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IN THE UNITED STATES DISTRICT COURT FOR THE
DISTRICT OF UTAH, CENTRAL DIVISION

UNITED STATES OF AMERICA, Plaintiff, vs. RAPOWER-3, LLC, INTERNATIONAL AUTOMATED SYSTEMS, INC., LTB1, LLC, R. GREGORY SHEPARD, NELDON JOHNSON, and ROGER FREEBORN, Defendants.	Civil No. 2:15-cv-00828 DN **UNITED STATES' BRIEF IN OPPOSITION TO DEFENDANTS' MOTION TO STRIKE THE EXPERT REPORT OF THOMAS MANCINI AND EXCLUDE TESTIMONY AT TRIAL** Chief Judge David Nuffer Magistrate Judge Evelyn J. Furse

I. Introduction

The United States seeks to enjoin Defendants from organizing, promoting, and selling the "solar energy scheme" that they have been promoting since or before 2010.[1] As described in the complaint, the solar energy scheme purportedly offers a "disruptive and revolutionary" approach to capturing and using solar energy.[2] The technology underlying the solar energy scheme, purportedly invented by Neldon Johnson, uses "solar lenses" on "solar towers."[3] This purported technology is, however, only the starting point of Defendants' solar energy scheme.

Defendants make money by selling "lenses" to customers, which the customers purportedly lease to LTB, LLC. Although LTB is a company that exists only on paper,[4] Defendants tell customers that LTB will operate and maintain the customer's lens for them, as part of a system that will generate electricity. Defendants tell customers that LTB will sell electricity to a third-party power purchaser, and then pay customers "rental income" for use of their lenses[5]:

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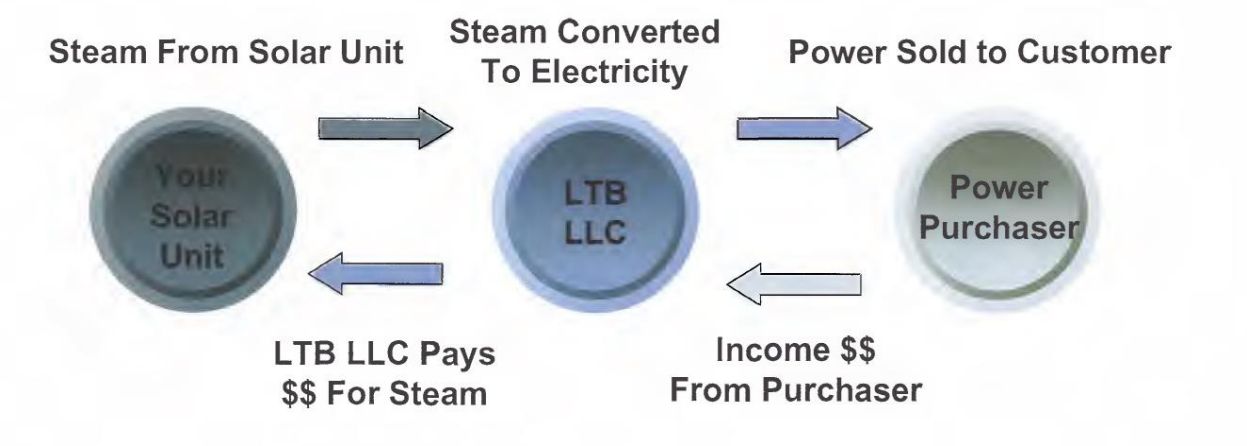
[1] ECF Doc. No. 2 and ECF Doc. No. 35 ¶ 1(a).

[2] ECF Doc. No. 2 ¶ 16.

[3] ECF No. 2 ¶¶ 17, 22.

[4] LTB has never done anything; it has never had a bank account, any employees, or any revenue. ECF No. 252-28, Pl. Ex. 673, Deposition of LTB1, LLC, July 1, 2017, 10:10-11:1, 14:7-16:7, 18:2-9, 42:10-43:5; 69:6-74:21, 90:19-91:8. LTB and Defendant LTB1, LLC, are indistinguishable. *Id.* 11:9-15.

