

November 8, 2019

via email to mshigdon@tva.gov

Matthew Higdon
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Tennessee Valley Authority
400 W. Summit Hill Drive WT-11B
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Re: SACE Comments on CHANGES TO GREEN POWER PROVIDERS PROGRAM DRAFT ENVIRONMENTAL ASSESSMENT

Dear Mr. Higdon,

The Southern Alliance for Clean Energy (SACE) respectfully submits these comments in response to the Tennessee Valley Authority's (TVA) draft Environmental Assessment for its proposed Changes to Green Power Providers Program (hereinafter referred to as "Draft 2019 GPP EA"). TVA is fundamentally failing to embrace renewable energy as a key strategy. As with the recent Integrated Resource Plan and other Anti-Solar Rate Changes established through the 2018 Wholesale Rate Change, TVA continues to mislead customers and the Draft 2019 GPP EA further illustrates that TVA has become increasingly hostile to solar in the Tennessee Valley.

SACE is a regional organization that promotes responsible energy choices to ensure clean, safe and healthy communities throughout the Southeast. SACE's members are concerned by the short public input timeline, the lack of transparency and TVA's failure to consider meaningful alternatives for improving the GPP program.

SACE calls on TVA to withdraw the Draft 2019 GPP EA; continue to offer GPP with the current terms (i.e., Alternative A) through 2020; perform an updated Value of Solar study, and engage stakeholders in a genuine, transparent process to develop a suitable alternative that fairly compensates customers for providing benefits to the grid and thus all TVA customers.

Sincerely,

Stephen Smith
Executive Director

Maggie Shober
Utility Reform Director

Bryan Jacob
Solar Program Director

SACE calls on TVA to Keep and Improve the GPP

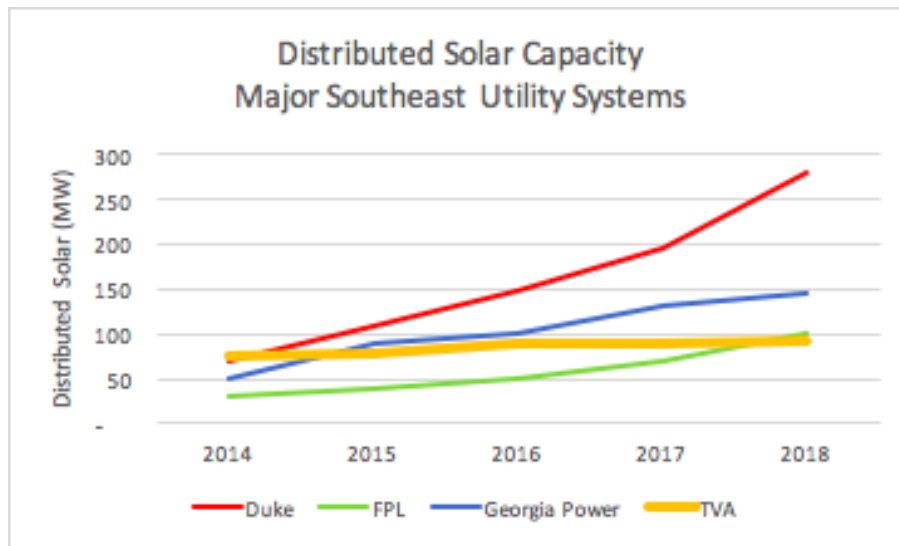
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I. Introduction

The Green Power Providers (GPP) program had established TVA as an early leader on distributed solar for the Southeast. By 2014, TVA had 74 MW of distributed solar while Duke operations in North Carolina, South Carolina and Florida, had 70 MW; Georgia Power had 49 MW and Florida Power & Light had 30 MW. By 2018, distributed solar for Duke's southeast operations had grown to 278 MW, Georgia Power to 146 MW and FPL to 101 MW. TVA reported 93 MW for 2018.¹

Figure 1. Distributed Solar Capacity of Major Southeast Utilities by Year



Source: U.S. Energy Information Administration, EIA Form 861

The GPP was adopted to conform to the net metering standard established in the Energy Policy Act of 2005. This demonstrated the kind of utility leadership one might expect from the largest public utility in the United States. TVA has subsequently made fundamental changes to the GPP program that have resulted in underutilization of the program and departure from the net metering standard it was intended to represent. Thus TVA's leadership in this area has slipped while peer utilities in Florida, Georgia, and the Carolinas have increased distributed solar.

