

Jeff and Theresa Martin

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August 31, 2021

Mr. Michael Schmitt
Chairman
KY State Board on Electric Generation and Transmission Siting
Kentucky Public Service Commission
211 Sower Boulevard
PO Box 615
Frankfort, Kentucky 40602

**Subject: Objection to the AEUG Mason Solar LLC (Acciona) Application For
Certificate of Construction
Mason County, Kentucky
Case # 2021-00170**

Dear Mr. Schmitt:

AEUG Mason Solar LLC (Acciona) has filed an application with the PSC to build an approximately 2500 acre merchant solar electric generating facility in the Mayslick area in Mason County. In addition to Mason Solar LLC, several other solar developers have entered into lease agreements to further expand the development of industrial solar generation in the Mayslick area in Mason County. There is approximately 10,000 acres of prime (tillable) agricultural farmland currently under lease agreements in the Mayslick area with the solar developers. The solar developers have a goal of leasing up to 25,000 acres. 10,000 acres represents approximately 30-percent of Mason County's most productive agricultural land. I am writing you to strongly object to the construction of massive solar power merchant electric generating facilities in Mason County.

Since 2019, out-of-state and foreign solar developers have quietly secured land lease options, and aggressively lobbied our local officials behind closed doors, to adopt policies allowing for solar developments. These developers have failed to follow the process referenced by the Kentucky's Electric Generation and Transmission Siting Process, KRS 278.704(6)-(8), and KRS 278.706, as outlined in the Kentucky Resource Council publication 20-02B. Therefore, I am asking that the statutory process be followed as documented by the State. The public has been given no opportunity to answer the question of whether industrial solar is even appropriate in Mason County, and if so, how best to regulate it to protect the financial strength, environment, and quality of life, of the Mason County community as a whole, now and into the future.

Industrial scale solar facilities constitute a significant change in land use policy for Mason County, with both short and long term impacts to the local taxpayers, real-estate markets, economic development strategies, signature agricultural industries, watersheds and soils,

historic resources, cultural brand, and the aesthetic quality, natural beauty, and character of the land and natural resources.

The current Mason County Land Use Management Ordinance (February 2018) does not currently contemplate nor regulate merchant solar generating facilities. The Mission Statement of the Ordinance states, "This ordinance is designed to guide land use decisions in Maysville and Mason County as a means of implementing the Comprehensive Plan." The Purpose of the Ordinance states, "The purpose of this ordinance is to promote public health, safety, morals, and the general welfare of Maysville and Mason County, Kentucky; to facilitate orderly and harmonious development and preserve the visual or historical character of the area; and to regulate the density of population and the intensity of land use in order to provide for adequate light and air." It goes on to say, "These regulations are used also to protect airports, highways and other transportation facilities, public grounds and facilities, historic districts, prime agricultural land and other natural resources, and other specific areas the city and county which need special protection."

Under KRS 100 and Kentucky law, the Comprehensive Plan establishes the basis for all land uses, and related planning and zoning ordinances in Maysville-Mason County. Therefore, it is the overarching document for how our community grows and operates. The Comprehensive Plan for Maysville/Mason County Kentucky (2016) states, "The plan should be citizen oriented, since the primary goal is to improve the overall quality of life of the community. Government officials are elected to represent the people and to make decisions in their best interests."

If there is consideration to permit industrial solar anywhere in Mason County, there must first be a thorough evaluation of the benefits and detriments by the Comprehensive Land Use Committee and a separate section on industrial solar should be included in the Ordinance by Amendment, similar to what has been done in reference to other unique uses of land. This evaluation must be calculated carefully, and under the microscope of objective research, analysis, and public engagement. An update to the Comprehensive Plan is the venue for such deliberations.

Yet, despite taking the opportunity to review the appropriateness of industrial solar in the context of a Comprehensive plan update, which is timely under state law, efforts are underway to preemptively address this issue by the Board of Adjustments.

