

From: Andy Melka
Sent: Monday, December 11, 2023 1:23 PM
To: VanKerkhoff, Mark
Cc: Berkhout, Keith; 'Joe Borkowski'; 'blair'
Subject: EX: Letters for the County Board

Mark, please see attached two letters regarding some of the claimed issues with solar power. I would appreciate you distributing them to the Board and reading them into the record tomorrow.

As always, please call with any questions or issues.

Thanks,
Andy

Andy Melka
Director, Development
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Kane County
c/o Mark VanKerkhoff
719 Batavia Ave – Building A, 4th Fl.
Geneva IL 60134

Via email

December 11th, 2023

RE: Claims of Fire Risk in Ground-Mounted Solar Arrays

Dear Mr. VanKerkhoff,

Opponents to solar development in the County have repeatedly raised concerns about risk of serious fire being associated with our proposed ground-mounted solar project, seeking a Special Use Permit under Petition 4616. These concerns are unfounded.

Opponents have repeatedly cited the risk of fire as it relates to energy storage facilities, not risk of fire related to ground mounted photovoltaic solar panels, and thus conflate two very different concepts and types of equipment. As everyone should know, we are not proposing energy storage or battery facilities with any of our proposed solar projects (including the above Petition 4616 which is being considered by the County Board on Tuesday). Any continued discussion of energy storage-related fires is immaterial and irrelevant to this solar project and our Special Use Permit approval request.

Solar photovoltaic panels and systems do not have any unique fire danger, beyond the “normal” fire risk associated with low- and medium-voltage electrical systems which systems exist in every residential and commercial development in the County. There is minimal data available because there have been minimal instances of fires. Our research found occasional incidents of structural fires attributed to faulty installation of electrical equipment associated with *rooftop solar arrays* (just as any faulty electrical installation can cause a fire). As everyone should know, we are not proposing any rooftop solar, and discussions regarding rooftop solar fire risks are not relevant to this project and special use permit.

Again, as with any electrical installation, there is “normal” electric fire risk if solar inverters suffer damage or have faulty installation, but even that “normal” risk is isolated and contained in dedicated areas with appropriate precautions. There are not rampant fires at ground mounted solar facilities, and discussion as if there are rampant fires is not factually based.

We’ve utilized best practices to design this site and have included appropriate access for emergency responders into our plans. Industry standard designs include (at minimum) a twelve-

foot (12 ft) gravel road into the site with a hammer-head turn-around, and twenty-foot perimeter access around the entire site. In this particular design (Alexander project, petition 4616), we exceeded this standard design and specified a twenty-foot (20 ft) access road into the site to provide additional flexibility on access.

Although Kane County requires coordination with the Kaneville Volunteer Fire Department before submitting for building permits, to jointly review our plans and to further ensure proper emergency personnel access to the site, we have already reached out to them and received their feedback, and will continue to work with them and keep the County informed as appropriate.

Please know that there are hundreds or thousands of similar sized ground mounted solar projects across the United States and i) there have not been rampant fires, ii) 12 ft access has been the established norm and provided adequate access in the unlikely event emergency personal access is needed, and iii) this particular site (Alexander, Petition 4616) has a 20 foot access road proposed.



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Kane County Zoning Board of Appeals, Development Committee, and County Board
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Geneva IL 60134

Via email

December 11th, 2023

Re: Claims of EMF issues from solar projects

Dear Kane County,

At various recent County meetings, we have observed public testimony and one Board member stating false claims about potential dangers of electro-magnetic fields (EMF) associated with solar arrays. Basic physics, and studies specific to solar power facilities, fully refute this claim.

EMF requires multiple tens of thousands of volts to get to a measurable level that would even possibly be a concern for human health (would need to be hundreds of thousands of volts at distances as little as the Kane County 50-foot setback). No such voltages exist within the solar facility being contemplated under this ordinance. Note that the highest DC voltages in these contemplated solar facilities is below 2000 volts, and normal operating voltage below 1500 volts.