As with the recent Integrated Resource Plan (IRP) and other Anti-Solar Rate Changes established through the 2018 Wholesale Rate Change, TVA continues to mislead customers about its stance on solar energy, and the Draft 2019 GPP EA further illustrates that TVA has become increasingly hostile to solar in the Tennessee Valley. Opportunities exist to improve the design of the GPP program or design a comparable program to support distributed solar for customers in the Tennessee Valley. Unfortunately, the alternatives considered in the Draft 2019 GP EA fail to explore satisfactory enhancements to, nor replacements for, the GPP program.

¹ U.S. Energy Information Administration, EIA Form 861.

Moreover, we express disappointment that TVA rejected the collective petition from Southern Environmental Law Center, Tennessee Chapter of the Sierra Club, Appalachian Voices, Southern Alliance for Clean Energy, Energy Alabama, and green|spaces to extend the comment deadline for an additional month. The limited, 30-day comment period was wholly inadequate for informed public scrutiny of the Draft 2019 GPP EA as required by both the TVA Act and the National Environmental Policy Act (NEPA)² -- particularly when key supporting documentation, TVA's market study dated October 2018, was only made available late in the day on October 28, 2019, leaving 9 business days for review and incorporation into comments.

Additionally, the market study itself represents a very selective subset of utilities for a key part of the analysis: benchmarking pricing of other utility programs. For example, five utilities are included for solar program "features" while only three (Duke, Alabama Power and LG&E+KU) are examined for pricing of distributed solar programs. This small dataset is not sufficiently representative of the larger utility market as a whole.

II. TVA is failing to embrace renewable energy as a key strategy

A. TVA has become increasingly hostile to solar in the Tennessee Valley

A lawsuit currently pending in District Court in Alabama³ alleges that TVA is discouraging businesses and homeowners from investing in renewable energy and energy efficiency measures. The growth in solar energy systems, energy efficiency, and other forms of Distributed Energy Resources, including energy storage — collectively called "DER" — will inevitably reduce demand for TVA-generated electricity, from which TVA derives its income. In response to this competition, TVA's "2018 Anti-Solar Rate Changes" are designed to discourage the development of DER in three primary ways. First, the Rate Changes reduce electricity rates for large commercial customers, thus removing financial advantages of DER investment. Second, the Rate Changes—for the first time—impose a Grid Access Charge ("GAC") which will require Local Power Companies to charge residential and small business customers a mandatory fee regardless of electricity usage, thereby impeding DER adoption in this customer class. Finally, TVA is discounting the price of electricity for greater electricity usage, discriminating against consumers who consume less energy or who implement energy efficiency measures. Taken together, these measures are designed to obstruct DER adoption across all customer classes, to maximize the amount of electricity customers continue to obtain from TVA.

² U.S. Code Title 40, Chapter 5, §1500.1(b)

³ Case 3:18-cv-01446-UJH-LSC Filed 09/06/18

The only significant solar in the pipeline for the next five years is exclusively to satisfy the demand of large corporate customers (e.g., projects like those for Facebook and Google). Moreover, the RFPs for those solar projects have resulted in a protracted contracting process further slowing the build-out of solar in the Tennessee Valley. Additional solar envisioned in the recent 2019 Integrated Resource Plan (IRP) is not anticipated to come online until 2025.

B. TVA's recent 2019 IRP is substantially misleading.

In a letter to the TVA Board for the August 2019 meeting, SACE Executive Director Stephen A. Smith expressed how the recently-competed 2019 Integrated Resource Plan (IRP) is misleading:

This IRP does not choose a single portfolio or even a reasonable range of expected future resource options, but instead lumps all the portfolios analyzed over the entire process. This allows for misleading conclusions like TVA is planning to add "up to 14 GW of solar" over 20 years when the reality is closer to 5 GW of solar, well below regional peer utilities. The wide range is designed to mislead the public, and the regulators, by "cherry picking" sounds bites out of context, when the reality is that TVA staff are advancing a narrow, regressive energy plan for the Tennessee Valley.

The TVA bias against solar is evident from the inputs and limitations in its IRP modeling. TVA initially imposed a limit on their IRP models of 500 MW of solar per year while other comparably-sized utilities in the Southeast (such as Duke and FPL) are actively implementing solar at twice that pace. TVA adopted cost assumptions for high costs for solar along with low costs for gas. Moreover, in calculating the Levelized Cost of Energy (LCOE), TVA applied artificially high discount rates which distort the cost of resources like solar that have comparatively-high upfront costs and very low operational cost throughout the asset lifetime. These input biases contributed to output results that are widely variable and unreliable.

