

SOLAR WORKS

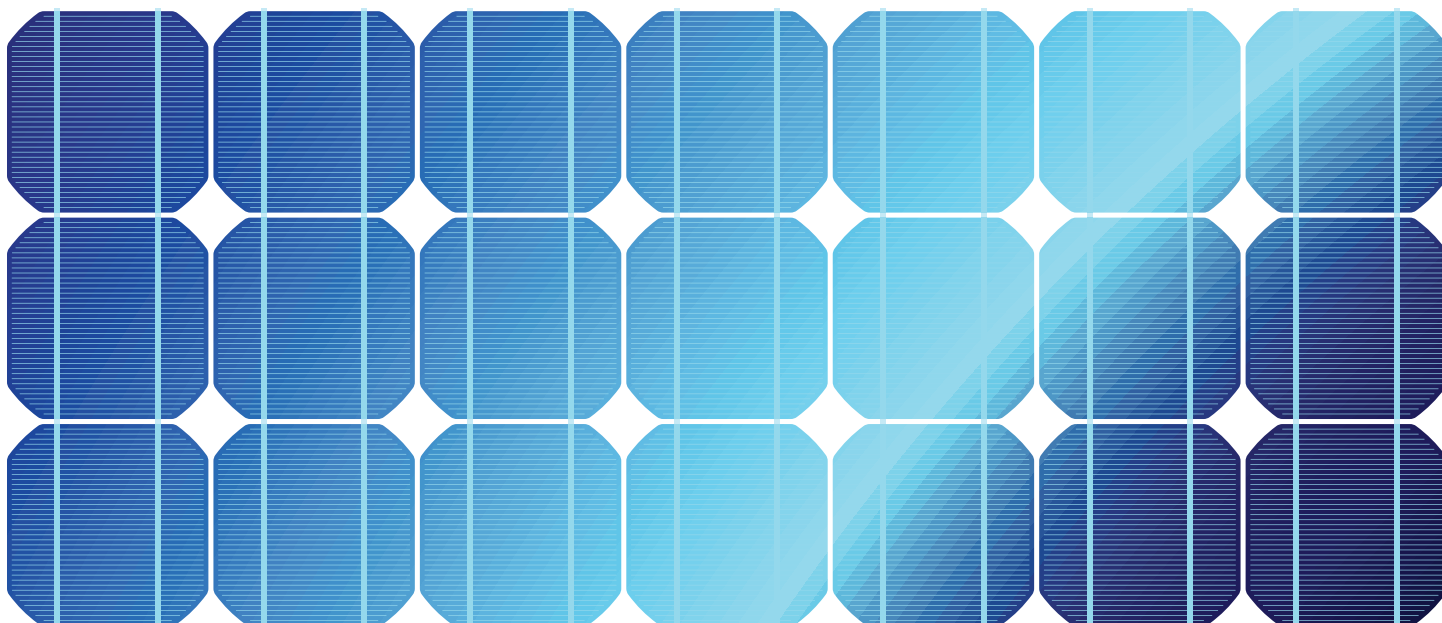
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NETWORK USE CHARGES FOR ROOFTOP SOLAR

Fixed charges for rooftop solar users are bad public policy, discourage investment in clean energy, and hurt Alabama's solar energy industry.



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INTRODUCTION



CLEAN AIR. HEALTHY COMMUNITIES.

ABOUT US

Gasp is a 501(c)(3) clean air advocacy organization based in Birmingham, Ala. Founded in 2009, our mission is to protect our air from pollution through education and advocacy. We strive to reduce air pollution; to educate the public on the health risks associated with poor air quality; and to encourage community leaders to serve as role models for clean air and clean energy development. We believe every Alabamian has the right to breathe clean air.