[5] ECF No. 252-21, Pl. Ex. 581, Deposition of International Automated Systems, Inc., June 29, 2017, 162:1-165:9, 171:10-173:20; ECF No. 252-19, Pl. Ex. 532 at 6; *see also* ECF No. 252-18, Pl. Ex. 531.



Defendants assure their customers that, by purchasing lenses, customers may claim a depreciation deduction and a solar energy tax credit. The underpinnings of Defendants' solar energy scheme are their statements assuring their customers that:

- customers who buy and then purportedly lease the lenses to LTB are in a "trade or business" and have bought the lenses for the purpose of making a profit;[6]
- by virtue of their "trade or business," customers may deduct "business" expenses, consisting mostly of depreciation[7] on the lenses, from their ordinary income like wages from their full-time jobs[8]; and
- customers may claim a solar energy tax credit to further reduce their tax liability.[9]

We allege (and showed) that Defendants' statements are false or fraudulent as to material matters under the internal revenue laws.[10] We allege (and showed) that Defendants knew or had reason to know that these statements were false or fraudulent when they made the statements

[6] *E.g.*, ECF No. 252-1, Pl. Ex. 1 at 2-3.

[7] 26 U.S.C. § 162; 26 U.S.C. § 167; ECF No. 252-4, Pl. Ex. 25 at 1-2.

[8] ECF No. 252-3, Pl. Ex. 24; ECF No. 252-6, Pl. Ex. 40 at 12; ECF No. 252-9, Pl. Ex. 214; ECF No. 252-10, Pl. Ex. 216; ECF No. 252-14, Pl. Ex. 492; ECF No. 252-29, Pl. Ex. 674.

[9] 26 U.S.C. § 48; ECF No. 252-4, Pl. Ex. 25 at 2.

[10] 26 U.S.C. § 6700(a)(2)(A); ECF No. 2, Counts VII-XI; ECF No. 251.

while promoting the solar energy scheme.[11] We also allege that, to increase the tax benefits they promote to their customers, Defendants falsely inflate the value of the lenses to more than 200 percent of the correct value.[12] When Defendants tell customers this falsely inflated purchase price, Defendants make a gross valuation overstatement.[13] As a result, Defendants should be enjoined under 26 U.S.C. § 7408.[14]

At trial, the United States will offer evidence from numerous sources to prove its case.[15] At issue on this motion[16] is the expert witness opinion testimony we offer, under Fed. R. Evid. 702, from Dr. Thomas Mancini.

Dr. Mancini has specialized knowledge, skills, training, and experience in the field of concentrating solar power ("CSP") technology, which is the type of solar energy technology Defendants claim to have. Dr. Mancini's proposed opinion testimony is reliable because Dr. Mancini had sufficient facts and data to generate his opinions; he used reliable principles and methods; and he reliably applied the appropriate principles and methods to the facts and data in this case. Further, Dr. Mancini will testify about general concepts in CSP technology and his professional evaluation of Defendants' purported solar energy technology: that Defendants' purported technology does not work to produce electricity or other useable energy from the sun,

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[11] 26 U.S.C. § 6700(a)(2)(A); ECF No. 2, Counts VII-XI; ECF No. 251.

[12] 26 U.S.C. § 6700(a)(2)(B), (b)(1); ECF No. 2, Counts VII-XI.

[13] 26 U.S.C. § 6700(a)(2)(B); ECF No. 2, Counts VII-XI.

[14] *See* 26 U.S.C. §§ 6700, 7408; ECF No. 2, Counts VII-XI. All of this conduct, and other conduct by Defendants, shows that they should also be enjoined under § 7402(a) because an injunction, and other equitable relief including disgorgement, is appropriate for the enforcement of the internal revenue laws. *See* ECF No. 262 at 4-5.

[15] *See, e.g.*, ECF No. 251 at 4-52.

[16] ECF No. 253.

and that it is not, and never will be, a commercial-grade technology that will convert sunlight into electrical power or other useful energy.

Both of Dr. Mancini's opinions, and the facts he used to arrive at those opinions, are highly relevant to contested issues in this case. They will assist the Court in deciding 1) whether Defendants made or furnished statements about the allowability of the depreciation deduction and solar energy tax credit that Defendants knew, or had reason to know, were false or fraudulent as to the material matter of whether their purported solar energy technology did work or *could* work to generate income for their customers; and 2) whether Defendants made or furnished gross valuation overstatements when they sold lenses. For these reasons, Dr. Mancini's testimony is admissible under Fed. R. Evid. 702. Defendants' baseless motion to exclude his testimony should be denied.