After being persuaded to remove the arbitrary limitations on solar in their IRP analysis, solar additions increased as much as 50%.⁴ Indeed the unrestrained modeling on one of the least likely scenarios illustrates potential of 14 GW of solar.⁵ With the arbitrary limits removed the base case called for 2-3 GW of solar by 2028 and 6-9 GW by 2038.⁶ The TVA Board approved a budget for up to 5.5 GW of solar through 2030, further illustrating that its true intention falls short of the hyperbolic headlines.⁷

⁴ TVA presentation to Regional Energy Resource Council (RERC) at April 17-18, 2019 meeting in Knoxville, Tennessee.

⁵ Ibid.

⁶ TVA Final 2019 Integrated Resource Plan

⁷ TVA presentation to TVA Board of Directors meeting at August 22, 2019 meeting in Knoxville, Tennessee.

C. Distributed solar is a vital companion to utility-solar

The Draft 2019 GPP EA asserts that “Utility-scale solar is a lower cost solution than the private-scale generation systems enrolled in GPP.” This is a false comparison. “Private-scale generation” (i.e., rooftop solar) serves a different purpose than utility-scale solar. Riding a bus typically costs less than driving a car. Would TVA oppose car ownership?

Both distributed solar and utility-scale solar offer energy (MWh) and capacity (MW) value to the system – and both provide environmental benefits by offsetting conventional generation resources. Distributed solar, however, delivers additional aspects of value. Notable among those are: reduced line losses along with avoided or reduced transmission and distribution capital investment.

NREL defines seven categories of value for distributed solar:⁸

1. Energy
2. Environmental
3. Transmission and Distribution (T&D) losses
4. Generation capacity
5. T&D capacity
6. Ancillary services
7. Other factors

As another example, South Carolina adopted eleven categories to compute the utility’s avoided cost associated with distributed solar:⁹

1. Avoided Energy
2. Energy Losses/Line Losses
3. Avoided Capacity
4. Ancillary Services
5. Transmission & Distribution Capacity
6. Avoided Criteria Pollutants
7. Avoided CO₂ Emissions Cost
8. Fuel Hedge
9. Utility Integration & Interconnection Cost
10. Utility Administration Cost
11. Environmental Costs

⁸ Denholm, P., et.al., Methods for Analyzing the Benefits and Costs of Distributed Photovoltaic Generation to the U.S. Electric Utility System, National Renewable Energy Laboratory (NREL), September 2014, <https://www.nrel.gov/docs/fy14osti/62447.pdf>

⁹ Discussion of South Carolina Act 236: Version 2.0, Energy & Environmental Economics, Inc., December 2018, <https://www.ethree.com/wp-content/uploads/2019/01/E3-Discussion-of-South-Carolina-Act-236-Version-2.0-December-2018.pdf>, page 27

In addition to the benefits listed above, distributed solar also offers resiliency benefits. Earlier this year, the National Association of Regulatory Utility Commissioners (NARUC) issued a report in April 2019 that examined the current practices for valuing the resilience benefits of distributed energy resources.¹⁰

III. TVA should improve rather than replace the GPP

A. TVA's own design changes have driven program underutilization

SACE disagrees with the statement from the Draft 2019 GPP EA that "Current and forecasted Program underutilization, supported by qualitative and quantitative market research, suggests that the GPP Program is no longer attractive to consumers."

As a self-regulated monopoly, TVA has exclusive authority to design the program. If it's no longer attractive, that's because they made it so. And, in fact, elsewhere in the Draft 2019 GPP EA, TVA admits that "This decline may be primarily caused by the reduction in GPP generation credit rates, as these are highly correlated to the number of residential systems coming online (Figure 1-4)." Indeed, TVA's Figure 1-4 shows a linear correlation between the GPP credit and the number of systems coming online with a decent R-squared value of 0.844.

The market study from October 2018 that TVA released on October 28, 2019 to support the Draft 2019 GPP EA found that when they surveyed 200 households that could be targets to become solar customers, 58% had never heard of GPP and another 25% had heard of it but knew little about it.