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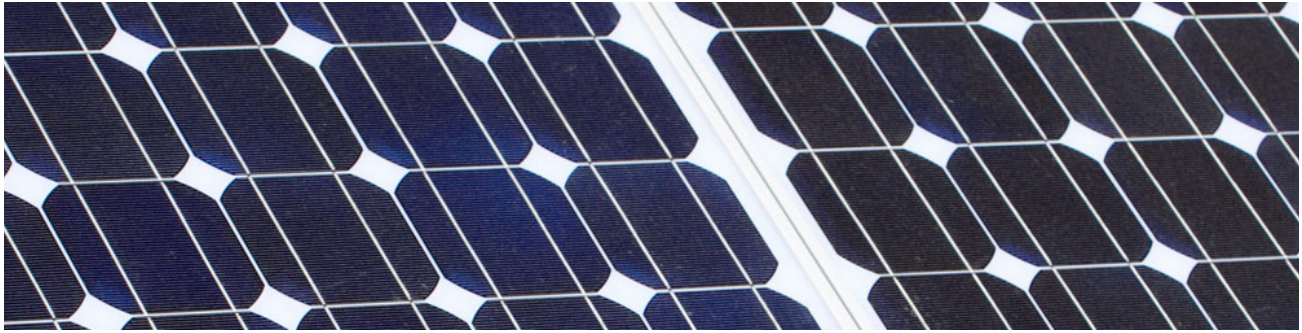
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ABSTRACT

“We have this handy fusion reactor in the sky called the sun, you don’t have to do anything, it just works. It shows up every day.” – Elon Musk

Solar energy will be a major part of Alabama’s energy supply and is crucial in cleaning up our air. Solar energy receives widespread public support, but policies at the state and utility levels have not reflected this enthusiasm. In 2015, the Solar Energy Industries Association ranked Alabama 49th in the nation for installed solar capacity.

There is good news, though. On September 1, 2015, the Alabama Public Service Commission approved Alabama Power’s petition for 500 MW of renewable energy capacity. In northern Alabama, the Tennessee Valley Authority is purchasing 80 MW of solar capacity from a solar farm in northern Alabama. Where industrial and commercial solar are growing in Alabama, there are still many barriers for residential customers who want to install their own solar systems — particularly in Alabama Power’s service area.

One of the most important factors for growing the solar energy industry is establishing policies and rate structures that fairly value the energy put onto the grid via rooftop solar systems. As is the case with other fuel sources for electricity generation, a number of factors should be considered and weighed to determine a fair value for solar energy. A net analysis of costs and benefits of solar will look at: avoided fuel and energy costs, avoided investment in power plants, a fixed cost for fuel source and the environmental and health benefits.

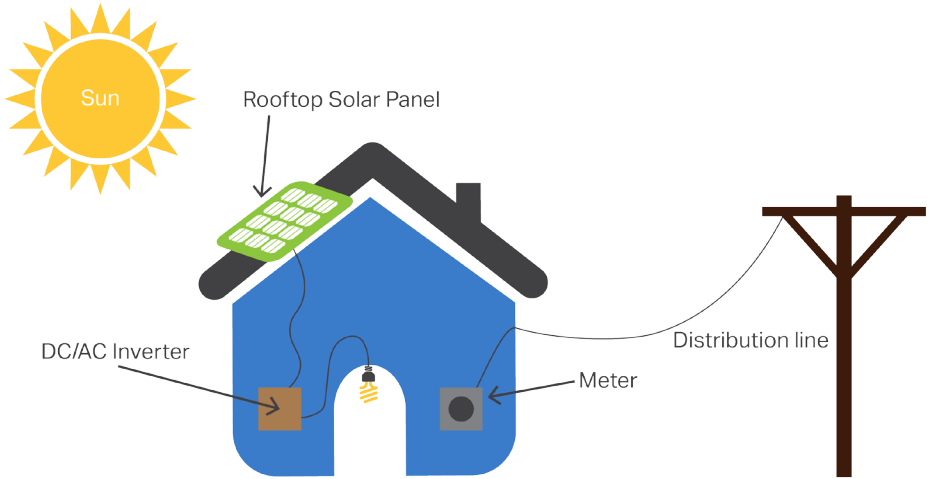
In addition, utility-imposed fees on solar customers — such as network use charges — act as regulatory barriers to growing the number of rooftop solar installations in Alabama. Although installing large-scale solar installations are an important step in growing Alabama’s solar energy industry, unjustified network use charges for rooftop solar are unfairly burdening residential power customers and stifling the growth of rooftop solar in Alabama. Visit solar.gaspgroup.org to learn more.

