Executive Summary

This report assesses the potential health and safety impacts of the proposed Morven Solar 80 MW_{AC} PV project. The Morven Solar facility, located in Brooks County, Georgia, plans to install silicon-based solar panels on single-axis tracking racks that slowly follow the sun across the sky. Large central inverters will convert the DC solar electricity generated by the solar panels into grid-synced AC electricity. Transformers will boost the voltage for connection to an onsite substation that connects to a Georgia Power transmission line. All solar equipment is setback at least 500 feet from nearby homes, and view and sound are blocked with either mature trees or a 10-ft earthen berm topped with 2 dense rows of vegetation.

PV panels are not new. They have been used and studied for over 40 years and are well understood by the scientific community. Utility-scale solar facilities are newer, but they too have been installed and studied for over a decade, and scientists also have a clear understanding of their function and impacts.

PV systems produce emission-free electricity. This directly replaces electricity production from fossil fuel power plants that produce large quantities of harmful emissions. The health benefits of clean solar electricity are hard to put a dollar figure on, but the EPA's best attempt at doing just that puts the value in the "Southeast" between 0.81 and 1.83 cents per kWh produced by utility-scale solar. Even at the bottom end of this range, **this equates to Morven Solar providing $1.7 million of public health benefit per year, and $50 million of public health benefit over 30 years.**

The limited risks to health and safety of the Morven Solar project are not unique to solar but exist for any source or use of grid electricity. These are electric shock, arc flash, and fire. Due to world-class safety regulations in the U.S. and an experienced solar industry, these risks are extremely low, and the secure and isolated nature of ground-mounted PV facilities, including Morven Solar, results in negligible risk to the public.

Common concerns about toxicity, and electric and magnetic fields ("EMF") from solar facilities are understandable, but the operating characteristics and materials present in the equipment means that neither toxicity nor EMF pose a material risk to public health or safety. The potential for toxicity impacts from PV technology has been studied by academic and regulatory entities for decades, resulting in an understanding that while solar panels may contain small amounts of toxic materials, they pose no risk to public health. EMF is generated by all electricity, including solar PV systems, but does not extend far beyond the physical wires and equipment, so any EMF generated by the project will not impact anyone outside of the facility.

Other common concerns, such as heat island effect, glare, noise, and disposal, are also investigated as potential impacts of Morven Solar. Research and experience regarding heat island effect shows that, like other utility-scale PV projects, the Morven Solar project will not change the temperature of the surrounding area. The closest airport is about 12 miles away and the closest air traffic control tower is about 15 miles away, which is too far for the project to cause a solar glare hazard at either airport. The 500-ft setback from homes, and the berm and vegetative buffer, results in no sound impact to neighbors.

When the solar panels reach the end of their useful life they will be removed from the site and disposed of in conformance with federal, state, and local requirements, which could mean recycling or disposal in a landfill. Today the main constituents of the solar panels, and the other equipment such as racking and transformers, can be recycled within the existing recycling infrastructure. Technology to recycle nearly all the constituents in solar panels exists today and is expected to be much cheaper and widely available when the solar panels at this project reach the end of their useful life. The project has a decommissioning plan and will post a decommissioning bond to cover the cost of decommissioning in a worst-case scenario.

Based on my knowledge of science and engineering, personal experience with PV technology, review of academic research, analysis of the proposed project, and review of materials provided by the project developers about the proposed Morven Solar project in Brooks County, Georgia, my conclusions are summarized as follows:

- The Morven Solar project will not result in any negative impacts to public health or safety.
- The Morven Solar project will not increase the temperature of the area surrounding the site.
- The Morven Solar project will not create a glare hazard for aviation or other negative glare impacts.
- The Morven Solar project will not create bothersome noise for any neighbors.