II. Dr. Mancini's report and testimony.

A. Dr. Mancini's professional experience in concentrating solar power technology spans more than 35 years.

Dr. Mancini has more than 35 years of experience with solar thermal technology, which is the type of solar energy technology the Defendants promote. Dr. Mancini is a Fellow of the American Society of Mechanical Engineers.[17] Throughout the course of Dr. Mancini's career, he has authored more than 70 peer-reviewed publications in the areas of solar power generation, passive solar cooling and active heating and cooling.[18]

[17] ECF No. 253-1, Expert Report of Dr. Thomas Mancini ("Mancini Report") at 47. Citations to the Mancini Report will refer to the paragraph number where appropriate, or the ECF-banner page number.

[18] Mancini Report at 47-50; Pl. Ex. 699, Declaration of Dr. Thomas Mancini ("Mancini Decl.") ¶ 26.

Dr. Mancini earned his Ph.D. in Mechanical Engineering from Colorado State University in 1975.[19] For ten years thereafter, Dr. Mancini was a professor at New Mexico State University, where he taught courses on thermodynamics, heat transfer, fluid mechanics and solar energy.[20] While at New Mexico State University, Dr. Mancini did research on solar heating and cooling, and solar power systems.[21]

From January 1985 to July 2011, Dr. Mancini worked at Sandia National Laboratories, in Albuquerque, New Mexico.[22] Sandia is a government laboratory which is funded through the United States Department of Energy and is operated by a private company.[23] Among other job titles, Dr. Mancini was the Concentrating Solar Power (CSP) Program Manager at Sandia.[24] In this capacity, Dr. Mancini was responsible for working with the US Department of Energy CSP Program and the National Renewable Energy Laboratory on expanding CSP into the renewable energy marketplace, a project with a budget of more than $50 million.[25] Dr. Mancini was also Chair of the International Energy Agency's Solar Power and Chemical Energy Systems, which is an international group dedicated to developing and deploying CSP technology worldwide.[26] In the 1990s, he was the task leader for the Dish-Engine Development and Project Manager

[19] Mancini Report at 46.

[20] Mancini Report at 46.

[21] Mancini Report at 46.

[22] Mancini Report at 45-46; *see* ECF No. 253-2, Deposition of Dr. Thomas Mancini, Oct. 23, 2017, ("Mancini Dep.") 36:19-38:1, 40:14-42:9.

[23] Mancini Dep. 19:12-22:4.

[24] Mancini Report at 45-46.

[25] Mancini Report at 45-46.

[26] Mancini Report at 45.

partnership between the Department of Energy and private industry to develop a commercial dish/Stirling power generator.[27]

When Dr. Mancini was at Sandia National Laboratory, his work involved evaluating proposed solar energy technology created by private industry, and opining on whether it would work, and if so, how to maximize its performance and minimize its costs.[28] Dr. Mancini and his teams followed a structured engineering methodology aimed at understanding the details of the proposed component or solar energy system design and assessing their potential performance and costs.[29] Specifically, a person or entity (an "industry client") would bring to Sandia a design or a prototype.[30] Then Dr. Mancini and his colleagues, following well-established engineering principles, would systematically collect from the industry client detailed documentation of the design and design analyses of the solar thermal system; analyze this information; and evaluate and assess the performance and commercial viability of the components and system proposed.[31]

The information Dr. Mancini and the other Sandia engineers required from the industry client included information that would contribute to the actual, long-term performance and costs of operating a solar thermal system.[32] Such information included all engineering models and the assumptions that affect the accuracy of their results; detailed design drawings that demonstrate the application of engineering analysis to achieve performance results such as mechanical

[27] Mancini Report at 45.

[28] Mancini Decl. ¶ 5; Mancini Dep. 19:12-22:4.

[29] Mancini Decl. ¶ 7.

[30] Mancini Dep. 19:12-21:24.

[31] Mancini Decl. ¶¶ 7-9.

