UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

AFFORDABLE WIRE MANAGEMENT, LLC,
Petitioner,

v.

CAMBRIA COUNTY ASSOCIATION FOR THE BLIND AND HANDICAPPED, INC.,
Patent Owner.

IPR2024-00139
Patent 10,177,551

DECLARATION OF ALLEN GARRETT SMITH
IN SUPPORT OF PATENT OWNER'S RESPONSE

I, Allen Garrett Smith, declare as follows:

I. Introduction

1. I am providing this declaration in support of the Patent Owner Response of Cambria County Association for the Blind and Handicapped, Inc. ("CAB") in connection with IPR2024-00178, concerning U.S. Patent No. 11,349,291 (the "'291 Patent"), and IPR2024-00139, concerning U.S. Patent No. 10,177,551 (the "'551 Patent"), both pending before the U.S. Patent and Trademark Office, Patent Trial and Appeal Board (the "Board").

2. I am one of the inventors for both the '291 Patent and the '551 Patent. Accordingly, I have personal knowledge of the patents, including the specification and claims, the prosecution history of both patents, and the development of the technology that is the subject of the patents.

3. I understand that Petitioner Affordable Wire Management, LLC ("AWM") filed two petitions for *inter partes* review (the "Petition") to challenge the validity of the claims of the '291 Patent and the '551 Patent.

4. I am personally knowledgeable about the matters stated herein and am competent to make this declaration.

5. The following is my written declaration concerning my knowledge of the '291 Patent and CAB's above-ground cable management system in utility-scale solar installations that CAB introduced in the 2014 timeframe. I personally

worked on the development, production, marketing, and sale of CAB's above-ground cable management system. CAB's cable management system created, for the first time in the solar industry, an above-ground cable management system using messenger wire supported cable hangers to support and separate the various kinds of electrical cables within a solar installation array, including, specifically, DC current carrying cables, AC current carrying cables, and data/communication cables. As I will explain further below, at the time CAB created this system, cable management in solar arrays had presented significant challenges in the industry.

6. I will also discuss in this declaration my knowledge of the '551 Patent and CAB's integrated grounding system, introduced in the 2017 timeframe. I personally worked on the development, production, marketing, and sale of CAB's integrated grounding system. CAB's integrated grounding system created, for the first time, a grounding system that uses a messenger wire that can act as a support structure for cable hangers and current wires, and that can also act as an equipment grounding conductor and grounding electrode conductor for grounding the equipment components of the system in the event of a fault. Prior to the invention of CAB's integrated grounding system, as explained in the '551 Patent, solar installations that utilized CAB's above-ground messenger wire supported cable management system required a grounding conductor separate from the messenger

wire, as well as grounding jumpers spliced to the grounding conductor and coupled to a grounding electrode conductor and/or each metal pile.

7. I am employed by CAB, but I have no financial interest in the outcome of these IPR proceedings or any other legal proceeding involving CAB, the '291 Patent, or the '551 Patent.

II. My Background and Experience

8. CAB provides employment, rehabilitation, and community service outreach for persons with severe disabilities in Cambria County, Pennsylvania.

9. CAB offers a broad range of employment opportunities and tailors the individual's position to their individual abilities. Employment opportunities include sewing, metal forming, metal coating, and light assembly work depending on the employee's level of ability. The products historically manufactured by CAB have included safety vests, high-visibility safety apparel, mops, food service kits, and cable management products for mining, electrical, and solar industries. For at least the last ten years, CAB has focused primarily on developing, manufacturing, and selling products for the utility-scale solar industry, including a variety of cable hangers for supporting electrical cables in a solar installation array, and mid-pier and end-pier kits (consisting of brackets, clamps, and other associated hardware and equipment). The majority of CAB's employment opportunities are related to its solar product line.

10. In 1975, I began working for CAB as a special services worker, assisting people with blindness and other disabilities to remain independent in their own homes and to avoid institutionalization.

11. In 1977, I became the General Manager of the Ebensburg Division. As General Manager, I oversaw all operations, manufacturing, marketing, and product development. I was involved in the design and engineering for all types of hangers. In 1977, when I became General Manager, CAB manufactured two or three styles of hangers for use in a local underground mine. CAB's hangers for the underground mining industry were expanded steadily over the years to include more than 500 different hangers by 2010. When CAB began working in the solar industry, it developed a new line of hangers and other products designed specifically to meet the challenges and requirements of the solar industry. CAB's development of its solar product line required that CAB significantly expand its manufacturing facilities and equipment. CAB's expansion into the solar industry further allowed it to significantly increase the number of people with disabilities it was able to service and employ.

