

Elizabeth Smith
NEPA Specialist
400 West Summit Hill Drive, WT 11B
Knoxville, TN 37902

Re: Scoping comments for TVA's Programmatic Environmental Impact Statement on Solar and Battery Resources

Dear Ms. Smith:

The Southern Alliance for Clean Energy appreciates the opportunity to weigh in on the scoping of TVA's Programmatic Environmental Impact Statement (PEIS) on solar and battery resources. Both solar and battery storage are key resources in the reliable, cost-effective, and carbon-free grid we are already building across the globe. It is important that TVA do everything it can to accelerate the additions of solar and battery storage to its resource mix. This PEIS, along with proactive upgrades to TVA's transmission system so that it can better accommodate solar and battery storage, are both good and important steps to accelerate these resources.

We recommend that TVA include a variety of technologies and configurations when evaluating solar and battery storage in this PEIS, that TVA evaluate the full environmental benefits of these resources, and that TVA consider the co-benefits of proactive transmission upgrades to its system.

It is important that TVA evaluate a robust range of solar and battery technologies and configurations so that the PEIS is able to withstand technological and implementation improvements. While both solar and storage are mature technologies, there remains a focus on improving efficiencies, manufacturing, and design to improve performance and reduce cost. If TVA's PEIS only focuses on past or current technologies, without looking to the future, the PEIS may need to be updated sooner than is necessary. Here is a list of technologies and configurations to consider:

- Different and several module types and efficiencies, including bifacial
- Different and several configurations of solar, including oversizing, that allow it to provide grid services such as spinning reserves, load following, voltage support, and frequency response, such as was observed in this study by E3 for Tampa Electric and First Solar:
<https://www.ethree.com/wp-content/uploads/2018/10/Investigating-the-Economic-Value-of-Flexible-Solar-Power-Plant-Operation.pdf>
- Different and several combinations of solar and storage, in addition to stand-alone solar and stand-alone storage
- Different and several battery types (chemistries) and lengths, as well as at least one long-duration storage technology, such as the technology developed by Form Energy, which is farther along in development than Small Modular Reactors technologies in which TVA has already invested

TVA has responded in the past that it is limited in its ability to deploy flexible solar because it had to sign contracts with independent solar producers in order to take advantage of tax credits, and that it is more

complicated for solar to provide these benefits through contracts rather than direct ownership.¹ Now that TVA can directly take advantage of federal financial incentives, and thus can own solar, this barrier to having that solar operate more flexibly has been removed and it is absolutely appropriate for TVA to study flexible solar as part of this PEIS.

A PEIS is still, ultimately, a review of environmental impacts. Therefore it is important that this PEIS include in its evaluation all of the potential environmental benefits of solar and battery storage resources will have for residents of the Tennessee Valley and beyond. These include displacement of other generating resources, particularly fossil fuels. To again emphasize why it is important that TVA evaluate flexible solar and storage resources that provide grid services, as described above, the more flexible the solar and storage resources the more TVA can use them to replace fossil fuel-generated electricity. When solar and batteries replace fossil fuels, it is important to look fully at both sides of the ledger for benefits and impacts. For example, reduction in fossil fuels has obvious impacts in that it reduces the air and water pollution associated with those resources. But reduction in fossil fuels also reduces the significant land-use issues associated with pipelines and fracking for natural gas, and mining and transportation for coal, and the land needed to process the wastes of the production and use of both natural gas and coal.

Solar and battery storage also have the potential for environmental development benefits that should be included in this evaluation. Not only do the projects themselves have the potential to add jobs and tax base to areas across the TVA service territory, but they also provide economic development potential by replacing fossil fuels. TVA's service territory does not include any significant production of the fossil fuels TVA uses to generate electricity, so most of the costs of those fuels go to companies outside of TVA's service territory. SACE evaluated the potential for the replacement of motor fuels with electricity to retain more fuel spending within the Southeast, as described in our updated report from February 2023 here: <https://cleanenergy.org/wp-content/uploads/Retained-Transportation-Fuel-Spending-in-the-Southeast-1.pdf>. TVA could use this approach to evaluate the benefits of keeping more of customer money circulating in the regional economy through greater reliance on in-region resources like solar and battery storage compared to continuing to rely on imported fossil fuels.

On a similar vein, by having non-fuel resources solar and battery storage replace fuel-based resources, particularly natural gas, TVA will reduce its overall fuel costs. Since fuel costs are passed on directly to customers, the displacement of fuel-based resources with non-fuel resources will have a moderating and stabilizing effect on customer bills. If customers have lower and more stable electric bills, it frees up space in their budgets for additional investments in the local and regional economy. Disadvantaged communities that tend to have higher energy burdens, in both urban and rural areas of TVA. SACE has calculated the energy burdens for low and moderate income (LMI) customers for each census tract in

¹ In its response to a comment on its 2019 Draft Integrated Resource Plan, TVA stated: "As noted in IRP Chapter 5, because TVA cannot take direct advantage of the current investment incentives offered to promote solar and wind power development, it is more financially advantageous to acquire these resources through PPAs. In most instances these contracts require that TVA pay for the full output of the facility, regardless of curtailments. TVA acknowledges that solar resources have the potential to provide ancillary services, but the potential is limited by hours solar generation is typically available and its capacity factor. At this point in the process, it is not feasible for TVA to incorporate different operational modes for solar in the IRP analysis. TVA will continue to evaluate alternative ways to structure solar power purchase agreements and to consider variation in solar operation of potential TVA solar builds in the future."

TVA's service territory, but system-wide the average energy burden for LMI customers is 12.6%. See more about this analysis in a [presentation](#) and a [blog](#), both from 2018.²

Last, but certainly not least, TVA should include in its analysis the impacts of proactively upgrading its transmission system to accelerate the integration of solar and battery resources. In its review of replacement options for the Cumberland coal plant, TVA cited transmission as a key barrier to getting solar and storage on its grid in a timely manner. However, since TVA is in full control of its transmission planning within its service territory, there is no reason that TVA cannot implement a proactive plan to upgrade its transmission in order to integrate these resources. This would allow TVA to accelerate deployment of solar and battery storage resources, which TVA claims is the impetus behind this PEIS, and thus replace more cumulative fossil fuels throughout the coming decades. The environmental benefits of this process, specifically used to target solar and battery storage resources, should be included in the PEIS for solar and batteries.

We appreciate that TVA is taking this step to more easily add solar and batteries to its resource mix. We look forward to further engaging on the reliability, economic, and environmental benefits of acceleration of these resources will have in the Tennessee Valley through TVA's upcoming Integrated Resource Planning process.

² Presentation is available online at <https://cleanenergy.org/wp-content/uploads/Heather-Pohnan-Visualizing-Energy-Affordability.pdf>. Blog is available online at <https://cleanenergy.org/blog/is-tva-ignoring-how-a-proposed-new-fee-could-put-vulnerable-customers-at-risk/>.