[32] Mancini Decl. ¶¶ 8-9.

properties and thermal performance; and component and system test results that apply specifically to the conditions under which they are conducted and may differ under other operating conditions or in the transition of going from one condition to another.[33] It was not typical for Sandia teams to conduct testing at an industry client's facility but they often helped to design and observe tests performed at the industry client's sites.[34]

Dr. Mancini and his colleagues used their knowledge, skills, and other expertise in the scientific and engineering principles that apply to all solar energy technology, including systems analysis, applied optics, thermodynamics, fluid mechanics, heat transfer, experimental methods, and applied mathematics to evaluate the performance and commercial viability of the systems before them.[35] The Sandia technical teams then developed a list of questions for the designer, including questions about what tests the designer had done and was planning to do.[36] They made recommendations to improve the design, including how to address cost concerns of solar energy technology in the interest of bringing electricity on to the national grid at a reasonable, competitive cost.[37]

During his tenure at Sandia National Laboratories, the technical teams evaluated hundreds of solar thermal systems and components using this methodology.[38] Dr. Mancini himself was on the evaluation team for more than 100 solar thermal components and systems

[33] Mancini Decl. ¶ 9.

[34] Mancini Decl. ¶ 10.

[35] Mancini Decl. ¶¶ 11-13; Mancini Dep. 19:12-21:24

[36] Mancini Dep. 19:12-21:24.

[37] Mancini Dep. 19:12-21:24, 24:22-25:22, 46:18-47:9.

[38] Mancini Decl. ¶ 15.

including solar concentrators, thermal receivers, various engines, and dish engine systems.[39] The process that Dr. Mancini and his teams used was generally accepted at Sandia.[40] It was structured and detailed, and was based on the application of scientific and engineering principles used throughout the solar energy technology industry.[41]

Dr. Mancini has been consulting on solar energy projects since 2011 through his own business, TRMancini Solar Consulting.[42] He engages in work similar to what he did at Sandia, reviewing system and component designs for concentrating solar energy projects and advising clients on the likely performance and costs of their proposed technology.[43]

B. Dr. Mancini's role in this case.

In light of its claims in this case, and the need to understand both viable solar energy technology and Defendants' purported solar energy technology, the United States retained Dr. Mancini:

> a) to explain the basic concepts involved in workable solar energy power generation technology;
>
> b) to evaluate and explain the "IAS Solar Dish Technology" at issue in this case, which includes any equipment installed on sites identified by the Defendants, any technological plans or schematics provided by the Defendants;
>
> c) to determine whether the IAS Solar Dish Technology is currently converting sunlight into energy; and

[39] Mancini Decl. ¶ 16.

[40] Mancini Decl. ¶¶ 14-16.

[41] Mancini Decl. ¶ 14.

[42] Mancini Dep. 42:10-43:9.

[43] Mancini Dep. 42:10-45:16.

> d) to opine on whether the IAS Solar Dish Technology is commercially viable on any scale (or may become commercially viable on any scale) to convert sunlight into electrical power.[44]

At Dr. Mancini's request, the United States asked Defendants for the kinds of information and documents that Dr. Mancini is accustomed to reviewing in the course of his career at Sandia and in his consulting practice: detailed design information and, because Defendants claim that their purported technology has produced electricity, data and analysis of its performance under operation.[45] But Defendants did not produce such information or documents, either about the purported technology's design or performance.[46] Neldon Johnson testified that he does not keep data or results from the testing he claims to have conducted on the IAS system and component parts, including the Fresnel lenses.[47] Johnson also does not keep written records of the testing conditions[48] or any written records that would allow anyone to recreate, replicate or otherwise prove Johnson's purported tests and resulting claims about the viability of his purported technology.[49]

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[44] ECF No. 253 at 2; Mancini Report at 3.

[45] Mancini Report ¶¶ 48-50.

[46] Mancini Report ¶¶ 48-50.