12. I held the position of General Manager of the Ebensburg Division from 1977 until 2017 when I decided to step back from my full-time General Manager responsibilities and become a part-time Senior Project Manager, which is a position I still hold today.

III. CAB's Above-Ground Cable Management System

13. In April 2012, I spoke with an engineer at SunPower Corp. about expanding and modifying CAB's cable hanger product line for application in the solar industry. At that time, SunPower was the nation's third largest solar company and provided photovoltaic (PV) solar energy generation systems. This initial phone call was the first step in a relationship with SunPower to develop CAB's products for solar power plants. Thereafter, I led CAB's efforts to develop a line of cable hangers unique to, and suitable for use in, utility-scale solar power plants.

14. Before we developed our cable hangers for use in solar, we first wanted to begin efforts to market the idea of using a messenger wire and cable hangers to support solar cables in a solar power plant. In 2013, CAB installed a 50-foot mock-up installation in a solar power plant located in Carlisle, Pennsylvania for the purpose of having the mock-up photographed for use in a marketing brochure. This was before we had made or developed any cable hangers for solar. At this time, to demonstrate the concept, we simply used single-carrier cable ring and saddle hangers that we had used in other applications.

15. At the time we did this mock-up, it was before CAB even had messenger wire to sell, and it was also before we had even developed or made any of the hardware for supporting a messenger wire and connecting to the metal piles.

Accordingly, the only component of the mock-up that CAB provided was the single-carrier cable rings and saddles.

16. To create the mock-up, CAB worked with an on-site electrician who provided a wire rope to serve as the messenger wire and jerry-rigged the mock-up, using a pipe clamp and stud to attach the wire rope to the pile. A wire rope, while made of metal, is not typically used as a support structure as would be a messenger wire. Rather, wire ropes are used for lifting, hoisting, and towing. A wire rope looks different than a messenger wire and is much more flexible to suit its intended purposes.

17. The electrician also ran ordinary electrical wiring through the hangers to simulate electrical cables in a solar array. The mock electrical wires were not connected to the solar panels or any other components or equipment within the existing solar array. No part of the mock-up was a functioning part of the solar plant. If the mock-up as depicted was actually part of the operating installation, at the very least, the depicted messenger wire and cable hangers would not have been running under the solar panels, but instead would have run perpendicular to the solar panels from one row to another.

18. After the mock-up was installed, a professional photographer took photographs of the mock-up. Using these photographs, CAB created its first marketing materials for the solar market, including a two-page flyer titled "CAB

Cable Rings & Saddles for Solar Panel Wiring." **EX2062** is a true and accurate copy of the flyer. Later on, CAB updated its website to include these photographs as another way of marketing what was at that time still only CAB's idea of using a messenger wire and cable hangers to support electrical cables in a solar power plant. I understand that AWM has submitted the CAB website from 2014 as **EX1005** in IPR2024-00139. The photographs of the Carlisle mock-up are included in **EX1005**.

19. The sole purpose of the mock-up was to illustrate the idea of using a messenger wire to support cable hangers and electrical wires in a solar plant. The mock-up was in no way intended to illustrate or suggest any form of grounding, and our flyer never mentioned anything about grounding. As I discuss further below, once we did create our integrated grounding system that is covered under the '551 Patent, it became even more of a gamechanger for us and we loudly heralded the introduction of our integrated grounding system. If we had intended for this mock-up to promote any idea of integrated grounding, we would have certainly included it in our brochure.

20. In fact, at that time, we had never explored the concept of grounding and had not even contemplated any form of grounding. Since the solar plant had already been up and running, it would have been grounded in the manner that such installations were typically grounded at that time.

21. In October 2013, at the Solar Power International ("SPI") trade show in Chicago, Illinois, CAB presented an exhibit with its idea of using its cable rings and saddles with a messenger wire in a solar application. SPI is the leading trade show in the solar industry, where solar companies showcase their products and technology, and network with other solar industry professionals. CAB's exhibit included a small metal rack with a wire running along the top to suspend three of CAB's cable rings and saddles. Ordinary electric cables (not DC cables or any solar-specific wiring) were then run through the hangers. Most people who saw CAB's exhibit wondered what it was even demonstrating since they had never seen anything like this before in solar. We specifically had to explain what the exhibit was intended to demonstrate. Once we did explain our idea, there was very little interest shown by attendees.

