



ENGINEERS & ARCHITECTS, L.L.C.

December 14, 2017

Chris Jensen PE
Code Enforcement / Zoning Officer
Town of Canandaigua - Development Office
5440 Routes 5 & 20 West
Canandaigua, NY 14424

Subject: Aegis Solar, LLC
5932 Monks Road
Canandaigua, NY 14424
Perimeter Fence Height

Dear Chris Jensen,

I write today on behalf of Cypress Creek Renewables ("CCR") to address the installation of the Aegis Solar facility proposed on Monks Road and our request for the installation of a 7' fence around the project. As the electrical engineer of record working on the project for CCR, I am writing to you today to explain the need for a 7' tall fence as detailed in the National Electrical Code ("NEC").

Section 110.31 of the NEC describes the method to enclose electrical systems over 600V to ensure that the system is accessible to qualified persons only. It reads, "a wall, screen, or fence shall be used to enclose an outdoor electrical installation to deter access by persons who are not qualified. A fence shall not be less than 2.1 m (7 ft) in height or a combination of 1.8 m (6 ft) or more of fence fabric and a 300 mm (1 ft) or more extension utilizing three or more strands of barbed wire or equivalent." This section is applicable to the project because the project meets both standards of the section.

The first requirement of this section is that the project's voltage is above 600V. The project will be comprised of roughly 10,000 modules, 44 string inverters, a low voltage switch gear, a step-up transformer, and interconnection equipment on utility poles. While the project is generating electricity, the modules and inverters will typically operate between 880 and 1275V DC, but are designed to operate at a maximum voltage of 1500V DC. The inverter AC output, switch gear, and low side of the transformer will operate at 600V AC. The high side of the transformer and equipment on the utility poles will operate at the same medium voltage as the utility service. Therefore, the project's voltage is above 600V.

Additionally, the project must be limited to qualified persons because the project contains components that meet the definition of "Exposed (as applied to wiring methods)" in section 100 of the NEC. Some of the equipment at the project is not applicable to this section because it is protected from unqualified personnel inside enclosures and raceway or overhead on utility poles. The equipment that does not meet the standard for access to unqualified persons are the modules. The modules are not enclosed and

thus require a fence to prohibit access. Each module is connected to one another on the back of a rack of modules and at this point, the wiring is exposed to unqualified personnel.

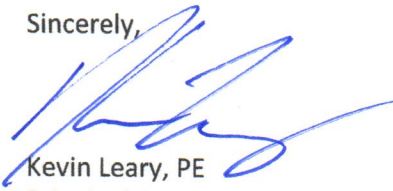
If the connectors between modules were to be pulled apart under load (when the sun is shining), there will be an exposure to the arc that is generated. The modules, connectors and wiring can be "touched and approached" (NEC 100) without risk of shock and they are "suitably guarded" and "insulated." (NEC 100) The module wiring is arranged to allow access to qualified personnel. The connectors are "suitably guarded" because the connectors on the modules typically require a tool or other means such as unscrewing to disconnect them. The wiring used is 2kV PV wire or similar therefore it is properly "insulated." Because of these features of the module connections, the modules rely on the fence to provide the NEC required enclosure.

Regarding the exposed energized wiring, the system will comply with the safety markings and labels set forth in NEC, mainly 690 and 705. Additionally, equipment will be marked with Arc Flash Hazard Warning and Danger labels indicating calculated incident energy, distances, and voltage per NFPA 70E 2015.

In summary, the project has conductors and equipment operating at voltages over 600V (which are not inside locked cabinets) that must be limited to qualified persons, thus requiring the 7 foot fence height per the NEC.

If you have any questions or require additional information, please feel free to contact me at 732-465-1002 or via email at kleary@avocagroup.com.

Sincerely,



Kevin Leary, PE
Principal Engineer
NY PE License No. 091857-1



12/14/17