[47] ECF No. 256-14, Pl. Ex. 579, Deposition of Neldon Johnson, vol. 1, June 28, 2017, 66:1-24; 69:4-10; 150:2-151:17; 152:13-153:4; 164:3-165:7; 186:20-188:19; ECF No. 256-24, Pl. Ex. 681, Deposition of Neldon Johnson, vol. 2, Oct. 3, 2017, 93:22-23; 94:20-23; 102:16-18; 105:3-20; 107:2-12; 108:9-109:7; 111:4-11; 111:18-20; 112:3-5; 114:4-20; 116:14-117:11; 117:14–21; 118:5-10; 119:4-120:10; 122:11-15; 123:2-10; 123:23-124:4; 124:20-125:15; 125:21-127:3; 127:13-15; 129:11-16; 130:12-19; 146:19-25; 147:20-148:1; 151:7-10; 151:20-24; 159:13-19; 161:17-25; 167:8-13; 187:11-188:11.

[48] Johnson Dep., vol. 2, 143:12-18; 144:2-11; 146:12-25.

[49] Johnson Dep., vol. 2, 96:10-22; 104:17-23; 123:11-14;

Dr. Mancini painstakingly reviewed *all* of the documents Defendants produced in this case and information on www.rapower3.com, along with a great deal of information and documents provided by third parties.[50] According to Dr. Mancini:

> in the over 25,000 pages of documentation [from Defendants] I saw no detailed engineering analysis, I saw no engineering design packages for any of the components of the system or for the assembly of the system. I saw no . . . piping and instrumentation layout documents. I saw no component test or system test results of any kind.[51]

Defendants did not provide the following documents and information, which Dr. Mancini was accustomed to seeing from industry clients during his extensive career evaluating solar energy technology, such as:

> analysis supporting every piece of -- piece on the solar concentrator, for example. I would estimate there are, what, probably between 35 and 45 individual pieces, maybe more, on [Defendants' purported solar energy technology]. Each piece would have its own engineering design drawing with multiple perspectives, dimensions, material call-outs, and engineering analysis to support it.
>
> Then what you would find for that would be subassembly drawings showing the subassemblies of all of the individual components into subassemblies. For example, a circular facet or maybe even -- you'd probably have one for one of the gore-shaped -- pie-shaped, gore-shaped facets. Then you'd have that for all the subassemblies on the dish, and then you'd have a master drawing that would show how the subassemblies fit together, along with descriptions of how -- how they go together, and what order they're to be assembled in.

[50] Mancini Dep. 11:11-12:17, 119:17-124:25, 141:15-143:5, 152:1-8; *see also* Mancini Report ¶¶ 48-62 and at 51-55 (Appendix II).

[51] Mancini Dep. 96:15-21.

> But for all of these drawings, you've got stress analysis, you've got material call-outs in terms of not just what the material is, but if it's a piece of angle, where that came from and what the call-out and specification on it is. You've got lists of materials to support that. So that's the minimum I would expect to see for every component, including the P&IDs, the piping and instrumentation diagrams for the system, for each of -- for the turbine, the receiver.
>
> [For the parts of the purported solar energy technology that were purchased from a third party], like a heat exchanger, [you] would require the design analysis and design data. You would -- since you're not fabricating it yourself, you would not necessarily have to have the detailed design drawings on it, but you may want them for [operations and maintenance ("O&M")] purposes in case you have to replace tubes, as we discussed earlier, or do another form of O&M.
>
> So that's what I'm looking for is a very complete set of drawings; some of them take up filing cabinets worth of space for a solar power plant.[52]

Dr. Mancini reviewed patents Johnson has obtained.[53] "But the patents are not engineering design drawings and analysis. They're very limited drawings with no dimensions, no technical

[52] Mancini Dep. 138:14-140:6.

[53] Mancini Decl. ¶ 25; Mancini Report at 52; Pl. Ex. 15. Defendants misconstrue Dr. Mancini's deposition testimony to assert that he did not review Johnson's patents before Dr. Mancini wrote his report. Here is the actual exchange:

> Q. (By Mr. Snuffer) There's a paragraph 48 [in Dr. Mancini's report] where you explain what you expected the designer or operator to have and item A is 400 to 600 detailed engineering analysis and design drawings for the solar dish, receiver, heat exchangers and turbine generator. Were you furnished copies of all of the patents for all of the components that IAS has patented that are used in the IAS system?
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> A. I believe I reviewed all those patents. It's certainly in the -- Mr. Johnson's critique of my report, I think he attached copies of all of his patents.