22. While I was very disappointed with the lack of interest in CAB's above-ground cabling idea, I was fortunate to meet three solar professionals at that trade show. I met Bill Novak, President of Tropenas Company. Tropenas is a company that focuses on engineering utility-scale solar and energy storage systems. Initially, Mr. Novak did not understand what CAB's exhibit was demonstrating. After we explained it to him, Mr. Novak told us that the solar industry generally is resistant to change due to the unique nature of solar power plants, including safety concerns. He told us that, if we wanted to have any

success with a new technology in the solar industry, then we would need to contact Bill Brooks, the electrical guru for the solar industry, to see if he could prepare a white paper. The purpose of the white paper would be to analyze whether CAB's proposed idea for an above-ground cable management system using cable rings and saddles suspended from a messenger wire would meet the requirements of the NEC and other electrical installation standards. Due to the poor reception to our idea at the trade show and the concerns about whether our idea would be feasible in a solar power plant, CAB backed off its marketing efforts until it determined what course of action to take next.

23. Mr. Brooks was also at the SPI show that year and met us at CAB's exhibit. Mr. Brooks saw CAB's hangers in a display and he was impressed with the potential for CAB's idea for an above-ground cable management system in solar plants. CAB asked Mr. Brooks if he would be willing to write a white paper to address compliance with the NEC requirements and other industry standards. Mr. Brooks agreed to meet with CAB to further discuss and review CAB's proposed idea. In November 2013, we met with Mr. Brooks to further review CAB's above-ground cable management idea and discuss the scope of a potential white paper. At the end of these discussions, Mr. Brooks agreed to our request that he prepare a white paper.

24. At the 2013 SPI show, CAB also met Mark Cooper, the Director of Engineering at SunEdison. At the time, SunEdison was the largest renewable energy company in the world. Mr. Cooper was intrigued by CAB's idea for an above-ground cable management system. He stated that he would pass along my contact information to his colleague, Mitchel Bowman, who was the Manager of Global Design & Engineering at SunEdison.

25. Shortly after the 2013 SPI show, in November 2013, CAB worked with SunPower to install a separate mock-up of CAB's cable rings and saddles suspended from a messenger wire in a large solar power plant located in Davis, California.

26. Engineers at SunPower conducted time studies to evaluate the time needed to install CAB's system at a solar power plant as a replacement for cable trays. The purpose was to evaluate the cost reduction due to reduced material costs, shipping, and labor required for installation.

27. Based on the mock-up, SunPower's engineers analyzed cost savings of using CAB's cable rings and saddles suspended from a messenger in place of metal cable trays. **EX2008** is a true and accurate copy of the "Field Process Change Review 1 Development Review MESSENGER CABLE" prepared by SunPower. This report shows that a substantial decrease in total system cost, including cost savings achieved on reduction of materials, and additional savings

as a result of reduced shipping costs, reduction in labor costs as a result of faster installation. **EX2008**, at 14. [redacted] **EX2008**, at 15.

28. This mock-up was critical for proving that CAB's proposed cabling system could provide a significant benefit as applied to a solar power plant installation. Thereafter, at the end of 2013 and continuing into 2014, CAB began looking into potentially expanding into the solar industry where existing cable management solutions involved either trenching or the use of cable trays.

29. Trenching involves digging trenches, burying the cables, with or without conduit, and then covering the cables with soil. Trenching is achieved by either conduit or direct bury methods. Conduit refers to enclosing the cables in pipes that are then buried in the ground. Direct bury refers to placing the cables in a trench and directly covering the cables with some form of earth, sand, or soil. Trenching is expensive because it is labor intensive and involves the use of expensive machinery.

30. The solar industry also used cable trays. Cable trays are rigid metal trays in which the cables are positioned. The material for cable trays, and the labor necessary to install them, make a cable tray system very costly. While they are

more useful for rooftop applications, they provide far less flexibility to address the cable management needs of a solar power plant. Moreover, cable trays are less effective within a solar installation because the cable trays have to rest close enough to the ground where rodents can make their nests in them and gnaw on the cables in the trays. The damage to the cables and replacing damaged components increases the cost of maintenance.