I (Jeff Martin) have dedicated a large part of my nearly 40-year professional career in the private and public power generation sectors, including both fossil fuel and renewable generation, working in the engineering, operations, maintenance and state/federal regulatory compliance fields. My objection is also based upon in depth discussion, fact gathering and site visits with associates and colleagues having the direct responsibility to operate and maintain recently installed solar projects in the State of Ohio, utilizing the latest available technologies. Lessons learned from these Ohio solar projects are directly applicable to the proposed AEUG Mason Solar LLC (Acciona) project, given the similarity of the environmental and climate conditions of the Ohio and Kentucky regions. Fact based and common sense analysis of the positive impacts versus the detrimental impacts of this proposed industrial solar project, quickly leads one to the conclusion that the detrimental impacts far outweigh the positive impacts. Additionally, many of the detrimental impacts have very long reaching and forever changing consequences. Following are the specific negative fact based impacts that have resulted in our objection to be raised and submitted.

1. Power Inefficiencies, Poor Reliability and Poor Economic Return of Investment

- 1.1. Solar power in its current form is a poor viable energy source. It is intermittent and disrupts the conventional methods for planning the daily operation of the electric grid. Solar power fluctuates over multiple time horizons, forcing the grid operator to adjust its day-ahead, hour-ahead, and real-time operating procedures. In addition to daily fluctuations caused by sunrise and sunset, the output from solar panels can also change suddenly due to clouds, snow and ice. Variability caused by clouds can make it more difficult for the grid operator to predict how much additional electric generation will be required during the next hour of the day. Fast fluctuations in output from solar energy doesn't only disrupt the hourly load-following phase of grid planning, but also the second-to-second balance between total electric supply and demand. This can lead system operators to curtail solar generation, reducing its economic and environmental benefits.
- 1.2. The demonstrated lifecycle of this solar facility is projected to be between 20 years.
- 1.3. The expected capacity factor of this solar facility is projected to be less than 20%. Maximum capacity of a solar panel occurs at solar noon and the duration is short lived and then abruptly falls off.
- 1.4. Current technology of utility-scale photovoltaic (PV) solar panels experience a loss of 1% - 2% efficiency each year.
- 1.5. It is our understanding that the AEUG Mason Solar LLC (Acciona) project is being subsidized. In order to promote the growth of renewable electricity sources, such as solar, the federal government has given them special tax incentives (subsidies). These tax incentives are intended to support technology that is too expensive and is not cost-competitive with conventional electricity sources.
- 1.6. Solar power does not provide the same value to the grid as conventional electricity sources. In addition to not operating on-demand, it provides little of the capacity value that is needed to maintain long-term reliability and cannot be relied on to provide the essential reliability services the grid needs to maintain reliability. Instead, solar relies on other electricity generators to provide the services they cannot, thus "imposing" those costs on other generators and the grid. Though the solar facilities do not pay these costs, ratepayers do.
- 1.7. Subsidies have lowered out-of-pocket costs for renewable project developers but have not led to similar savings for electricity ratepayers.

2. Poor Use of the Land

- 2.1. The proposed AEUG Mason Solar LLC (Acciona) project is to be located in what has been scientifically documented as prime agricultural land (best of the best) within Mason County. This project will directly reduce the best available cultivable land. Once this cultivable land is repurposed, it may be impracticable or impossible to ever reclaim. Typically, solar projects are not shared with agricultural uses. Land impacts from utility-scale solar projects can be minimized by siting them at lower-quality beneficial reuse locations such as; brownfields (i.e. old fossil fuel plant sites), abandoned mining land and abandoned landfills. Protection of prime soils and prime farmland should be prioritized.
- 2.2. Large amounts of land is required for utility-scale solar projects. This large footprint has very low corresponding energy output which equates to a very poor energy density. Energy density estimates for utility-scale photovoltaic (PV) solar systems range from 5 – 10 acres per megawatt.
- 2.3. It is egregious and environmentally irresponsible to desecrate a non-renewable natural resource of prime agricultural land in a manner that produces minimal and short term benefit, then laying it in waste and unfertile for future generations.

