

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

PATENT OWNER'S SUR-REPLY

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Exhibit	Description
2001	Declaration of Joshua Phinney, Ph.D.
2002	Petitioner's Invalidity Contentions
2003	[RESERVED]
2004	Transcript of Deposition of Omid Beik, Ph.D., July 9, 2024
2005	Excerpts from CAB Installation Guide
2006	EX1005 (marked by Dr. Beik at deposition)
2007	EX1006 (marked by DR. Beik at deposition)
2008	SunPower Field Process Change Review 1 Development Review
2009	Intersolar Award Finalist – Photovoltaics (2014)
2010	Email dated April 7, 2015
2011	Email dated April 10, 2015
2012	Email dated July 2, 2015
2013	Email dated September 15, 2015
2014	Email dated September 21, 2015
2015	Email dated October 2, 2015
2016	PV Magazine "The Array Changers: 50 Key Components Making PV Shine"
2017	Email dated January 18, 2016
2018	SolarPro Magazine (July/August 2016)
2019	Email dated May 20, 2016
2020	RP Construction Services Press Release (July 26, 2018)
2021	NECA Show Stopper Award (2018)
2022	Electrical Contractors Magazine (January 2019)
2023	Top Solar Component Products (2019)
2024	Top Solar Components and Equipment (2021)
2025	PV Magazine Award (2021)
2026	Leadership in Solar Energy Award (2022)
2027	Leadership in Solar Energy Award (2023)
2028	Declaration of Mitchel F. Bowman
2029	CV of Mitchel F. Bowman
2030	SunEdison, CAB Prototyping at SolarTac
2031	Email dated November 14, 2014
2032	Email dated August 17, 2015
2033	Declaration of William F. Brooks, PE
2034	CV of William F. Brooks, PE

2035	Solar Market Insight Report, 2023 Year in Review
2036	National Renewable Energy Laboratory, Spring 2014 Solar Industry Update
2037	Brooks, Engineering, 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 (November 25, 2020)
2038	Declaration of Edward C. Kern, Jr., Ph.D.
2039	CV of Edward C. Kern, Jr., Ph.D.
2040	[RESERVED]
2041	CAB Solar Cable Management Installation Guide (January 28, 2022)
2042	Solar Project Quote Request/CAB Quote #1
2043	Intertek, CDR/Authorization to Mark
2044	Declaration of Jonathan D. Putnam, Ph.D.
2045	CV of Jonathan D. Putnam, Ph.D.
2046	Solar Sales Figures Spreadsheet #1
2047	Comparison of Solar Cable Management Systems
2048	Compare CAB Solar vs. Trenching or Cable Tray
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2050	Solar Project Quote Request/CAB Quote #2
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2052	Solar Project Quote Request/CAB Quote #4
2053	Solar Project Quote Request/CAB Quote #5
2054	Solar Project Quote Request/CAB Quote #6
2055	National Electric Code (2014)
2056	Solar Sales Figures Spreadsheet #2
2057	Solar Project Drawings
2058	Declaration of Denise L. Studinary
2059	Declaration of Joseph William Novak, PE, MSE, MBA, S.P.
2060	Solar Pro Magazine (February/March 2013)
2061	Declaration of Allen Garrett Smith
2062	CAB Cable Rings & Saddles for Solar Panel Wiring (2013)
2063	Wind and Solar Systems: Design, Analysis and Operation, Third Edition
2064	Declaration of Joshua Phinney, Ph.D.
2065	CV of Joshua Phinney, Ph.D.
2066	HDR Report

2067	Declaration of Carson M. Shea in Support of Admission Pro Hac Vice
2068	Declaration of Trevin Schmidt in Support of Admission Pro Hac Vice
2069	Transcript of Deposition of Joshua Weiner, November 12, 2024
2070	Shoals BLA Powerpoint
2071	Transcript of Deposition of Minh P. Doan, November 15, 2024

I. THE INTRINSIC RECORD SUPPORTS CAB'S CLAIM CONSTRUCTION

AWM continues to propose the same construction it proposed in its Petition, isolating a single sentence from the specification. Paper 47, 2. AWM argues that the “Board’s construction [of ‘multi-function line’] aligns with Petitioner’s,” when the Board actually agreed that **CAB’s** proposed construction is more in keeping with the intrinsic record. Paper 21, 10. Notably, Dr. Beik, from whom AWM has elicited no reply declaration, clearly understood that “multi-function line” must not only be conductive, it must provide an effective ground-fault current path.

A. “Multi-Function Line” Serves as an EGC

AWM principally argues that the ‘551 Patent never refers to EGC. Paper 47, 2. To the contrary, as the Board acknowledged (Paper 21, 7), the specification defines “grounding conductor” as “a conductor or grounding wire [] disposed adjacent the messenger wires.” A POSITA would clearly understand this definition to disclose an EGC that provides an effective ground-fault current path. *See* EX2064, ¶88.