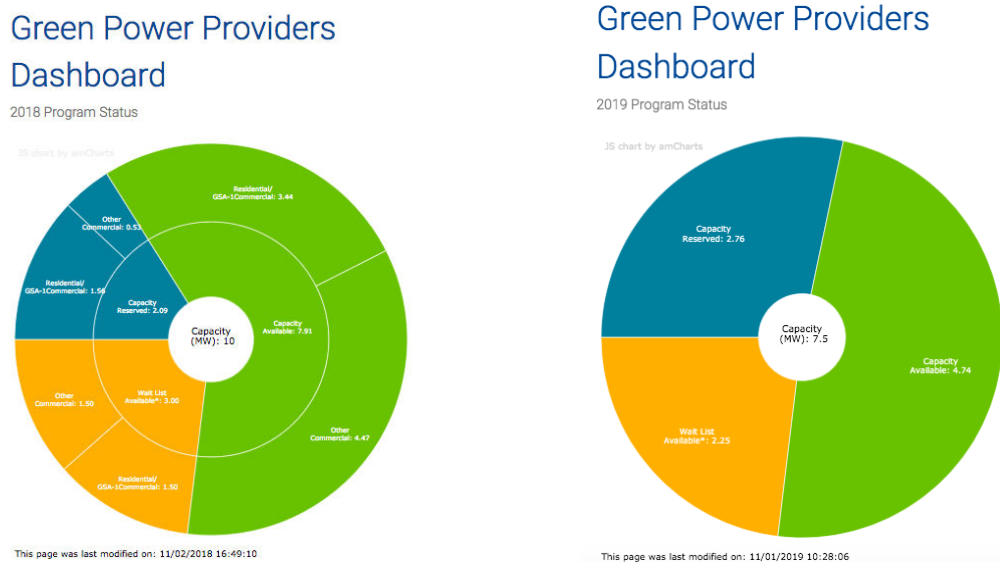
The Topline Results Summary of the market study (page 35) includes a conclusion that "We are likely to have fewer participants with 'Concept C - Confidence' concept versus 'Control - Concept G'." Concept C is the qualified contractor network (i.e., Alternative C in the Draft 2019 GPP EA). Concept G is the existing GPP program (i.e., Alternative A in the Draft 2019 GPP EA). If the basis for replacing GPP is that the current program is underutilized, it would seem counterproductive to advance alternatives that are likely to engage even fewer participants.

¹⁰ The Value of Resilience for Distributed Energy Resources: An Overview of Current Analytical Practices, National Association of Regulatory Utility Commissioners (NARUC) prepared by Converge Strategies, April 2019, <https://pubs.naruc.org/pub/531AD059-9CC0-BAF6-127B-99BCB5F02198>

B. Program participation in 2019 has increased over last year

Despite TVA's claim that "interest in the program has been steadily declining over recent years" that trend has reversed in the current year (2019). On November 2, 2018, the online GPP dashboard reflected 2.09 MW of reserved capacity. A comparable dashboard updated on November 1, 2019 shows 2.76 MW of reserved capacity. In other words, program participation in 2019 is 32% higher than it was at this same time last year. And, in fact, program participation through the first ten months of 2019 is already higher than the full year 2018.

Figure 2. Comparison of GPP Dashboard – 2018 & 2019



The reason this is important is that it offers an unadulterated comparison. TVA left the Generation Credit values the same for 2019 as they had been in 2018. As indicated above, in prior years, it was the reduction in the GPP rates that correlates to the reduction in program participation.

C. GPP participation provides a net benefit to non-participants.

The Draft 2019 GPP EA includes a whole section on Cost-Shifting. The implication is that "private-scale solar places a cost burden on non-participants." This claim has been disproven in several studies including the following examples.

A 2016 study by The Brookings Institution concluded that "a significant body of cost-benefit research conducted by PUCs, consultants, and research organizations provides substantial evidence that net metering is more often than not a net benefit to the grid and all ratepayers."¹¹

¹¹ Muro, M., and Saha, D., Rooftop Solar: Net Metering is a Net Benefit, Brookings Institution, May 2016, <https://www.brookings.edu/research/rooftop-solar-net-metering-is-a-net-benefit/>

Similarly, a study from 2015 by Environment America Research & Policy Center and Frontier Group surveyed 11 distributed solar cost-benefit studies and found that 8 of the 11 concluded a net benefit of solar above the retail rate of electricity, and a median value to the system of \$0.17/kWh.¹² This study was updated by the same groups in 2019 and found that studies that included the societal benefits of distributed solar concluded that distributed solar is worth, on average, \$0.23/kWh, while studies that do not include societal benefits (and thus are calculated the “avoided cost” of solar instead of the value of solar) concluded that distributed solar is worth an average of \$0.14/kWh.¹³ Both of these values are above TVA’s average residential rate, above the credit offered by the current GPP program, and well above what distributed solar generators would receive if TVA succeeds in eliminating the GPP as proposed in the Draft EA.

