RESPONSE TO ILLINOIS POWER AGENCY REQUEST FOR COMMENT ON NEW DG DISCLOSURE FORMS – PROJECT PERFORMANCE ("EFFICIENCY") DISCLOSURE

March 10, 2023

ForeFront Power ("FFP") appreciates the opportunity to respond to the Illinois Power Agency ("IPA") request for comments dated March 2, 2023.

I. Are there any significant burdens or hurdles to having the Approved Vendor / Designee enter the TSRF as a Portal input for the Disclosure Form?

FFP, an Approved Vendor, believes the Total Solar Resource Fraction ("TSRF") poses a significant burden in the disclosure form process. While TSRF may be a common output to some solar modeling software products, it is not an output variable in PVsyst, the software FFP utilizes nationwide. We believe using a solar modeling software product for the sole purpose of generating a TSRF output variable would pose a significant burden to FFP.

II. Is TSRF a readily available output in the solar modeling software the Approved Vendors and Designees use?

TSRF is not a readily available output in the solar modeling software FFP uses in its business. For solar system performance modeling, FFP, and many other solar providers in the non-residential space, use PVsyst, which is widely accepted by finance providers and does not use TSRF as in input or an output in its energy modeling. PVsyst is commonly accepted because it does account for shading, orientation, tilt, energy losses, and environmental factors.

III. What bounds should be used for poor performance, moderate performance, good performance, and excellent performance?

We do not have input on TSRF bounds because FFP does not support TSRF being used to measure Project Efficiency.

IV. Are there other comments on the mock-up?

FFP supports the IPA's effort in improving the disclosure of project efficiency to customers. We believe this metric should be communicated to the customer and the "Explanation" box below the color scale improves transparency.

V. If there are concerns with using TSRF as a measure of Project Performance, would using Capacity Factor be a better approach? How could the Agency set bounds for poor performance, moderate performance, good performance, and excellent performance if Capacity Factor is used?

FFP recommends that AC Capacity Factor ("Capacity Factor") be considered as a viable alternative to TSRF variable in evaluating Project Performance in the new Distributed Generation ("DG") Disclosure Forms because it is more accessible, more reliable, more relatable to other generation facility types, and more common.

Capacity factor is more accessible because it can be calculated with a wider variety of energy modeling software. If TSRF is required, developers would need to acquire software specifically for the output of a single metric. Utilizing Capacity Factor to measure Project Performance would simplify the disclosure form process and reduce the burden on developers.

Capacity Factor is a more reliable metric for comparing different solar energy (and other types of power-producing) systems because it provides a standard measure of the AC energy output of each system, regardless of its location. Capacity Factor considers factors such as seasonality, shading, tilt, orientation, clipping losses, efficiency losses, among other variables that can impact the actual amount of energy that a solar system can generate.

Capacity factor is a widely used and accepted metric in the energy industry, and it is commonly used to evaluate solar energy systems. Additionally, it is likely that customers with limited exposure to energy terminology would be familiar with its concept and application relative to TSRF. Capacity Factor being a relatively more common metric makes it easier for developers and customers to compare different solar projects and assess their economic viability.

FFP agrees that project efficiency is important to communicate through the new Distributed Generation ("DG") Disclosure Forms. We recommend utilizing generally accepted bounds in Capacity Factor as opposed to TSRF. These bounds are:

- Poor Performance would have a Capacity Factor below 10%. This could occur if a solar energy system is poorly designed or sized, it is not well-maintained, or located in a low irradiance area. A capacity factor of less than 10% indicates that the system is not operating efficiently and is not producing a significant amount of energy.
- Moderate Performance would have a Capacity Factor between 10% and 20%. Solar energy systems within this range have likely addressed shading, tilt, orientation, and other environmental factors. Well-designed solar energy systems can be found in this range making the siting of solar energy projects especially important as a baseline for improving Capacity Factor.
- Good Performance would have a Capacity Factor between 20% and 30%. This range indicates that the system is operating at a high level of efficiency and is producing a significant amount of energy. To reach this range, a solar energy system needs to include minimal shading and optimal tilt, orientation, high-quality solar panels, and effective operations and management.
- High Performance would have a Capacity Factor above 30%. This range indicates that the solar energy system is operating at an exceptional level of efficiency and is producing a significant amount of energy. A High Performance Capacity Factor could be achieved with the use of advanced technology, high-quality solar panels, and optimal location and environmental factors.

By considering Poor, Moderate, Good, and High Performance thresholds through Capacity Factor, it is possible to assess the efficiency and potential output of a solar energy system and make comparisons between different systems located in various locations.

In summary, while TSRF can provide helpful information about the solar exposure of a given solar system, AC Capacity Factor is a better metric to use for evaluating the actual energy output of a solar system over time. The TSRF value of a given system does not account for a variety of losses and may not reflect things like sever power clipping from a system with a very high DC/AC ratio. The Capacity Factor's reliability, comparability, system-wide applicability, and industry-wide acceptance make it an essential tool for assessing the Project Performance of solar energy projects. We recommend that AC Capacity Factor be considered as a viable alternative to the TSRF variable in the new Distributed Generation ("DG") Disclosure Forms. While it may not provide the same level of detail regarding the physical location and orientation of the solar system as the TSRF, it is an effective tool for evaluating a Project's Performance.