Dr. Beik never disputed that the NEC requires all exposed non-current-carrying metal parts in a PV-array to be connected to an EGC that provides an

effective ground-fault current path. EX2004, 21:23-23:24.¹ *See e.g.* EX1007, Art. 250.4(A)(3)-(4), 99; Art. 690.43, 587. Neither did Dr. Beik dispute that an equipment ground system requires a low-impedance ground return path for the proper operation of the overcurrent protection system. EX2004, 26:22-28:9. *See also* EX2064, ¶¶45-46.

Further, at deposition, Dr. Beik conceded that CAB's "multi-function line" must act as a grounding conductor. EX2004, 67:10-68:12. And he never disputed that the "grounding conductor" must provide an effective ground-fault current path. He simply maintained that the prior art references that he cited disclose that requirement. *See id.*, 147:19-148:9; *see also id.*, 24:5-24, 35:6-18, 37:13-38:10, 104:15-25, 120:15-123:3, 131:22-132:11.

Moreover, in contending that the NEC defines "grounding conductor" broader than EGC, AWM ignores that the only other type of grounding conductor defined in the NEC is a GEC, which connects to a grounding electrode such as a ground rod. EX2064, ¶¶43-45; EX1007, Art. 100-Definitions, 31. Of the two, a POSITA would understand the multi-function line, which replaces the grounding conductor disposed adjacent the messenger wire, is an EGC.

¹ All citations to EX2004 are to the page and line of the transcript for Volume II, beginning on stamped page 217.

AWM relies on claim 12 (Paper 47, 3), but that dependent claim simply recites that the “multi-function line *includes strands selected from the group* consisting of” copper, copper-clad steel, and conductive alloy, *in addition to* galvanized strands. The claim language and specification inform a POSITA that claim 12 contemplates combining galvanized strands with other strands, such as copper. EX1001, 12:60-64, 8:64-9:19.

Further, AWM continues to obfuscate the clear distinction between “grounded” and “grounding,” a distinction the ‘551 Patent itself makes. For example, the specification expressly states that regulations (such as the NEC) require that the defined “grounding conductor” itself be “grounded,” using a grounding splice. EX1001, 2:3-12. Dr. Phinney explains that, under the NEC, normally non-current-carrying metal parts in a PV-array, including a messenger wire, must be grounded utilizing an EGC that runs with the PV-circuit conductors. EX2064, ¶49, 59; EX1007, Art. 250.4(A)(3)-(5), 99; Art. 690.43, 587; *see also* EX2033, ¶63.

AWM argues that any conductor “*becomes*” a grounding conductor when it is coupled to a pile in the earth, essentially reasserting that any component in a “grounding system” is a grounding conductor. Paper 47, 4. Dr. Beik, however, conceded that it is not enough for a metal pile to simply be embedded in the earth, or for metal components to be simply connected together for them to be grounded.

EX2004, 17:13-18:4, 24:5-24, 26:13-21; *see also* EX2064, ¶¶41, 61, 67, 142. No single component, therefore, is transformed into a grounding conductor simply through interconnection with other components coupled to a metal pile embedded in the earth. Rather, all components must be grounded by an EGC that provides an intentionally-constructed effective ground-fault current path. EX2064, ¶¶45-46, 60, 66.

Finally, the “grounded messenger wire” disclosed in the Whitepaper (EX1006) is not a “grounding conductor.” Mr. Brooks clearly explained that a POSITA would understand that a grounded messenger wire is distinct from a separate grounding conductor. EX2033, ¶¶63-65.

B. “Tension Member” is a Cable/Wire.

AWM wholly ignores the specification's definition of a messenger wire as a robust cable and its numerous descriptions of “multi-function line” as a wire or cable that is drawn taut. EX1001, 1:24-25, 2:35-36, 7:19-23, 8:60-62. Rather, AWM relies solely on its distortion of the prosecution history.

Ignoring the Board's preliminary determination that the intrinsic evidence discloses a “tension member” to be a cable or wire (Paper 21, 9), AWM contends the claims were only allowed during prosecution because Korman's ground pin 60 does not serve a support function. Paper 47, 5. AWM's myopic view totally ignores applicant's primary arguments throughout prosecution that Korman only

disclosed a rigid frame, not a substantially flexible cable or wire. EX1037, 141-43, 173, 179-182.

AWM also distorts the testimony of Dr. Phinney to argue that cable trays (such as Grushkowitz's) are "tension members." In discussing the effect of temperature changes on "sag" and "droop," Dr. Phinney was referring to wires and conductors, not cable trays. EX1041, 21:8-20, 38:3-7. There is no tension between his deposition testimony and his declaration that rigid metal cables trays are not tension members. EX2064, ¶¶193-195. To the extent that AWM reasserts its argument that gravitational forces exerted on a cable tray render it a tension member, that argument was rejected in prosecution. EX1037, 131, 209.