In addition to grid benefits, there are substantial societal benefits from solar, as well. Economic development is a specific objective from the TVA Act and solar provides local economic benefits including local job creation. According to the 2018 National Solar Jobs Census,¹⁴ distributed generation represents 86% of solar installation and project development jobs.

IV. Alternatives in Draft EA no longer respect intent of the 2005 Energy Policy Act

A. GPP had been designed to satisfy the PURPA net metering standard

The Energy Policy Act of 2005 added a Net Metering standard to PURPA (the Public Utility Regulatory Policies Act).¹⁵

Each electric utility shall make available upon request net metering service to any electric consumer that the electric utility serves. For purposes of this paragraph, the term ‘net metering service’ means service to an electric consumer under which electric energy generated by that electric consumer from an eligible on-site generating facility and delivered to the local distribution facilities may be used to offset electric energy provided by the electric utility to the electric consumer during the applicable billing period.

¹² Hallock, L. and Sargent, R., Shining Rewards, The Value of Rooftop Solar Power for Consumers and Society, Frontier Group and Environment America Research & Policy Center, 2015, https://environmentamerica.org/sites/environment/files/reports/EA_shiningrewards_print.pdf

¹³ Weissman, G., Searson, E., and Sargent, R. The True Value of Solar: Measuring the Benefits of Rooftop Solar Power, Frontier Group and Environment America Research & Policy Center, 2019, [https://environmentamerica.org/sites/environment/files/resources/AME%20Rooftop%20Solar%20Jul19%20web.p
df](https://environmentamerica.org/sites/environment/files/resources/AME%20Rooftop%20Solar%20Jul19%20web.pdf)

¹⁴ National Solar Jobs Census 2018, The Solar Foundation, available at: [SolarJobsCensus.org](https://solarjobs.census.org)

¹⁵ U.S. Code Title 16, Chapter 46, §2621.111(d)(11)

In August 2007, the TVA Board approved programs necessary to comply with the PURPA revisions. Those deliberations were memorialized in the Federal Register on August 9, 2007.¹⁶

Compliance with the net metering standard was not as straightforward as other utilities due to TVA's full-requirements contracts with its LPCs. TVA's recommendation was to expand a dual-meter (buy-all/sell-all) feed-in-tariff scheme that had been piloted since 2003. For purposes of maintaining compliance with PURPA:

For a Net Metering program, TVA staff (supported by TVPPA) is recommending that new customers be paid at a rate equal to the Green Power Switch sales rate.

And since TVA retains the Renewable Energy Credits (RECs)¹⁷ from its GPP Participants, this essentially implied that TVA was compensating them for the RECs at precisely the same rate they were selling those RECs to the Green Power Switch participants.

The current Green Power Switch program for Homes is priced at:¹⁸

Each \$4 block you buy ensures that 150 kilowatt-hours of clean, renewable energy is added to TVA's electricity mix.

So the imputed value of RECs is 2.67 cents per kWh. [\$4.00/150kWh].

Subsequent revisions to the pricing of the Green Power Providers (GPP) program have decoupled the GPP rate from the Green Power Switch sales rate. Since 2018, the GPP rates have been further decoupled from the retail rates that Local Power Companies charge the GPP customers. In fact, the compensation rate for GPP participants is currently:¹⁹

- Residential/GSA-1 customers with system sizes 500W - 10kW: 9¢/kWh
- Residential/GSA-1 customers with system sizes > 10kW: 7.5¢/kWh
- Non GSA-1 commercial customers: 7.5¢/kWh

¹⁶ Notice of Determinations on the PURPA Standards Set Forth in the Energy Policy Act of 2005, Federal Register Volume 72, Issue 153 (August 9, 2007) 72 FR 44910

¹⁷ "Making Public Claims About Renewable Energy Usage When Participating in Green Power Providers", Tennessee Valley Authority, TVA website, https://www.tva.com/file_source/TVA/Site%20Content/Energy/Renewables/Green%20Power%20Providers/braggi ng.pdf (accessed November 6, 2019)

¹⁸ "Green Power Switch® for Home", Tennessee Valley Authority, TVA website, <https://www.tva.com/Energy/Valley-Renewable-Energy/Green-Power-Switch/Green-Power-Switch-for-Home> (accessed November 6, 2019)

¹⁹ "Green Power Providers", Tennessee Valley Authority, TVA website, <https://www.tva.gov/Energy/Valley-Renewable-Energy/Green-Power-Providers> (accessed November 6, 2019)

Because the GPP rate no longer has any correlation to retail rates nor are participants being compensated for the RECs they are relinquishing, SACE contends that TVA is no longer conforms to the PURPA net metering standard. If TVA eliminates the GPP program as proposed in the Draft EA, it will be even further from compliance with the PURPA net metering standard.