NETWORK USE CHARGES FOR ROOFTOP SOLAR

WHAT IS SOLAR ENERGY?

Solar energy is the conversion of the sun’s radiation into sources of power, like electricity. A location’s solar radiation depends on numerous factors: geographic location, time of year, landscape, and weather. There are several ways solar energy is deployed: residential panels (PV), community solar installations, and utility-scale solar farms. Alabama receives sufficient solar radiation to produce ample solar energy, yet the state ranks near the bottom for both installed capacity and jobs.

Solar energy does not emit carbon and other harmful pollutants associated with traditional sources of power and the sun is an infinite resource for energy generation. It’s also attractive because it can provide autonomy. Residential solar systems can help customers reduce their electric bills and give them the power to control their energy consumption.



A NOTE ABOUT NET METERING

The Solar Energy Industries Association defines net metering as, “a billing mechanism that credits solar energy system owners for the electricity they add to the grid.” Forty-five states have net metering policies: Alabama is not one of those states. Net metering means that a rooftop solar owner who is connected to the utility grid is credited at the retail rate (nationally, as of 2016, 12.21¢/kwh for residential customers) for electricity delivered to the grid.

Net metering typically pays at the retail rate, but there’s no hard and fast rule. Without a net metering policy, the amounts paid to utility customers in Alabama is completely within the utility’s discretion. Alabama Power customers billed under Rate PAE are only paid about 3¢/kwh for electricity they contribute to the grid.

WHAT IS A FIXED CHARGE FOR ROOFTOP SOLAR?

Generally, a fixed charge is a fixed expense that occurs on a regular basis in order to create more predictable budgets. These fees are often based on the utility having fixed costs. There are essentially two types of fixed costs: customer-specific and systemwide.

CUSTOMER-SPECIFIC. This includes factors such as metering, billing and maintaining the transmission line from the distribution system to the house.

SYSTEMWIDE. This means running the electricity distribution system as a whole, so, for example, the cost of maintaining distribution networks in residential neighborhoods.

Some utilities across the nation have increased fixed charges that customers with rooftop solar pay. However, fixed charges for solar single out specific members of a utility's customer class, which is against recognized best ratemaking principles.

The 2017 Lawrence Berkeley National Lab report, "Putting the Potential Rate Impacts of Distributed Solar into Context" (Barbose), describes minimal cost-shifting in states with low penetration rates:

"For the vast majority of states and utilities, the effects of distributed solar on retail electricity prices will likely remain negligible for the foreseeable future. At current penetration levels (0.4% of total U.S. retail electricity sales), distributed solar likely entails no more than a 0.03 cent/kWh long-run increase in U.S. average retail electricity prices, and far smaller than that for most utilities."

FIXED CHARGES IN ALABAMA

Fixed charges can, and oftentimes do, inhibit the growth of residential solar. A customer with rooftop solar and battery storage can see a delay by several years in the economics of going solar due to fixed charges. Such fixed charges affect not only the economics of going solar, but also customer choice and satisfaction.

Alabama Power currently imposes a \$5 per kilowatt monthly "capacity reserve charge" on solar and other types of distributed generation. This charge affects not only rooftop solar and residential customers, but also small businesses and schools who rely in part on solar installations to offset the energy they consume and buy from Alabama Power.

This particular fixed charge for rooftop solar not only unfairly burdens Alabama Power customers who install rooftop solar, but also reduces up to 50 percent of the savings customers could enjoy by going solar. Similar, prohibitive fixed charges for rooftop solar have been proposed, approved or rejected across the U.S. To add insult to injury, the Alabama Public Service Commission's (PSC) approved the Alabama Power fixed charge in January 2013 without any public input or justification.

FIXED CHARGES IN ACTION

In the instances on page 6, such proceedings at regulatory bodies involved not only public scrutiny, but also in depth and technical analyses to support or reject the approval of a fixed charge on customers who have installed solar. Furthermore, these states either have more solar capacity than Alabama or net metering policies — or both.