C. The Specification Explicitly Defines "Structured To"

CAB does not attempt to "shoehorn an intent element" into claim construction analysis. Paper 47, 6. The specification expressly defines "structured to" to mean "intended to" and "designed to," not merely "capable of." EX1001, 3:36-50; Paper 30, 33. AWM offers no reason to override this express definition in the '551 specification. The cases cited by AWM (Paper 47, 6), which do not involve expressly defined claim terms, are inapposite.

II. AWM Fails To Show Any Challenged Claim Is Obvious

A. Ground 1-Grushkowitz

Grushkowitz's metal trays are not "tension members," and being subject to gravitational forces does not make them so. *See* §I.B., *supra*; EX2064, ¶¶189-195; *see also* EX2001, ¶114 n.4. Therefore, they do not satisfy the multi-function line limitation, and Grushkowitz cannot disclose conductive mounting assemblies "structured to be coupled" to the multi-function line. EX2064, ¶¶188, 192-195, 212-213.

B. Grounds 2 and 5-CAB Website/Whitepaper

1. AWM Does Not Adequately Argue Combining References.

The Board's Institution Decision questioned whether AWM adequately argued for combining the CAB Website/Whitepaper. Paper 21, 14 n.8. AWM never identified what teachings of the two references were being combined, and only asserted that the claim limitations were disclosed by *each* of the references individually. Paper 14, 39, 51-52. AWM still fails to propose a proper combination.

AWM now argues for the first time that a POSITA would modify the Website's system with the Whitepaper's "grounded steel messenger" to achieve a NEC-compliant grounding system, a "simple combination given the overlapping componentry and POSITA's knowledge." Paper 47, 6-7. AWM apparently argues

that even if the Website does not show an actual steel messenger wire, a POSITA would substitute the Whitepaper's steel messenger wire for what is shown in the Website. AWM argues nothing different than what it argued in its Petition, since it contends that even if the Website is a mock-up, it still discloses the claim limitations by what it teaches. Paper 47, 13.

Furthermore, AWM's purported new combination is undermined by Dr. Beik's testimony. Even after the Board's Institution Decision, Dr. Beik continued to assert that, with the knowledge of a POSITA, the Website and Whitepaper each individually discloses all of the claim limitations. EX2004, 100:10-101:19. Thus, AWM has not cured the deficiencies of its original combination argument.

2. AWM Fails to Establish Motivation to Combine with Reasonable Expectation of Success.

Notwithstanding whether AWM adequately argues for combining the references, its motivation to combine arguments are still deficient. First, AWM still relies on the Website's inclusion of a link to the Whitepaper to provide motivation to combine. Paper 47, 7. But the Website expressly references the Whitepaper's review of updated NEC requirements *relating to CAB's hangers* in its above-ground messenger-wire-supported cable management system. This would not alert a POSITA to anything about implementing a grounding system. Moreover, because AWM asserts that the Website/Whitepaper each discloses all of

the claim limitations, the Website's inclusion of a link to the Whitepaper adds nothing to the motivation to combine analysis.

Second, the Whitepaper neither “provides safe grounding instructions” nor teaches “employing a ‘grounded steel messenger’” to ground an “assembly” in compliance with the NEC. *Id.* The Whitepaper only discloses that even if the insulation on the electric cables is damaged, thereby energizing the hangers supporting those cables, the *hangers* “would stay at or near ground potential” because “they would be in full contact with the messenger wire, which itself would be grounded.” EX1006, 14; EX2033, ¶¶63. Mr. Brooks confirmed that the Whitepaper disclosed nothing to a POSITA about “employing” a messenger wire as an EGC, unlike his updated 2020 Whitepaper. EX2033, ¶¶64-65; EX2037, 12.

Third, AWM argues the need for NEC-compliance as a motivation to combine. Paper 47, 8. A POSITA, however, would not be able to ensure NEC-compliance simply by “modifying the assembly with the Whitepaper’s grounded messenger.” *Id.* The Whitepaper’s messenger wire is still not an EGC that provides the required effective ground-fault current path simply because it is grounded. AWM only relies on the absence of any discussion of a separate grounding conductor in either reference, arguing that since the NEC permits a messenger wire to be an EGC, a POSITA would assume the Whitepaper’s messenger wire is an EGC. *Id.*, 9.

Significantly, as discussed below (§III.B.3.), a POSITA would have understood that the EGC in a PV-array in 2014 would have run with the PV-circuit conductors buried in the ground. Just as significantly, a POSITA would have understood that the NEC did not permit a steel messenger wire to be used as an EGC. EX1041, 62:8-17, 65:1-21; EX1007, Art. 396.30, 241; Art. 250.118, 118. Specifically because of the NEC, a POSITA would assume the Whitepaper's steel messenger wire is *not* acting as an EGC.