B. Distributed solar should be administered by the LPCs rather than TVA

Engineering fundamentals suggest that it is unlikely that any of the GPP solar generation flows onto the TVA Transmission system. These distributed energy resources are connected to the LPC distribution grid and generation instantaneously serves the LPC demand within that same network. Consequently, there is no apparent reason that TVA should necessarily be involved in the transactions.

The TVA claim that the “full requirements contracts” it has with LPCs require a dual meter (buy-all/sell-all) scheme is an artifact of interpretation. And in the recent IRP, TVA modeled DER solar like GPP as a reduction in load rather than allowing the model to select it alongside other resources.

In other words, TVA models it just like energy efficiency improvements outside of TVA’s control, like those driven by national appliance standards or local building codes. And if Local Power Companies have the authority to implement their own energy-efficiency programs under the interpretation of the full-requirements contracts and the TVA Act itself, then the same should apply for DER solar.

LPCs should be empowered to design single-meter (bidirectional meter) programs that meet the needs of their local business and residential customers. This can be done while maintaining the integrity of their full-requirements contracts. Any generation they require from the TVA transmission system would be exclusively from TVA.

- C. An updated study is warranted to properly quantify the value of DER solar
- Five years ago, TVA initiated a stakeholder process on Distributed Generation - Integrated Value (DG-IV) that culminated in publication of “A Methodology to Value DG on the Grid.”²⁰ Key elements of valuation were expressly included in the DG-IV Methodology ranging from Generation Deferral to Transmission and Distribution System Impact. Other aspects of value were explored yet relegated to an optional category of “Program Design Considerations” such as Local Power Company Costs & Benefits, Economic Development, Customer Satisfaction, and Local Differentiation (i.e., Site-specific benefits and optimization). And other “Placeholder Topics” (for example, Ancillary Services, Resiliency, etc.) were simply recorded for future consideration.

Figure 3. Map of Benefits Included and Not Included in TVA DG-IV Methodology

Benefit Category		Benefit	TVA DG-IV Method
Grid	Energy	Avoided electricity generation	●
		Reduced line losses	●
		Market price response	○
	Capacity & Grid investments	Avoided capacity investment	●
		Avoided transmission & distribution investment	●
		Reduced need for grid support services	○
	Risk & Reliability Benefits	Reduced exposure to price volatility	○
		Improved grid resiliency and reliability	○
	Compliance	Reduced environmental compliance costs	●
Societal	Environment	Avoided greenhouse gas emissions	○
		Avoided air pollution	○
		Health benefits	○
		Avoided fossil fuel lifecycle costs	○
	Economy	Local jobs and businesses	○

Adapted from Weissman, G., Searson, E., and Sargent, R. The True Value of Solar: Measuring the Benefits of Rooftop Solar Power, Frontier Group and Environment America Research & Policy Center, 2019.

²⁰ Distributed Generation — Integrated Value (DG-IV): A Methodology to Value DG on the Grid, Tennessee Valley Authority, October 2015, https://www.tva.gov/file_source/TVA/Site%20Content/Energy/Renewables/dgiv_document_october_2015-2.pdf.

The DG-IV report states that “the numerical values associated with each methodology component will need to be updated to adjust to changing market conditions” and SACE contends that there has been more than sufficient technological, operation and economic change since 2015 to warrant an update to this value of solar assessment. Additionally, the DG-IV report found an avoided cost of solar value of \$0.072/kWh, which is several times the payment new solar customers would receive if the GPP is eliminated as proposed in the 2019 Draft EA.

V. TVA Should Keep and Improve the GPP

SACE is a regional organization that promotes responsible energy choices to ensure clean, safe and healthy communities throughout the Southeast. SACE’s members are concerned by the short public input timeline, the lack of transparency and TVA’s failure to consider meaningful alternatives for improving the GPP program.

SACE calls on TVA to withdraw the Draft 2019 GPP EA; continue to offer GPP with the current terms (i.e., Alternative A) through 2020; perform an updated Value of Solar study, and engage stakeholders in a genuine, transparent process to develop a suitable alternative to fairly compensate customers that provide benefits to the grid and thus all TVA customers.