31. In January 2014, Bill Brooks completed the initial version of his white paper titled "Cable Management in Solar PV Arrays: A Review of Requirements in the National Electrical Code and how CAB Cable Rings and Saddles Meet These Requirements". Mr. Brooks concluded that CAB's above-ground cable management system using cable rings and saddles suspended from a messenger wire would be compliant with the NEC and other industry-standard installation practices.

32. At this time, above-ground cable management systems using messenger wire supported cable hangers to support and separate the various kinds of electrical cables had never been used or even seen in the solar industry. As a result, CAB had to perform a tremendous amount of work to develop products that met the particular needs of the solar industry both from service and safety standpoints as well as to gain acceptance and trust in the industry for CAB's novel approach to cable management.

33. This work began with having Bill Brooks prepare a white paper. His white paper then required us to engage in further developmental efforts, including more prototyping, testing (including to obtain UL safety listings[1]), continued analysis of the requirements of the National Electrical Code (NEC) and local electrical codes for compliance, and, in 2014, the design and development of multi-carrier hangers necessary to comply with the 2014 NEC's new requirements to separate AC cables from DC cables. This further developmental work also included designing and testing other components of the above-ground messenger system, such as the clamps, brackets, and component hardware for mounting the messenger wire and connecting to the metal piles. [redacted]

34. CAB increased its efforts throughout 2014 to market its above-ground cable management system at solar trade shows. During 2014, CAB attended solar trade shows in Boston, San Francisco, and Munich, Germany, at which CAB discussed its above-ground cable management system with industry professionals.

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[1] UL safety listings refer to approval from Underwriters Laboratories ("UL") that a product passed rigorous testing and meets nationally recognized standards for safety, sustainability, and longevity.

35. Despite CAB's increased marketing efforts in 2014, industry professionals continued to express significant skepticism concerning whether CAB's system could be successfully and safely applied in utility-scale solar installations, particularly because no one had used such a cable management system in a solar power plant. Solar companies had many technical questions that had to be answered before the companies were willing to try CAB's above-ground cable management system. [redacted]

36. In January 2014, Mitchel Bowman of SunEdison contacted me regarding CAB's idea for an above-ground cable management system. SunEdison was looking for alternatives to the standard industry's use of trenching and cable trays. In the meantime, we had become aware of the new NEC requirements for separating AC and DC cables. After some initial discussions regarding the required separation of cables, CAB met with SunEdison's electrical and design engineers at SunEdison's corporate headquarters in Belmont, California. Following that meeting, I designed a new multi-carrier hanger that included two cable-carrying surfaces side by side, and a separate data loop at the top of the hanger for data cables.

37. In June 2014, we then prototyped CAB's above-ground cable management system using the two-carrier hanger suspended from a messenger wire on a single-axis tracker called the AP90 at the Solar Technology Acceleration Center ("SolarTAC") located in Denver, Colorado. The results of the prototype were very positive. Nevertheless, SunEdison still had significant skepticism that CAB's above-ground cable management system would work for real-world solar plant applications. Testing, design and engineering work, and ongoing communications, continued for nearly one year before SunEdison was ready to implement CAB's system using the newly-designed multi-carrier hanger, and associated clamps, brackets, and other associated hardware, into a real power plant.

38. In the meantime, while the prototyping with SunEdison was being performed, CAB contacted Mr. Brooks in July 2014 to inform him that CAB had developed new designs for its cable hangers that provided for the separation of the various electrical cables (AC, DC, and data communications cables) within a solar installation. CAB requested that Mr. Brooks update the white paper to evaluate these new designs. In September 2014, Mr. Brooks completed the next version of his white paper to include his analysis of CAB's newly designed hangers. I understand that this version of Mr. Brooks' white paper has been submitted as **EX1006** in IPR2024-00139.

39. Given Mr. Brooks' reputation in and engagement with the solar industry, including as a frequent speaker at solar conferences, contributor of technical articles in solar journals, and service on electrical code panels, his endorsement of CAB's messenger supported cable hanger system provided the necessary reassurance to the industry that CAB's system could be utilized in a solar plant application and be in compliance with code.

40. CAB's above-ground cable management began to gain wider recognition and acceptance in the industry. In 2014, CAB's above-ground cable management system for solar was selected from over 100 applicants as a "Finalist for the Intersolar Award" in the photovoltaics category, which is considered the flagship award for the solar industry. The Intersolar Award is one of the most prestigious awards in the solar industry and is given to the most innovative products for the solar industry around the world for the prior year. Being selected as a finalist was a great honor, but also greatly increased CAB's exposure in the solar industry. **EX2009** is a true and accurate copy of the "Finalist for the Intersolar Award" that CAB received.

