

1 **2020 PV RW Abstract**

2 **Title: Multi-site assessment of extreme weather impacts on PV plant performance and reliability**

3 Photovoltaic power plants are often exposed to potential disruptions in service due to extreme or rare
4 weather events (e.g., hurricanes, blizzards, etc.) . Extreme weather events can potentially lead to
5 fluctuating energy production levels (i.e., snow covering array and then sliding off and melting) or
6 permanent damage (glass breakage from hail or high winds). The susceptibility of PV plants to damage
7 from extreme weather depends on a site's geographic and climate conditions, as well as the PV system
8 design. However, routine analysis of collected meteorological and performance data often centers on
9 comparing expected versus actual energy at the site level on a seasonal or annual basis but overlooks
10 granular analysis of site performance in the context of weather events. Our team will discuss ongoing
11 efforts to perform a multi-site assessment of how weather events affect utility-scale PV energy
12 production and plant health throughout the United States. To do so, we employ data science and spatial
13 analysis techniques to help identify performance and weather event trends. This work allows us to
14 improve our understanding of how different types of weather events affect PV-based energy production
15 and PV plant lifetimes.