It is AWM's burden to prove that a POSITA would conclude that the messenger wire depicted in the Website/Whitepaper is an EGC that provides an effective ground-fault current path, not CAB's burden to prove that it is not. Even Dr. Beik conceded that a POSITA could not conclude that metal components (including a messenger wire) that are simply connected together provide an effective ground-fault current path without knowing, at least, "from the element to the endpoint all the conductive path, the resistance, the connection, mechanical strength and so on." EX2004, 24:5-24; EX2064, ¶139. AWM offers no explanation how a POSITA could possibly determine this information simply from looking at the Website/Whitepaper.

CAB has presented ample evidence that prior to the '551 invention, the use of a messenger wire that both supports cable hangers/current wires *and* serves as an EGC had never been seen. EX2028, ¶50; EX2033, ¶51; EX2059, ¶¶56-58;

EX2061, ¶6. AWM has not credibly rebutted this evidence, and is thus even less able to sustain its burden.

Finally, AWM premises its reasonable expectation of success argument on its assumption of what a POSITA “knew when a messenger wire is used as the EGC,” relying solely on NEC Article 396.30 relating to the use of a messenger wire as an EGC. Paper 47, 9. This hindsight assumption ignores that Article 396.30 lacks any direction how to use a messenger as an EGC, and further ignores CAB’s substantial evidence that the use of a messenger wire as an EGC was not known prior to the ‘551 invention.

AWM resorts to quoting a single word from over five continuous pages of Dr. Phinney’s testimony to argue the contrary. Dr. Phinney never agreed that the NEC “instructed using a messenger wire as a grounding conductor.” Rather, he explained that Article 396.30(C) provides that use of a messenger as an EGC is conditioned on compliance with other NEC requirements, necessitating an entire engineering investigation. EX1007, Art. 396.30(C), 241; EX1041 60:10-65:21.

This is borne out by evidence regarding the extensive engineering investigation and analysis relating to CAB's multi-function line. EX2041, 66:11-68:17.²

Further, the NEC identifies permissible material compositions of the messenger wire, but in no way instructs *how* to comply with the NEC's various requirements for using a messenger as an EGC. The absence of any such direction by the NEC could reasonably be interpreted to discourage the use of a messenger as an EGC. EX1041, 63:3-16. AWM offers no explanation or support whatsoever for its proposition that modifying the Website with the Whitepaper's messenger would have been an "easy and obvious solution that a POSITA would expect to work."³

² AWM similarly relies on Dr. Phinney's testimony to support its contention that a POSITA would have understood that the piles depicted on CAB's Website could be grounding electrodes because the NEC permits it. Paper 47, 16. Dr. Phinney made clear, however, that a pile embedded into the soil cannot be assumed to be a grounding electrode without determining how the pile is encased, the nature of the soil and other engineering details. EX1041, 70:6-71:16.

³ None of the four paragraphs of Dr. Beik's declaration cited by AWM actually support this proposition.

3. CAB Website/Whitepaper in View of POSITA's Knowledge Does Not Render the Claims Obvious.

AWM argues that the CAB Website/Whitepaper, together with “fundamental POSITA knowledge,” render the challenged claims obvious. Paper 47, 12. AWM, however, mischaracterizes the Whitepaper as instructing the use of a grounded messenger to provide grounding and bonding required by the NEC. *See* §II.B.2. *supra*. And AWM mischaracterizes the NEC as “lay[ing] out how to use a messenger as an EGC.” *See id.*

As best can be discerned, AWM continues to suggest that a steel messenger wire can be used as an EGC, but even if not, it still would have been obvious for a POSITA to use a messenger of a different material specified in the NEC. Paper 47, 13-14. This begs the question of whether it would have been obvious to a POSITA in the first instance to use any kind of messenger wire as an EGC. Article 396.30(C), without more, does not render obvious the use of a messenger wire as both a support structure supporting cable hangers/current wires and an EGC.

At the core of AWM's argument is the absence of a separate grounding conductor disclosed by the Website. AWM ignores, however, what a POSITA would have known at the time of the Website photograph, a fundamental flaw that undermines the entirety of AWM's hindsight argument. It is undisputed that in 2014 (the date of the Website photograph), the predominant form of cable management in a PV-array, such as that depicted on the Website, was trenching,

where the PV-circuit conductors are buried in the ground. EX2033, ¶41; EX2028, ¶27; EX2059, ¶31. It is also undisputed that in PV facilities, the NEC requires that an EGC run with the PV-circuit conductors. EX1007, Art. 690.43, 587-588; EX2064, ¶49. A POSITA viewing a photograph of a PV-array from 2014, therefore, would not have concluded that the messenger wire must be the EGC simply because no separate grounding conductor is shown. Rather, a POSITA would have understood that the EGC would have been running with the PV-circuit conductors buried in the ground.