- 2.4. Loss of this prime agricultural land will directly contribute to the financial losses to local businesses that supply seed, fertilizer, hardware, lumber and equipment.
- 2.5. A long term concern is that after the solar lease agreements expire, will farmers be able to afford to restore and place the land back into a condition for agricultural production?

3. Climate Change

- 3.1. Solar developers claim that a primary benefit of industrial solar facilities is to combat climate change. The fact is, industrial solar facilities have unintended climate consequences, by creating a heat island effect.
- 3.2. Research shows that temperatures over photovoltaic arrays are regularly 3-4 degrees Celsius warmer than the nearby wildlands at night, confirming the presence of photovoltaic heat island effect. This effect is detectable in the day, but significant warming occurs in the evening hours, because the large utility scale solar projects take longer to cool down in the nighttime hours.
- 3.3. The heat island effect results from the transition in how solar energy moves in and out of a photovoltaic installation versus a natural ecosystem.

4. Land Degradation and Wildlife Loss

- 4.1. Construction of a large-scale solar power generating facility will require the clearing and grading of land that can lead to habitat destruction and pose a risk of soil erosion and compaction. This may further interfere with the existing use of adjacent lands and alteration of drainage channels.
- 4.2. It has been studied and documented that solar array fields exclusionary fencing cause animal behavioral shifts in response to the environmental changes. These shifts adversely affect survival and reproduction.
- 4.3. Solar array fields directly contribute to the increase in wildlife impacts, injury and mortality. Categories and affected species include:
 - Solar flux (burning alive) – birds and insects
 - Impact trauma – birds and bats
 - Electrocutation – birds
 - Electromagnetic field effects – bats, amphibians, insects, reptiles

5. Visual Intrusion – Aesthetics

- 5.1. Security fencing will be required to be installed for public safety. Typically, security fencing for utility projects consists of heavy gauge chain-link fence, 7-feet high with 3-strands of barbed wire on top. Warning and Danger signs will be affixed to the fencing in minimal spacing. Not a complimentary addition to rural environment.
- 5.2. The views of beautiful vistas, open horizons and scenic byways that the residents now enjoy will be disrupted and obstructed by security fenced solar array fields. Forever altering the natural beauty of the rural community that the residents chose to live.

6. Increased Noise Levels

- 6.1. The outdoor ambient sound levels in a rural setting is typically 40dBA or less.
- 6.2. The proposed solar project will be utilizing inverters to convert DC power to AC power. That power conversion produces noise. Acciona proposes a 24-hour averaged limit of 50dBA. An averaged limit is not a threshold limit. On days that are calm and sunny, the noise level could easily exceed 50dBA. The inverter noise will be approximately 10dBA above the normal ambient sound levels. This increase in sound level will be constant, noticeable and intrusive. Altering the natural peace and quiet that a rural setting provides.

7. Destabilization of Farm Economy

- 7.1. Construction of a utility-scale solar power generating facilities will destabilize and reduce current and future production of the local farm economy. In the event that 30%

plus of the prime agricultural farmland in Mason County is no longer farmed, there will be a significant impact to local agricultural jobs and businesses, both directly and indirectly.

- 7.2. Eliminating agricultural production by re-delegating farmland to solar generation will reduce business revenues and income for local farm supply stores, farm businesses and farm workers.

8. Depreciation of Property Values

8.1. Common sense tells one that the construction of a utility-scale solar facility will undoubtedly drive down the property value dramatically of adjacent residential properties. The single most important factor in establishing the market price of a rural residential property is location, location, location. Once the location of that natural setting is altered with intrusive visual impacts, the property value will diminish as a result of cause and effect. There are many beautiful and stunning homes in the Mayslick area that the residents have invested, and in which they take great pride and impeccably maintain.