41. From late 2014 through the summer of 2015, CAB continued to work with SunEdison to address SunEdison's concerns and questions regarding CAB's above-ground cable management system. For example, on April 7, 2015, Mr. Bowman emailed CAB with a series of questions from SunEdison's engineers

concerning such issues as the expected life of the coating on CAB's hangers in a dry climate, additional testing [redacted], and further [redacted] **EX2010** is a true and accurate copy of the email dated April 7, 2015.

42. By email dated April 10, 2015, I responded to the questions from SunEdison's engineers by providing answers and supporting data and documents to Mr. Bowman. **EX2011** is a true and accurate copy of my email to Mr. Bowman dated April 10, 2015. Specifically, I provided information on the tests run on CAB's hangers to address environmental concerns, that CAB's coatings on the hangers is expected to last over 25 years, explaining the testing [redacted], and information from CAB's experience in providing its hangers in the most corrosive environments across the world for over 30 years.

43. In July 2015, CAB learned that SunEdison intended to use CAB's above-ground cable management system for all of SunEdison's projects involving its NT tracker system going forward. **EX2012** is a true and accurate copy of the email dated July 2, 2015 from Mr. Bowman.

44. Following additional testing with SunEdison, and CAB making design modifications, in August 2015, SunEdison approved CAB's above-ground cable management system as their new standard for utility-scale solar power plants. By

the end of 2015, CAB was specified in engineering drawings for ten of the largest solar power plants projected to be built in the United States.

45. In 2015, CAB worked with SunEdison to install CAB's above-ground cable management system at multiple solar power plant locations, including one in Lakeland, Florida. This installation was very successful. SunEdison's electricians who were on site described CAB's system as "simple to use" and "fast and easy to install." The success of this installation provided SunEdison with the data and information they needed to prove that CAB could be very effective for cable management in their large-scale solar projects.

46. Given SunEdison's stature as the largest renewable energy company in the world, and immense influence on the solar industry, the majority of U.S. solar developers followed SunEdison projects to see what materials, products, and systems that SunEdison used in their solar projects. After SunEdison made the change from trenching and cable trays to using CAB's above-ground cable management system, inquiries to CAB from the solar industry exploded overnight.

47. In 2015, CAB engaged in developing CAD drawings for every product that CAB manufactured. The CAD drawings were critical for CAB to be included in engineering drawings for various solar projects. The CAD drawings were also a requirement for submitting products for UL testing and certification. As a result of these CAD drawings, and extensive product development and

engineering work, CAB has been able to secure multiple UL and CSA (Canadian Standards Association) safety listings for its solar products.[2] Furthermore, CAB's solar products are now able to be specified in drawings, plans, and bids for solar power projects around the world.

48. It was around this time, in the spring of 2015, that CAB first learned that its hanger designs were being copied by major players in the solar industry.

49. In late 2014 and into early 2015, CAB had been having discussions with First Solar regarding the use of CAB's above-ground cable management system. At the time, First Solar was a leading American solar technology company that manufactured PV modules. On March 19, 2015, Tim Wedding and I met with Jeff Lamb, a manager of First Solar, and a team of First Solar engineers, including Daniel R. Smith.[3] At the meeting, CAB shared dozens of samples of its hanger products, including specifically its two-carrier solar hanger. At that meeting, we specifically reviewed the designs and features of our new solar hangers, and shared

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[2] CAB Solar Cable Hangers are ETL Safety Listed by Intertek to UL 2239, UL 155, CAN/CSA C22.2No. 18.4-15 and CAN/CSA C22.2 No. 18.5-13.

[3] Daniel R. Smith later left First Solar and became one of the founders and chief technology officer of AWM.

CAB's proprietary drawings and designs, including the design of the two-carrier solar hanger.

50. Following the meeting, on March 30, 2015, additional solar hanger samples were sent to Mr. Lamb for a larger scale mock-up at his request. These hangers were provided in bare, partially coated, and fully coated versions. After we provided these additional samples, Mr. Lamb left First Solar, and additional attempts to follow up with First Solar received no response.

