW from a Kentucky project.)*
- Many corporations (and increasingly universities, municipalities, and other organizations) have renewable energy targets and/or greenhouse gas reduction commitments. Facebook, Google, Vanderbilt, and Nashville Electric Service have previously announced Green Invest projects with TVA.
- This organizational leadership has lifted TVA from its prior SunBlocker designation.

SOLAR WATTS PER CUSTOMER

UTILITY	2020	**2024**
KNOXVILLE (KUB)	59	**2,552**
SOUTHEAST AVERAGE	*423*	***889***
TVA (TN) AVERAGE	*90*	***422***
NASHVILLE (NES)	67	**413**
MEMPHIS (MLGW)	66	**183**
CHATTANOOGA (EPB)	65	**178**
MIDDLE TENNESSEE (EMC)	64	**163**
VOLUNTEER ELECTRIC CO-OP	58	**135**

The six largest LPCs in Tennessee are included above.
Kingsport, TN (served by AEP Appalachian Power) is not included in the Southeast region.

- SACE has called for TVA to exhibit institutional leadership of its own. It should be providing low-cost, clean energy for all of its customers – large and small alike. As the largest federal public power utility, TVA should lead the utility sector transformation by adopting a plan for 100% clean electricity five years ahead of any national clean electricity standard.
- *Routine reconciliation with the final dataset from the Energy Information Administration (EIA 860) revealed approximately 17% lower utility-scale solar for TVA than SACE had reported in last year's report (covering calendar year 2019). The resulting figure for 2020 is recalibrated.*

DATA SOURCES, METHODS, AND ASSUMPTIONS

Compiling data from publicly-available reports as well as proprietary forecasts, the Southern Alliance for Clean Energy (SACE) has curated a system of information about electric power generation in the southeast United States. For the *Solar in the Southeast* Annual Report, primary datasets derive from the Energy Information Administration (EIA) and the Federal Energy Regulatory Commission (FERC) – particularly, EIA 860 (Annual Electric Generator Data), EIA 861 (Annual Electric Power Industry Report), EIA 923 (Annual Electric Utility Data), and FERC 714 (Annual Electric Balancing Authority Area and Planning Area Report).

Future projections are informed by additional datasets including Wood Mackenzie Power & Renewables (formerly GTM Research), the EIA Annual Energy Outlook, utility Integrated Resource Plans (IRPs), interconnection queues, identified projects as well as utility announcements of ongoing and future plans, along with information gathered from solar developers and professional judgement of staff experts.

Solar data are reported as $MW_{(ac)}$ – alternating current. Where applicable, data identifiable as $MW_{(dc)}$ is derated to $MW_{(ac)}$ equivalent. *AC reporting is becoming increasingly more common, particularly for utility-scale solar projects.*

SACE tracks both capacity as well as generation, $MW_{(ac)}$ and MWh, respectively. Consequently, the capacity of solar projects that begin operation late in the year are only partially attributable in the first year. Tracking solar data in this manner enables a correlation between capacity and generation statistics.

In some cases, the utility that receives the generation from planned or existing solar projects is not known. In such cases, the capacity and generation is allocated to utilities based on proximity and the degree to which utilities needs are met by generation owned or contracted for. The amount of solar capacity allocated to utilities in this manner is a small fraction of all Southeastern generation, but it can make up a substantial portion of the solar generation reported for utilities with small solar portfolios.

SACE projects distributed generation solar (e.g., residential and commercial rooftop solar) independently for large utility systems. Smaller municipal and cooperative systems are projected at an aggregate level based on the averages for those systems.

State-level reports are aggregated using two, complementary methods. The "Forecast for Southeast States" (page 11) reflects total solar capacity (MW) in the state where the generation originates. Other results correlate to the watts per customer calculation and are allocated to the state where the load is served. SACE apportions utility-scale solar generation to loads served across multi-state utility service territories. Smaller, distributed generation systems are assumed to serve their local load. This method establishes a close relationship with the retail sales and customers served by the respective utilities. *For example, a solar project in Alabama contracted to the Tennessee Valley Authority (TVA) will proportionally serve customers in multiple states across TVA service territory.*

SOLAR IN THE SOUTHEAST

Fourth Annual Report

June 2021

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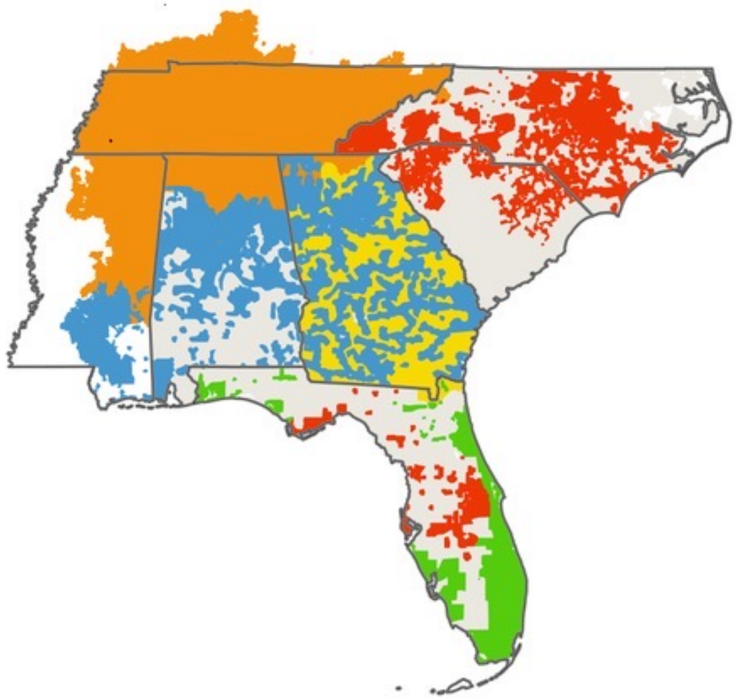
APPENDIX A & B

APPENDIX A: SERVICE TERRITORIES OF FIVE SOUTHEAST UTILITY SYSTEMS



UTILITY SERVICE TERRITORIES

- SOUTHERN COMPANY
- TENNESSEE VALLEY AUTHORITY
- DUKE ENERGY COMPANY
- FLORIDA POWER & LIGHT (incl. GULF POWER)
- OGLETHORPE POWER CORPORATION
- OTHER SOUTHEASTERN UTILITIES
- NON-SOUTHEASTERN BALANCING AREAS

APPENDIX B: SOUTHEAST UTILITY RESULTS

Appendix B is accessible on our website and contains results for nearly 500 utilities in the Southeast.