Our everyday world around us contains voltages much higher than the 1500 volts of a solar project. The lowest voltages in community distribution overhead powerlines is approximately three times that of a solar project (4,200 volts) and most roadside community distribution powerlines are between 12,400 volts and 34,500 volts. There are not concerns from credible health authorities about EMF from even those power lines carrying 34,500 volts. Note that at 345,000 volts (10 times normal distribution power lines, and more than 200 times the 1500 volts in our proposed facility), a common voltage for high-tension powerlines crossing our farm fields, there is some measurable EMF, and yet scientific studies has been unable to substantiate health risks from such exposure at 50 feet (again, at 345,000 volts).

Tech Environmental, Inc., performed a study of EMF at a solar project in Massachusetts¹, due to solar opponents raising EMF as a health issue. As expected from basic physics, no dangerous levels of EMF were measured on the solar project site, let alone outside the fence:

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https://www.co.champaign.il.us/CountyBoard/ZBA/2018/180329_Meeting/180329__Massachusetts%20Acoustic%20Study%20for%20PV%20Solar%20Projects.pdf

The International Commission on Non-Ionizing Radiation Protection (ICNIRP) has a recommended electric field level exposure limit of 4,200 Volts/meter (V/m) for the general public. At the utility scale sites, electric field levels along the fenced PV array boundary, and at the locations set back 50 to 150 feet from the boundary, were not elevated above background levels (< 5 V/m). Electric fields near the inverters were also not elevated above background levels (< 5 V/m). At the residential site, indoor electric fields in the rooms closest to the roof-mounted panels and at locations near the inverters were not elevated above background levels (< 5 V/m).

The International Commission on Non-Ionizing Radiation Protection has a recommended magnetic field level exposure limit of 833 milli-Gauss (mG) for the general public. At the utility scale sites, magnetic field levels along the fenced PV array boundary were in the very low range of 0.2 to 0.4 mG. Magnetic field levels at the locations 50 to 150 feet from the fenced array boundary were not elevated above background levels (<0.2 mG). There are significant magnetic fields at locations a few feet from these utility-scale inverters, in the range of 150 to 500 mG. At a distance of 150 feet from the inverters, these fields drop back to very low levels of 0.5 mG or less, and in many cases to background levels (<0.2 mG). The variation of magnetic field with distance generally shows the field strength is proportional to the inverse cube of the distance from equipment.

Tell, Hooper, et al, performed a similar study in California, and found that, “The fields measured complied in every case with IEEE controlled and ICNIRP occupational exposure limits. In all cases, electric fields were negligible compared to IEEE and ICNIRP limits across the spectrum measured and when compared to the FCC limits (≥ 0.3 MHz).”²

EMF is not a human health or welfare concern at solar energy facilities. No further credence should be given to any claims otherwise.

Further, we have heard one Board member claim during County Board meetings that the World Health Organization (W.H.O.) has guidance stating that the safe distance for how close people should live next to solar projects is 1.2 miles. We have not heard anyone cite any credible source for these statements nor provide any credible evidence to back up these allegations. We spent time researching the assertion and cannot find any guidance from W.H.O. stating there are *any* dangers of solar projects, let alone the ridiculous claim of not living within 1.2 miles of solar projects. We have found a few anti-solar blogs posts that allege the “safe distance is at least 1.2 miles”, but those blogs have zero

² Tell RA, Hooper HC, Sias GG, Mezei G, Hung P, Kavet R. Electromagnetic Fields Associated with Commercial Solar Photovoltaic Electric Power Generating Facilities. J Occup Environ Hyg. 2015;12(11):795-803. doi: 10.1080/15459624.2015.1047021. PMID: 26023811, summary available here: <https://pubmed.ncbi.nlm.nih.gov/26023811/>

citations to anything, let alone any actual authority or “experts”, and thus the Board should not consider them credible.

Sincerely,



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Additional Resources:

1. NC Clean Energy Center White Paper, “Health and Safety Impacts of Solar Photovoltaics.”
<https://nccleantech.ncsu.edu/wp-content/uploads/2019/10/Health-and-Safety-Impacts-of-Solar-Photovoltaics-PV.pdf>
2. World Health Organization website regarding electromagnetic fields:
<https://www.who.int/news-room/questions-and-answers/item/radiation-electromagnetic-fields>