SOLAR ENERGY IN ALABAMA

STATE	UTILITY	FIXED CHARGE	RESULT
Alabama	Alabama Power Company	<ul style="list-style-type: none"> • \$5/kW per month • \$25 per month 	Approved
Arizona	Arizona Public Service Salt River Project	<ul style="list-style-type: none"> • \$5 per month • \$21 per month • \$50 per month 	Approved Proposed Approved
Colorado	Intermountain Rural Electric Association	<ul style="list-style-type: none"> • \$9.30 per month 	Proposed
Georgia	Georgia Power	<ul style="list-style-type: none"> • \$5 per month 	Withdrawn
Iowa	Pella Cooperative Electric	<ul style="list-style-type: none"> • \$27.50 per month • \$85 per month 	Approved Proposed
Minnesota	Peoples Electric Cooperative	<ul style="list-style-type: none"> • \$5 per month 	Rejected
New Mexico	Public Service Company of New Mexico	<ul style="list-style-type: none"> • \$9.75 per month 	Rejected
South Dakota	Black Hills Power	<ul style="list-style-type: none"> • \$5 per month 	Withdrawn
Tennessee	Kingsport Power Co.	Demand charge solely for net-metered customers based on the customer's "single highest 15 minute integrated peak" demand during each billing period	Withdrawn
Utah	Rocky Mountain Power	<ul style="list-style-type: none"> • \$4.65 per month 	Rejected
Wisconsin	We Energies	<ul style="list-style-type: none"> • \$20 per month 	Approved
Wisconsin	Rock Energy Cooperative	<ul style="list-style-type: none"> • \$27 per month 	Approved

Alabama Power's PSC-approved \$5/kW capacity reserve charge unfairly burdens customers with rooftop solar and unjustifiably affects their energy choices. Such fixed charges are based on theoretical cost-shifting approaches that are unsupported by data. In other words, the punitive fees Alabama Power charges its customers aim to solve a problem that doesn't exist and ultimately do more harm than good by hampering Alabama's fledgling solar energy industry.

FACTORS IN A FAIR VALUE OF SOLAR ANALYSIS

1. AVOIDED ENERGY. This would be the most straightforward calculation. Energy produced by solar customers is energy that the utility does not need to purchase. Similarly, solar customers can deliver the equivalent of capacity, displacing the need to purchase this capacity elsewhere. Embedded in this value are the net economic impacts associated with avoided fuel costs and the net impacts on generation and power plant Operation and Maintenance costs. TVA included in their Value of Solar analysis in 2015 the value of marginal system energy, fuel, variable operations and maintenance and start-up value of generation displaced by distributed generation.

2. AVOIDED TRANSMISSION AND DISTRIBUTION. Distributed solar projects generate energy at the point of use, reducing consumption of energy from the utility grid. Studies have shown that the cost of deployment for solar generation is negligible at low penetration and remains manageable for a solar capacity penetration of 30%. Accordingly, the relief solar customers provide to a utility purchasing capacity elsewhere should be fairly compensated. Transmission and distribution line-loss are usually calculated separately from one another because values differ for each system. Solar power generators should be fairly compensated by the utility when they export power to the distribution grid when solar generation exceeds load.

3. FUEL PRICE. Solar energy production does not depend on commodities whose prices fluctuate on short term scales and will likely escalate substantially over the long term. Accordingly, because the fuel source, the sun, is free and finite, solar energy production is a low risk investment and should be valued accordingly. A fair value of solar should reflect that distributed solar systems provide insurance against future fuel price uncertainty while adjusting for any increase in using traditional fuels at conventional power plants to accommodate for intermittency in solar production. In their Petition to install up to 500 MW of solar, Alabama Power cites renewable energy generation as a means of protecting the “continued supply of cost effective electric service by protecting existing loads.”

4. ENVIRONMENTAL BENEFITS. As more solar and distributed solar is implemented, environmental benefits occur as conventional generation is displaced and their related pollutants are reduced. Solar energy should be evaluated the same as any new source in terms of environmental benefits. The emissions values assigned on a dollar/ton basis should be similar to those used to evaluate other electricity generating resources. Similarly, solar can impact O&M costs for associated pollution control equipment. Solar market penetration is just becoming significant, so the calculation of these impacts is subject to different assumptions and methodologies. So while environmental benefits should be factored into valuing solar fairly, benefits embedded with costs in other categories should not be double-counted.