C. Grounds 3 and 4-Petersen in View of a POSITA's Knowledge

AWM does not dispute Petersen's disclosure that the aerial cable holder that supports the conductors is supported by the disclosed clevis rather than the "*neutral* messenger cable." AWM's argument of what might generally be understood by the term "messenger" *outside of Petersen's* disclosure is irrelevant.

AWM makes no attempt to refute that Petersen's "ground clamp means" only keeps its neutral messenger cable "in tight supported engagement therewith," but says nothing about keeping the neutral messenger wire in a grounded electrical communication. *See* Paper 30, 49-50; EX2064, ¶247. AWM also has nothing to say in response to Dr. Phinney's explanation that a neutral messenger cannot simultaneously be a grounding conductor. Paper 30, 55; EX1007, Art. 396.30, 241; EX2064, ¶¶242-243. Because AWM cannot rely on *Petersen's* disclosure, it

must instead try to rely on Dr. Phinney's testimony about the purpose of **CAB's** grounding clamp, which is completely irrelevant to what a POSITA would have understood of **Petersen's** disclosure.

Finally, AWM argues that Petersen's "neutral messenger" functions as a grounding conductor because it is sufficiently conductive to serve as a system neutral. Paper 47, 17. AWM ignores that, under the NEC, a neutral conductor cannot simultaneously serve as an EGC. Paper 30, 55; EX2064, ¶¶242-243; EX1007, Art. 396.30, 241.

III. AWM FAILS TO REBUT CAB'S EVIDENCE OF SECONDARY CONSIDERATIONS

CAB's substantial evidence of secondary considerations further supports the validity of the '551 Patent. Evidence of secondary considerations is often "the most probative and cogent evidence of nonobviousness," and ***must be considered*** to protect against hindsight bias. *Liqwd, Inc. v. L'Oreal USA, Inc.*, 941 F.3d 1133, 1136-37 (Fed. Cir. 2019); *Plantronics, Inc. v. Aliph, Inc.*, 724 F.3d 1343, 1354-55 (Fed. Cir. 2013). Apparently because Dr. Beik had predetermined that no amount of secondary considerations evidence would change his obviousness opinions, AWM did not bother submitting any reply declaration from him. EX1002, ¶234; EX2004, 156:18-157:15.

A. CAB Is Entitled To A Presumption Of Nexus

Contrary to AWM's assertion, CAB has sold what it has labeled its "Integrated Grounding System" since 2018. CAB's Installation Guide expressly labels its Integrated Grounding System, identifying its various components. EX2041, 2-4. That CAB may occasionally include other components with the sale of its Integrated Grounding System does not change the fact that it sells an Integrated Grounding System.

There is no basis for AWM to impose on Dr. Phinney the requirement to confirm that identified exemplary components of CAB's Integrated Grounding System are representative of all other system components, or to compare part numbers to bills of materials and purchase orders to confirm that each one of hundreds of combinations of dozens of system components practice the '551 invention. AWM's attempt to impose such an unduly burdensome requirement is improper. *Rambus Inc. v. Rea*, 731 F.3d 1248, 1257 (Fed. Cir. 2013).

Dr. Phinney adequately described the custom-manufactured copper-clad messenger wire that both serves as an EGC and supports cable hangers and electrical cables, in addition to various configurations of cable hangers, mid-pier kits rated for grounding and bonding, and end-pier kits that comprise the Integrated Grounding System. EX2064, ¶296. Dr. Phinney considered photographs of CAB's system, information from CAB's Installation Guide, customer bid request and

responsive quote information, and technical reports evaluating CAB's system. *See id.*, ¶¶298-303, A1-A7. This sufficiently shows that CAB's Integrated Grounding System practices, and is coextensive with, the claimed invention.

Contrary to AWM's assertion, CAB provided evidence that its Integrated Grounding System includes the very part numbers identified in EX2046 and EX2056. Specifically, the declaration of its VP Finance and records custodian, attests that these exhibits were compiled from CAB's financial records maintained in the regular course of business. EX2058, ¶¶2-8. Moreover, the "different characteristics" of these components relate to differing wire sizes, composition, and configurations, characteristics that are irrelevant to coextensiveness. EX2046, 1-4.

Whether CAB's individual system components are associated with multiple patents identified on CAB's website marking page is equally irrelevant to coextensiveness. Paper 47, 19. It is only relevant whether CAB's Integrated Grounding System as a whole practices and is coextensive with the claimed invention. Only the Integrated Grounding System that combines the individual components embodies and practices the '551 invention.

Neither does the inclusion of unclaimed cable hangers and end-pier kits in CAB's Integrated Grounding System defeat coextensiveness. Paper 47, 20. These components are not critical unclaimed features that materially impact the

functionality of the claimed system. EX1041, 127:14-129:3. AWM does not suggest otherwise. It is unnecessary, contrary to AWM's assertion, that they be shown in Dr. Phinney's claim chart.