51. On September 15, 2015, Tim Wedding forwarded me an email from [redacted]. **EX2013** is a true and accurate copy of the email from Tim Wedding forwarding the email from [redacted] dated September 15, 2015. [redacted] is a supplier in the solar industry, and by this email, was requesting a quote for an estimated two million hangers for use by First Solar in a solar plant installation. [redacted] email attached a drawing specifying the dimensions of the requested hanger. The drawing on its face identifies its author by the initials "DRS." The drawing also identifies that it was completed on April 9, 2015, only three weeks after CAB's meeting with First Solar and its engineer, Daniel R. Smith, at which CAB shared its solar hanger product samples, drawings, and designs. Although the drawing was presented as a First Solar drawing, the hanger depicted in the drawing was essentially identical, with the exception of a

few minor adjustments in dimension, to the CAB two-carrier hanger that CAB had shared with First Solar in March 2015.

52. On September 21, 2015, I emailed Steve Murphy of First Solar regarding this issue, and objected to First Solar including CAB's two-carrier hanger in a First Solar design drawing that was being sent out as part of a bid request to multiple bidders. **EX2014** is a true and accurate copy of the email dated September 21, 2015. I never received a response from First Solar.

53. After not receiving a response from Mr. Murphy, I again emailed him and copied [redacted] on October 2, 2015. **EX2015** is a true and accurate copy of the email dated October 2, 2015. In the email, I briefly explained the situation again and stressed that the hanger design that [redacted] had sent us was a CAB proprietary design for which CAB was seeking patent protection. I still received no response.

54. CAB's above-ground cable management system received significant industry recognition in 2015. In June 2015, CAB's above-ground solar cable management system was recognized as one of the top 50 "Array-changing Technologies" in the world by PV Magazine, a leading solar publication based in Germany. **EX2016** is a true and accurate copy of the 2015 PV Magazine titled "The Array Changers 50 key components making PV shine". PV Magazine examined innovative products from around the world for consideration for this

prestigious award. To have received this award from such a prestigious international publication as PV Magazine was a true testament to the innovation of CAB's above-ground solar cable management system.

55. By 2016, CAB's number one customer, SunEdison, had been specifying CAB's above-ground cable management system in all of their engineering drawings for solar power plants. Unfortunately, however, SunEdison declared bankruptcy in 2016.

56. Although SunEdison's bankruptcy appeared initially that it might present a challenge for CAB, by that time, many other solar companies were already expressly interest in using CAB's system. Additionally, SunEdison's former employees were quickly hired by other solar companies across the country. SunEdison's former employees were very supportive of CAB and were instrumental in generating interest in CAB within their new companies. As a result, CAB was frequently asked to conduct training sessions and PowerPoint presentations to engineering and solar companies demonstrating how above-ground cable management could be utilized in utility-scale solar power plants. This led to many of these companies specifying CAB's above-ground cable management system in their engineering drawings.

57. [redacted] In short, the

solar industry had caught on that CAB's above-ground cable management system was an innovative product that solved many of the existing cable management challenges in solar installation array applications.

58. Professionals within the solar industry began referring CAB to their contacts to share the success of using CAB's above-ground cable management system. By way of example, **EX2017** is a true and accurate copy of an email dated January 18, 2016, from [redacted], copying me. In her email, [redacted] noted that CAB had an "innovative product" that includes "an inexpensive hanger product … that is much more cost effective than trenching". **EX2017**.

59. CAB was featured in a full-page article titled "Aerial Cable Support Systems" in the July/August 2016 edition of SolarPro Magazine.[4] **EX2018** is a true and accurate copy of this article. This article featured CAB's above-ground cable management system and the benefits of using CAB over previously existing options that consisted of trenching and cable tray. This July/August 2016 edition

[4] SolarPro Magazine was published from October 2008 to November 2018. SolarPro Magazine was widely regarded as one of the leading publications in the solar industry for information, innovations, and best practices.

of SolarPro Magazine was titled "Best Practices for Electrical Balance of System Organization".

60. In 2016, CAB's solar hangers achieved Intertek's internationally-recognized ETL Safety Listing. As part of the approval process, all hangers were tested for weight load capacity and corrosion resistance. CAB's hangers are listed to four UL and CSA safety standards. These safety listings were instrumental for developing future sales of CAB's solar products.