Mancini Dep. 137:19-138:5. In his testimony, Dr. Mancini was giving just *one* example of the most up-to-date list where he could find Johnson's patents. Counsel for Defendants never actually asked Dr. Mancini whether he reviewed the patents before or after issuing his report.

background, no analysis. It's not an engineering design package."[54] So Dr. Mancini did not find the patent documents useful for his analysis.[55]

Dr. Mancini attended two site visits to view Defendants' purported solar energy technology, its components, and the places where Defendants manufacture and claim to use such components: the "Manufacturing Facility," the "R&D Site," and the "Construction Site," all in Millard County, Utah.[56] He visually examined the various components of Defendants' purported technology for hours on each visit, which occurred on January 24, 2017 and April 4, 2017.[57]

During both visits, Mr. Johnson gave Dr. Mancini lectures on his ideas and provided commentary about his purported solar energy technology and its components as he conducted Dr. Mancini around the sites.[58] Mr. Johnson's lectures and commentary were vague, contradictory, and inconsistent with scientific and engineering principles.[59] Johnson's statements during the "lecture" showed Dr. Mancini that Johnson "just fundamentally didn't understand the mechanisms of heat transfer; that Johnson "doesn't understand natural convection[,] radiation[,] and conduction heat transfer"; that Johnson's "explanation of heat transfer and how it works was incorrect"; and that Johnson "has no technical capability in the . . . areas he purports to have."[60]

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[54] Mancini Dep. 137:19-138:13.

[55] Mancini Decl. ¶ 25.

[56] Mancini Report ¶ 54.

[57] *E.g.*, Mancini Report ¶¶ 54, 75, 93-95, 100-115; Mancini Decl. ¶ 23. Dr. Mancini initially testified that the site visit with IRS occurred in January 2016, but remembered later in his deposition that it was actually January 2017. Mancini Dep. 107:14-108:17.

[58] Mancini Dep. 111:20-118:12; Johnson was not present on the tour of the Manufacturing Facility during the April 4 site visit. Mancini Decl. ¶¶ 21-23.

[59] Mancini Decl. ¶ 22; *see also* Mancini Dep. 111:20-118:12.

[60] Mancini Dep. 111:20-113:6; *see also id.* 149:8-151:6.

After Johnson's "lecture," Dr. Mancini was left wondering who among Defendants or their employees, "has background in thermodynamics? Who has background in heat transfer? Who has fluid mechanics material science? . . . . [W]hat are the temperatures" of operation for the system?[61]

Before Dr. Mancini's first site visit, he prepared a list of questions he had about information he was missing.[62] But when he asked Johnson the questions, Dr. Mancini did not get many answers.[63] As Dr. Mancini testified:

> It turns out that as we got further along down the list [of questions he drafted for his January 2017 site visit], I came to realize that there was no documentation of any actual design analysis for any of the components in the system, that there was no engineering design package, at least that they were willing to share with me, and that there were no test results that they kept that -- again, available or that they were willing to share with me, and so I would ask the questions and get similar answers to the ones I got before.[64]

During both of Dr. Mancini's site visits, "the components of the IAS Solar Dish Technology were not operating, were not assembled as a system, and were not producing electrical power or heat using solar energy."[65]

Dr. Mancini did not test any aspect of Defendants' purported solar energy technology.[66] There was no "system" to test: on both visits, critical components of the purported "system"

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[61] Mancini Dep. 117:8-24.

[62] Mancini Dep. 74:1-22; Defs. Ex. 1005.

[63] Mancini Dep. 74:1-103:4; Defs. Ex. 1005; Mancini Decl. ¶ 24; *see also* Mancini Dep. 103:7-119:16; Defs. Ex. 1006.

[64] Mancini Dep. 96:3-15.

[65] Mancini Report ¶ 42.

[66] *E.g.*, Mancini Dep. 68:15-21.

were missing and the "system" was not assembled (and therefore not operating) to produce electrical power or heat using solar energy.[67] Even if the purported system had been operating, it would be unreasonable for a third party like Dr. Mancini to conduct any testing upon it.[68] Defendants did not have the necessary testing material or staff on-site during the visits to run typical tests.[69] Further, the sites where components could be tested were "dirty and disorganized," with "[e]lectrical wires . . . lying . . . in pools of water."[70] In short, the sites were hazardous and in no condition for testing.