It is also unnecessary for Dr. Phinney to have identified whether the messenger wire/EGC shown in his claim chart is [REDACTED], [REDACTED], [REDACTED], or another part number. Regardless of which part number it is, the messenger wire/EGC is clearly depicted in the photograph as part of CAB's Integrated Grounding System that practices the claimed invention.

In its partial quotation of claim 1, AWM blatantly misstates that the claim requires conductive piles. Paper 47, 20. The claim recites "[a] grounding system structured to ground a number of cables supported by a support assembly, said support assembly including a plurality of spaced, conductive piles." EX1001, 12:11-13. Clearly, "piles" is not a claim limitation.

In arguing that CAB's Integrated Grounding System is not coextensive with claim 1 in light of dependent claim 9, AWM misapprehends claim differentiation. Paper 47, 20. Because dependent claim 9 explicitly excludes any kind of grounding splices does not mean that claim 1 requires them.

AWM's argument that any "value proposition" of CAB's "custom messenger" comes from unclaimed features relating to material compositions and dimensions is unfounded. *Id.*, 21. The claimed "multi-function line" subsumes a

messenger wire of material compositions and dimensions that allows it to be both strong enough to support cable hangers and current wires, and conductive enough to be an EGC.

B. Commercial Success

1. Dr. Putnam Used a Proper Industry Benchmark

AWM would impose the same stringent standards to establish commercial success as are required for proving damages. This is contrary to law. *Paine, Webber, Jackson & Curtis, Inc. v. Merrill Lynch, Pierce, Fenner & Smith, Inc.*, 587 F. Supp. 1112, 1116 (D. Del. 1984) (commercial success determined by whether “claimed invention is, broadly speaking, an accepted product and a big seller,” not by detailed analysis of financial data such as required for proof of damages). *Accord Dynacore Holdings Corp. v. U.S. Philips Corp.*, No.01CIV.10798LTSGWG, 2002 WL 31233246, at *3 (S.D.N.Y. Oct. 4, 2002).

AWM does not dispute that CAB has enjoyed significant sales over an eight-year period, and that the growth rate of those sales has dwarfed by more than [REDACTED] the growth rate of net new PV-capacity in utility-scale installations. *Chemours Co. FC, LLC v. Daikin Indus., Ltd.*, 4 F.4th 1370, 1378 (Fed. Cir. 2021) (commercial success usually shown by significant sales in a relevant market). While purporting to criticize net new PV-capacity as an inappropriate benchmark, AWM's expert, Minh Doan, only attacks Dr. Putnam's commercial success analysis for failing to

consider a host of other *possibilities* that *might* account for CAB's excess sales over that benchmark. *Demaco Corp. v. F. Von Langsdorff Licensing Ltd.*, 851 F.2d 1387, 1394 (Fed. Cir. 1988) (proving negative of all imaginable contributing factors not required to demonstrate commercial success).

For example, Ms. Doan vaguely speculates that CAB's excess sales could be the result of increased cable management needs resulting from increased use of trackers, versus fixed-tilt systems, since around 2014. EX1061, ¶¶50-54. She had no real understanding, however, beyond general statements made by other declarants, *how* the increased use of trackers would increase cable management needs, or *how much* of an increase would be required in a tracker system over a fixed-tilt system. EX2071 50:6-21.

Ms. Doan ignores that, in 2015, tracker systems already accounted for 70% of new utility-scale PV-capacity. EX1061, 112. By 2023, that percentage increased to 96%. From 2015 through 2023, megawatts of new capacity generated by trackers increased by a factor of 8.6X, from 2,011MW to 17,213MW. EX1061, 112; EX2071, 72:22-73:11. During that same time, CAB's sales increased by a growth factor of [REDACTED] EX2044, ¶48, Fig. 2. Moreover, CAB's sales growth substantially outpaced the growth in new PV-capacity generated by trackers every year, in one instance by as much as [REDACTED] EX1061, 104, 112; EX2071, 70:16-72:21.

For increased use of trackers to account for the difference between CAB's [REDACTED] growth factor and tracker-generated new PV-capacity's 8.6X growth factor, each 1X growth in tracker-generated new PV-capacity would need to result in over 4X growth in additional cabling over what is required for a fixed-tilt system. Ms. Doan offered no evidence that increased use of trackers could account for this difference in growth factor. Ultimately, she conceded that this is only a *“potential”* reason for why CAB's sales might outpace the net new PV-capacity benchmark. EX2071, 48:6-12.