61. Despite this widespread industry recognition, and despite CAB's improved market performance, potential customers continued to express skepticism that CAB's system could be used in real-world solar plant installations. For example, **EX2019** is a true and accurate copy of an email dated May 20, 2016 from [redacted], to Mr. Wedding, and copying me. In this email, [redacted] raised various questions about CAB's system which were among the typical skepticism that CAB routinely confronted, including, but not limited to, concerns about the design life of CAB's system, concerns with mechanical cable damage due to movement of a cable in the hanger due to wind, concerns whether the PV coating on the hangers had at least a 25-year design life, the appropriate spacing between hangers, and sagging of the system. CAB successfully confronted this skepticism and continued to gain widespread acceptance of its above-ground solar cable management system.

62. By the end of 2016, CAB's above-ground cable management system was rapidly becoming the industry-standard for cable management in utility-scale solar power plants. Aside from CAB's commercial success, CAB's standard-setting success could be seen in the products developed by other solar companies. Some solar companies were specifically designing their products to be compatible with CAB's above-ground cable management system out of the box.

63. For example, SunEdison had modified its tracker components to have pre-drilled holes so that they were compatible out of the box with CAB's above-ground cable management system.

64. Another example is Array Technologies Inc. ("ATI"), the leading solar tracking solutions and services provider for utility-scale projects, developing a mounting hardware system that integrated CAB's above-ground cable management system with ATI's tracking system. ATI decided to pre-punch a series of holes on both sides of ATI's piers for the fast and easy installation of CAB's L brackets. ATI also developed a comprehensive guide for installing CAB's above-ground cable management system with ATI's tracking system. ATI's tracking system was the first in the solar industry to be marketed as CAB-ready.

IV. <u>CAB's Integrating Grounding System</u>

65. In 2015, I and others at CAB started thinking and talking about the potential of using a messenger wire as part of an integrated grounding system.

Specifically, we were motivated to develop an integrated grounding system that CAB would use the messenger wire not only as a support structure for supporting cable hangers and current carrying wires, but would also act as the system equipment grounding conductor. We believed that the addition of an integrated grounding system to our above-ground messenger supported cable management would further contribute to the skyrocketing of CAB revenues.

66. In 2016, CAB began researching, designing, engineering, and testing a potential integrated grounding system. As with CAB's above-ground cable management system, there were numerous challenges to overcome. These concerns included material composition of the messenger wire itself, so as to allow for sufficient strength and conductivity to serve as both a support structure messenger wire and an equipment grounding conductor. In addition, it was necessary that the messenger wire, clamp and bracket that would couple the messenger wire to the metal pile, and the metal pile itself, all be appropriately bonded together. Therefore, we also needed to develop a clamp and bracket that were sufficiently conductive, as well as strong enough to support the messenger wire, and we had to ensure that the clamp was properly torqued to the messenger wire to provide the required bonding. All of this, once again, invoked concerns of the ability of such an integrated grounding system to comply with applicable code.

67. Prior to CAB's development of its integrated grounding system, PV systems using CAB's above-ground messenger wire supported cable management had to ground the system to protect against issues such as lightning strikes and ground faults. As the '551 Patent describes, prior to CAB's integrated grounding system, grounding required the installation of a separate grounding conductor, typically made of copper, that ran with or parallel to the current carrying cables and adjacent to the messenger wire. In addition, it was necessary to install grounding splices from the separate grounding conductor to each of the metal piles to ensure that the conductor and piles were properly bonded. The grounding conductor itself also had to be grounded and was typically coupled to a grounding electrode at the system termination points. In this way, the separate grounding conductor provided a current path to ground. This type of grounding technology prior to the advent of CAB's integrated grounding system was very difficult and time-consuming to install, and as a result, also very expensive.

68. CAB's new integrated grounding system would eliminate the need for a separate grounding conductor, and separate grounding splices at each pile. Instead, the messenger wire, properly bonded to the clamp, bracket and pile, would itself act as the equipment grounding conductor.

69. Throughout most of 2016 and well into 2017, CAB explored various options for the composition of the messenger wire that was strong enough to

support the cable hangers and current wires, and conductive enough to act as the equipment grounding conductor. Initially, CAB inquired whether a galvanized steel messenger wire would be suitable for this purpose, and it was quickly determined that, whether for a solar plant application or any other application, the wire would have to be so large that it would make it excessively unwieldy to work with and it would not be a viable option.

70. [redacted] It took several months to develop a customized copper composite messenger wire that was the proper diameter and material for it to be strong enough to support the hangers, while also being conductive enough to act as an equipment grounding conductor.