- 8.2. When the property values drop, property taxes will also drop. Creating the beginning of a downward spiral of the community.

9. Hazardous Materials

9.1. Thin-film photovoltaic (PV) solar panels contain a number of toxic materials than those materials used in silicon photovoltaic cells. Toxic materials include; gallium, arsenide, copper-indium-gallium-diselenide, and cadmium-telluride. If not handled and disposed of properly, these materials pose serious environmental and public health risks.

9.2. Solar panels can and do break. Breaks have the potential to release the toxic materials contained within directly to the ground below and then leach into the groundwater.

9.3. Utility-scale solar facilities that utilize lithium battery storage pose additional environmental and public health risks. Not only are lithium batteries highly toxic, they are also highly flammable. Recently, a lithium battery storage facility in the State of Illinois caught fire. The blaze caused highly toxic fumes that forced the evacuation of thousands of people from the area. Firefighters battled the blaze for days and were unable to use water or foam. In the end, it required 28-tons of concrete to be placed on the site to extinguish the fire. The Illinois Governor proclaimed the county a disaster area due to toxic fumes and the ongoing environmental hazards.

10. Insufficient and Expensive Recycling

10.1. At this point in time, there are not enough recycling facilities that can recycle old panels, and there are not enough panels to make the recycling process economically feasible.

11. Community Division

11.1. We have already experienced a broken and divided community between the few that have entered into solar land lease options and non-participating landowners. I have personally seen the worst come out of people from verbal attacks, harassment and intimidation. Lifelong friendships have been broken and possibly severed forever. Deep-rooted division has already arisen between those few who stand to profit from lease payments and their many neighbors forced to live alongside or in the middle of a utility scale solar facility, causing their homes to become devalued and possibly unsalable.

The undeniable truths about industrial solar development are:

1. Solar developer's primary objective is to harvest tax subsidies (tax credits), not harvest the energy from the sun.
2. Prime agricultural farmland is a non-renewable resource that is a continuous wealth generator forever into the future. Repurposing prime agricultural farmland for industrial

solar is a onetime transfer of wealth. There is no guarantee that at the end of the short life cycle of solar generation, the land can be or will be restored back to its original state of being productive farmland. For this reason, some states now designate industrial solar as a permanent conversion of agricultural land per state statute.

3. Utility-scale photovoltaic (PV) solar panels are made of heavy toxic metals with a lifespan of approximately 20 years.
4. As demonstrated by other utility scale merchant solar electric generating projects, they displace thousands of acres of our finite rural landscape, while destabilizing property values, generating run-off, posing numerous financial liabilities for our local government, eroding the workforce of our local agricultural industry in Mason County. No farms, no food.
5. Out-of-state and foreign entities will exploit Mason County's most fertile land, to generate and sell the energy and the renewable energy credits to East Coast NIMBYs (Not In My Back Yard!) who do not want utility-scale solar facilities in their communities.
6. The negative impacts of industrial solar will not be limited to adjoining property owners and displaced businesses. It will affect everyone in Mason County – as it diminishes our quality of life, reduces our ability to attract residents and business investment, and creates an environmental vulnerability that local taxpayers will be forced to remedy in the future. This is not the legacy that future Mason County generations are expecting and entitled to inherit.

In closing, we purposefully chose to live in the Mayslick, Kentucky community due to its peaceful, tranquil, quiet, and unadulterated beauty. We often refer to the community of Mayslick as paradise, a glimpse of what heaven looks like. If the AEUG Mason Solar LLC (Acciona) project moves forward, that unique beauty will be forever changed for the worse and forever lost. Resulting in our rural and pristine residential property being closely encroached upon, surrounded and "land locked" with solar panels in all directions as far as the eye can see. We pray to God Almighty that never happens, because this is truly God's Country.

Respectfully,


Jeff Martin


Theresa Martin

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