5. ECONOMIC DEVELOPMENT. As previously mentioned, the solar energy industry created 1 of every 50 new jobs in 2016. Distributed generation can cause regional job and economic growth. TVA included in their Value of Solar analysis in 2015 economic development as it relates to program design considerations. In their Petition to install up to 500 MW of solar, Alabama Power cites renewable energy generation as a means of “enhancing the chances of the state’s leaders attracting new industry and growing the job base for citizens.”

6. CUSTOMER CHOICE. When energy generation becomes more democratized, customers have more choices. Customer choice helps create competitive energy markets, which is definitely a benefit. Furthermore, it’s important to remember that this doesn’t apply only to large corporations. Individual customers deserve choice and autonomy as well. The TVA analysis also cites customer satisfaction as “enhanced customer value due to preference, optionality or flexibility.” In its Petition to install up to 500 MW of solar, Alabama Power points to customer demand as an impetus for filing the Petition by saying “the Company is now receiving inquiries from existing and potential customers as to whether the Company can facilitate those customers’ compliance with internal corporate goals relating to renewable energy consumption, carbon footprint reduction or both.”

CONCLUSION

With such an abundant solar resource, Alabama should not be ranked in the bottom 10 nationally for solar capacity. Although Alabama Power and TVA have made important strides in the past year to growing Alabama's solar energy industry, regulatory and policy barriers still exist that impede the growth of rooftop solar. The PSC should not have approved the \$5/kW charge that unfairly burdens Alabama Power customers who want to install rooftop solar. Utilities and regulators in Alabama should be promoting and approving policies that allow Alabama to benefit from the job growth, customer autonomy and environmental benefits of solar energy. A major step in realizing these benefits would be the PSC revisiting the \$5/kW charge and considering public input and justification for reducing or eliminating the charge. Visit solar.gaspgroup.org to learn how you can become an advocate for solar energy in Alabama.

REFERENCES

- Alabama Power Company, Petition for a Certificate of Convenience and Necessity (Jun, 25, 2015).
- Barbose, Galen L. Lawrence Berkeley National Lab. "Putting the Potential Rate Impacts of Distributed Solar into Context." (2017). Retrieved from <https://emp.lbl.gov/publications/putting-potential-rate-impacts>
- Fine, S., Saraf, A., Kumaraswamy K., & Anich, A. ICF International. "The true value of solar." (2014). Retrieved from <http://www.icfi.com/insights/white-papers/2014/true-value-of-solar>
- Hirji Z. "Some Utilities Want a Surcharge to Let the Sunshine In." (2015, August 14). Inside Climate News. Retrieved from: <http://insideclimatenews.org/news/14082015/some-utilities-want-surcharge-let-sunshine>
- Roberts, A. Southern Legislative Conference of the Council of State Governments. "Charging forward: net metering policies in SLC states, a regional resource for SLC. (December 2014). Retrieved from <https://www.slcatlanta.org/Publications/EnergyEnvironment/NetMetering.pdf>
- Solar Electric Power Association. "Ratemaking, solar value, and solar net energy metering--a primer." (2013). Retrieve from <https://www.solarelectricpower.org/media/51299/sepa-nem-report-0713-print.pdf>
- Solar Energy Industries Association "Valuation of Solar Generation Assets." (August 22, 2013). Retrieved from <http://www.seia.org/sites/default/files/Valuation-of-Solar-Generation-Assets.pdf>
- Tennessee Valley Authority, Distributed Generation-Integration Value: a Methodology to Value DG on the Grid (Oct. 2015), https://www.tva.gov/file_source/TVA/Site%20Content/Energy/Renewables/dgiv_document_october_2015-2.pdf
- Tong, J. & Wellinohoff, J. "Why Fixed Charges are a False Fix to the Utility Industry's Solar Challenges." (2015, February 13). Utility Dive. Retrieved from <http://www.utilitydive.com/news/tong-and-wellinghoff-why-fixed-charges-are-a-false-fix-to-the-utility-indu/364428>