71. CAB then had to go through a similar process to arrive upon an appropriate clamp for its integrated grounding system. [redacted]

72. [redacted]

73. Once this entire process was finalized, and the customized messenger wire, clamp and bracket were manufactured, the integrated grounding system had to be appropriately certified to comply with safety standards and listings, including UL safety listings.

74. In August 2017, CAB submitted its integrated grounding system to Burndy for analysis and testing in Burndy's certified lab. In September 2017, Burndy approved CAB's integrated grounding system and issued UL 467 safety listing.

75. CAB also retained HDR[5] to evaluate CAB's new integrated grounding system for code compliance as a means of grounding the entire system. HDR evaluated CAB's integrated grounding system, including, specifically, the mid- and end-pier kits for best grounding practices, the grounding messenger wire in light of NEC requirements for using a messenger wire as a grounding means, and the grounding messenger wire for compliance with UL and IEEE standards for grounding. In December 2017, HDR determined that CAB's integrated grounding system was compliant with the NEC, UL, and IEEE standards.

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[5] HDR is an engineering company that provides, among other things, services evaluating technology and designs in various industries, including the solar industry.

76. CAB then sold its first integrated grounding system in December 2017.

77. In March 2018, CAB asked Mr. Brooks to evaluate its integrated grounding system in relation to the NEC and prepare a white paper. Mr. Brooks subsequently prepared his white paper titled "Cable Management in Solar PV Arrays: A Review of Requirements in the 2017 and 2020 Editions of the National Electrical Code and how CAB Solar Hangers Meet These Requirements" and dated November 25, 2020.

78. When CAB's integrated grounding system was implemented, solar companies and engineering firms deemed it a "game changer" for utility-scale solar applications. [redacted]

79. In May 2018, Intertek approved CAB's integrated grounding system and issued UL 2703 safety listing.

80. In 2018, CAB partnered with RP Construction Services (RPCS) to launch RPCS' new tracker system. RPCS announced its partnership with CAB in a press release dated July 26, 2018, in which RPCS touted that CAB's solar products

division "pioneered the use of above ground cable management in grid-scale solar plants and has continually provided innovative designs and systems to meet customers' needs." **EX2020** is a true and accurate copy of the press release dated July 26, 2018.

81. In 2018, CAB's integrating grounding system was selected for the prestigious "Showstopper Award" for 2018 by the National Electrical Contractors Association (NECA). NECA gives the "Showstopper Award" to the most innovative products introduced into the electrical industry each year. The award is based on votes from the largest electrical contractors across the United States. This award provided further highlighted the innovation of CAB's groundbreaking integrated grounding system. **EX2021** is a true and accurate copy of the NECA Showstopper Award that CAB received.

82. The 2018 Showstopper Award was also featured in the January 2019 edition of Electrical Contractor Magazine. **EX2022** is a true and accurate excerpt from the article from the January 2019 edition of Electrical Contractor Magazine announcing the winners of the 2018 NECA Showstopper Award.

83. In addition, Solar Power World Magazine named CAB's Solar Cable Management with Integrated Grounding among the "2019 Top Solar Component Products." Solar Power World editors purport to travel to trade shows nationwide to review newly introduced solar technology and innovations and choose the most

innovative products for this recognition. **EX2023** is a true and accurate copy of Solar Power World Magazine's publication of the 2019 Top Solar Component Products list.

84. In 2021, Solar Power World Magazine again recognized CAB's integrated grounding system as among the "2021 Top Solar Components and Equipment". **EX2024** is a true and accurate copy of Solar Power World Magazine's publication of the 2021 Top Solar Components and Equipment list.

85. In 2021, CAB's solar cable management with integrated grounding was awarded the 2021 Award in the PV – BOS (Balance of System) Category sponsored by PV Magazine based in Germany. CAB was selected for this award by an international panel of experts in the solar industry from over 205 entries worldwide. **EX2025** is a true and accurate copy of the January 2022 edition of PV Magazine, announcing the 2021 award winners.

86. In 2022 and 2023, CAB was awarded the Leadership in Solar Energy award by Solar Power World in the wire management category. **EX2026** is a true and accurate copy of the 2022 Leadership in Solar Energy. **EX2027** is a true and accurate copy of the 2023 Leadership in Solar Energy award.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine, imprisonment, or both, under Section 1001 of Title 18 of the United States Code.

Allen Garrett Smith

Dated: 8/4/2024

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