Power over Fiber (PoF) is a novel power delivery technology which delivers electrical power by sending laser light through lightweight, non-conductive fiber optic cable to a remote photovoltaic receiver or photovoltaic power converter (PPC) to power remote sensors or electrical devices. This innovative PoF solution provides three major benefits: (1) noise immunity, (2) voltage isolation, and (3) spark free operation. The present design consists of 5 discrete PoF units or systems which consist of a laser, fiber link, and PPC. Each unit is capable of 12 volts at approximately 80 ma. A receiver board has been designed to accommodate the series connection of 5 PPC units to a small circuit board which will allow connection of the low voltage power to the cathode plane. The total receiver module at present contains 5 PPC capable of 60 volts 400 ma. The units are approximately 22 % efficient and therefor reside on a heat sink to disperse about 14 watts of heat. A compact power housing unit containing all laser drivers, protection circuitry and interlocks has been designed and fully tested. A final design is underway that will include communication capability and remote control.

PoF enables an all-fiber solution for powering, communicating with, and controlling sensor networks. PoF can successfully reduce this EMI noise and targeted to high voltage (HV) and high-power applications such as the cathode of vertical drift detector.