Ms. Doan further criticizes Dr. Putnam for including CAB's 2018 international sales in his comparison to a U.S. benchmark. EX1061, ¶54. This is a red herring. By Ms. Doan's own calculations, CAB's 2018 international sales accounted for only \$ [REDACTED] of total sales of [REDACTED]. EX2071, 135:11-21, 137:12-15. Even if excluding 2018 international sales reduced CAB's sales for that year to [REDACTED], the growth factor of those sales would still be substantially greater than the negative 2.2% growth in new PV-capacity. EX1061, 112.

Ms. Doan further speculated that CAB may have realized certain revenues in a given year for a project that was not completed until a subsequent year, thus inflating CAB's excess sales for the year that CAB realized those revenues. EX1061, ¶54. Ms. Doan failed to recognize, however, that the converse is true –

net new PV-capacity for the project completion year would be inflated in comparison to CAB's sales for that year. Ms. Doan also failed to offer any explanation or analysis as to how a single instance in which CAB's products may have been purchased to retrofit an already-existing installation could have materially impacted CAB's excess sales growth factor over net new PV-capacity. EX1061, ¶54 n.157.

Ms. Doan failed to identify what she believed to be an appropriate benchmark, other than market share. EX1061, ¶10. Market share data, however, is not required to show commercial success. *Chemours Co. FC, LLC*, 4 F.4th at 1378. Regardless, Ms. Doan conceded that CAB was both gaining market share and taking away market share in above-ground cable management systems from 2015 to 2023. EX2071, 58:10-60:17.⁴

CAB's evidence that its Integrated Grounding System has become the industry standard further supports the widespread adoption, and commercial success, of the Integrated Grounding System. EX2028, ¶55; EX2061, ¶78;

⁴ As discussed below (§III.B.3), CAB's Integrated Grounding System also includes the advantages of CAB's Standard System, and the increase in CAB's sales, and corresponding increase in market share, are attributable to the benefits and advantages of both systems.

Transocean Offshore Deepwater Drilling, Inc. v. Maersk Drilling USA Inc., 699 F.3d. 1340, 1350 (Fed. Cir. 2012) (product becoming industry standard evidences commercial success).

AWM makes passing reference to “profits” as a relevant metric that Dr. Putnam failed to consider. But AWM only attempts to support this argument by improperly incorporating by reference twenty-four paragraphs of Ms. Doan’s declaration. Paper 47, 23. Regardless, profitability is not necessary to demonstrate commercial success. *Dynacore, supra* (profit margins or other indicia of profitability not narrowly tailored to the issue of commercial success). In any event, Dr. Putnam properly concluded that CAB is profitable under all the circumstances. EX1067, 121:13-125:1.

2. No Evidence of Integrated Grounding System Sales that Included Standard System Components

AWM apparently contends that Dr. Putnam improperly considered sales of Standard System components, such as galvanized steel messenger wire, relying on EX2056. Paper 47, 24. That exhibit, however, provides no evidence of such sales, and clearly segregates Standard System sales from Integrated Grounding System sales. Moreover, Dr. Putnam did not rely on EX2056 for his sales data analysis, but instead, relied only on EX2046, which detailed CAB’s solar sales from 2014 to 2023. EX1067, 45:21-46:7; EX2044, Appendix 2.2, 53. Ms. Doan further criticizes Dr. Putnam’s consideration of CAB’s continued sales of its Standard

System even after it began selling its Integrated Grounding System. EX1061, ¶58. Standard System sales, however, comprised only a small fraction of CAB's total sales after 2018. EX2061, ¶78. Neither AWM nor Ms. Doan attempt to show how these *de minimis* sales would materially impact Dr. Putnam's analysis.

AWM inexplicably argues that CAB's marking website page does not show the '551 Patent covering any mid-pier kits, when that page is replete with numerous mid-pier kits associated with the '551 Patent. EX1049, 6-10, 15-16. Regardless, what components the marking website page associates with what patents is irrelevant. Dr. Putnam's analysis only includes sales of CAB's Integrated Grounding System that practices the claimed invention.

3. Dr. Putnam Adequately Attributes Commercial Success to the '551 Patent

No technical expert is needed to determine that CAB's Integrated Grounding System includes the features and advantages of the Standard System. Even the industry awards and recognition that CAB received praise its Integrated Grounding System for combining the benefits of cable management and grounding. EX2025, 60. A cursory review of CAB's Installation Guide confirms this inescapable fact. EX2041, 2. Further, Dr. Putnam *did* confirm his conclusion by reviewing the declarations of CAB's technical experts describing the Standard System and Integrated Grounding System, respectively. EX2044, ¶¶26-27.

Correspondingly, Dr. Putnam's attribution of a 50% division of CAB's sales to each of the patents is appropriate, as the Standard System and Integrated Grounding System are "economic complements." EX2044, ¶¶58-61. Given how large CAB's excess sales are over industry benchmark, statistical precision is unnecessary to determine that there is a nexus between each of the patented inventions and tens of millions of dollars of CAB's excess sales. EX2044, ¶¶63-64; EX1067, 186:19-188:1.

AWM mischaracterizes Dr. Putnam's cost savings analysis as unreliable. Paper 47, 26. Again relying on CAB's website marking page, AWM appears to argue that individual components associated with the '551 Patent are also associated with other patents, and thus, it cannot be determined that any cost savings are solely attributable to the '551 Patent. *Id.* The fact that individual components may be associated with multiple patents in no way undermines Dr. Putnam's conclusion that the claimed **grounding system** is what provides the cost savings.

Dr. Putnam's conclusion is well-supported by other record evidence. Specifically, Mr. Bowman testified how CAB's Integrated Grounding System "greatly reduces the amount of expensive copper that is required, as well as the cost of labor required to install copper jumpers at each pile." EX2028, ¶53. Dr.

Putnam also relied on Mr. Smith's testimony to the same effect. EX2061, ¶¶67-68.⁵

C. Industry Praise

AWM suggests that the various industry awards and recognitions presented to CAB were only for its "copper composite messenger," not its Integrated Grounding System as a whole. Paper 47, 27. But the 2018 NECA Show Stopper Award expressly refers to CAB's Integrated Grounding as a cable-management *system* using copper composite messenger *and* specialized hardware. EX2021. Moreover, the award was presented to CAB for its Integrated Grounding System for "providing cost and time savings" over grounding of non-integrated systems such as trenching, cable trays, and CAB's Standard System. EX2022, 2.

Similarly, the 2021 PV Magazine award was explicitly directed to CAB's "integrated grounding messenger wire cable management system" for combining the benefits of cable management and system grounding. EX2025, 60. In 2021, Solar Power World recognized as one of the top solar components CAB's "Solar

⁵ AWM suggests that CAB's own cost-savings analysis between its Standard and Integrated Grounding Systems combines savings over four separate projects rather than a single installation. EX2049. A cursory review of this exhibit clearly identifies savings for each individual project.

Cable Management with Integrated Grounding” which clearly refers to the entire system. EX2024. Additionally, Allen Smith testified, based on his own personal knowledge, that these awards were specifically directed to CAB’s entire Integrated Grounding System. EX2061, ¶¶81-85.

AWM misstates that another CAB declarant, Mr. Novak, only praised CAB’s above-ground cable management system (i.e. Standard System), not its Integrated Grounding System. Paper 47, 28. But Mr. Novak expressly praised CAB’s “impressive” Integrated Grounding System for its material and labor cost savings in eliminating the need for a separate grounding conductor. EX2059, ¶¶56-61.

Similarly, AWM mischaracterizes Mr. Bowman’s testimony to limit the improvement of CAB’s Integrated Grounding System to removing the need for grounding jumpers, and otherwise to offer only general praise of CAB. Paper 47, 28. AWM apparently overlooks Mr. Bowman’s praise of CAB’s Integrated Grounding System for its substantial material and labor cost saving by removing the need for separate grounding conductors *and* grounding jumpers. EX2028, ¶53. AWM also overlooks Mr. Bowman’s testimony that CAB’s Integrated Grounding System became the new industry standard in solar plants using an above-ground messenger-wire-supported cable management system. *Id.*, ¶55.

D. Long-Felt Need

Contrary to AWM's puzzling misstatement of CAB's position, CAB has always contended that the need for a less costly and labor-intensive grounding system existed upon the advent of CAB's Standard System in approximately 2014, *three* years prior to the '551 invention. Paper 30, 70. AWM cites *Adapt Pharma Operations Ltd. v. Teva Pharms. USA, Inc.*, 25 F.4th 1354, 1376 (Fed. Cir. 2022), for the argument that three years is insufficient for long-felt need. Paper 47, 28. But that case is inapposite, as that case involved a "plethora of prior art references" not present here. Furthermore, without setting forth how to use a messenger wire as both a support structure and EGC, Article 396.30(C) does not "solve" the need for a less costly and labor-intensive grounding system. §III.B.2. *supra*.

E. Industry Skepticism

In denying industry skepticism, AWM ignores detailed testimony of concerns over CAB's Integrated Grounding System relating to the need to comply with complex code requirements, material composition, support strength and adequate bonding, as well as the extreme lengths CAB went to in order to address these concerns. EX2061, ¶¶66, 69-75. Instead, AWM relies on testimony immediately praising and recommending CAB's Integrated Grounding System *after* CAB had already overcome these challenges and concerns.

IV. CONCLUSION

Petitioner has not met its burden to demonstrate that the challenged claims are unpatentable as obvious.

Dated: December 13, 2024

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CERTIFICATE OF SERVICE

I certify that on this 13th day of December, 2024, a true and correct copy of the foregoing **PATENT OWNER'S SUR-REPLY** was served by electronic mail on Petitioner's lead and backup counsel at the following email addresses:

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