Ultimately, Dr. Mancini assessed the facts he learned through his review of Defendants' documents and other third-party documents produced in this case, and his visual inspections of Defendants' purported solar energy technology.[71] He analyzed these facts in light of his extensive knowledge of concentrating solar energy power systems, and the principles of science and engineering that make such systems work.[72] Part of Dr. Mancini's task was to opine on whether Defendants' purported solar energy technology has the potential to produce electricity on a commercial scale. Therefore, Dr. Mancini used the limited technical information available from Defendants and his own observations on the site visits to "analyze[] the IAS Solar Dish

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[67] *E.g.*, Mancini Report ¶¶ 42, 93-95 (lenses in towers were not "receiving or concentrating solar energy while tracking the sun"), 115 (receivers not operating or being tested in any system) 147 (turbine disassembled and not operating). Notably, the United States' Request to Enter onto Land for Inspection anticipated that the United States and Dr. Mancini would inspect Defendants' purported solar energy technology while it was actually operating. *E.g.*, Pl. Ex. 700 at Inspection Request Nos. 1, 3-11.

[68] Mancini Report ¶ 182.

[69] *E.g.*, Mancini Report ¶¶ 154, 180-86, 195; *see also* Mancini Dep. 84:20-86:4.

[70] Mancini Report ¶¶ 179, 190; *see also* Mancini Dep. 84:20-86:4.

[71] Mancini Dep. 119:17-124:25, 141:22-143:5, 152:1-8; s*ee generally* Mancini Report.

[72] *See generally* Mancini Report.

Technology as if it were operating as a system."[73] Because Defendants did not produce the engineering data that Dr. Mancini would normally use for this type of analysis, he used the only information that was available and his own knowledge of scientific, technological, and engineering principles that apply to the components.[74] When he did so, he viewed facts in the light most favorable to Defendants.[75]

After synthesizing the facts of this case through the lens of his extensive expertise,[76] Dr. Mancini arrived at his opinions in this case: 1) "[t]he IAS Solar Dish Technology is in the research Stage 1 of development. The 'Technology' comprises separate component parts that do not work together in an operational solar energy system. The IAS Solar Dish Technology does not produce electricity or other useable energy from the sun"[77] and 2) "[t]he IAS Solar Dish Technology is not now nor will it ever be a commercial-grade dish solar system converting sunlight into electrical power or other useful energy"[78].

III. Dr. Mancini's opinion testimony is admissible under Fed. R. Evid. 702.

Federal Rule of Evidence 702 allows a witness "who is qualified as an expert by knowledge, skill, experience, training, or education [to] testify in the form of an opinion or otherwise" if: the witness's "testimony is based on sufficient facts or data"; the witness's "testimony is the product of reliable principles and methods"; the witness "has reliably applied

[73] Mancini Report ¶ 87.

[74] Mancini Report ¶ 55; *e.g.*, *id.* ¶¶ 90-92; Mancini Dep. 120:5-127:6.

[75] *E.g.*, Mancini Report at 38, Table 5, "Transient Effects"; Mancini Dep. 125:14-127:6.

[76] Mancini Report ¶¶ 14-208.

[77] Mancini Report at 39, "Conclusion 1."

[78] Mancini Report at 44, "Conclusion 2."

the principles and methods to the facts of the case;" and the witness's "scientific, technical, or other specialized knowledge will help the trier of fact to understand the evidence or to determine a fact in issue."[79] Dr. Mancini and his proposed testimony meet all of these requirements, therefore his opinion testimony is admissible.

A. Dr. Mancini has specialized knowledge, skills, experience, and training in the field of concentrating solar power.

For more than 35 years, Dr. Mancini's career has been devoted to the field of concentrating solar power, the precise kind of solar energy technology Johnson claims to have. He has exceptional training in, and knowledge of, the science and engineering concepts required in the field. He has extensive experience actually working with proposed solar energy technology to improve its viability as a commercial product. Defendants do not disagree; they do not challenge the admissibility of Dr. Mancini's testimony on the basis of his knowledge, skills, experience, or training in the field. Dr. Mancini is eminently qualified to testify on the topics for which the United States has disclosed him as an expert witness.

B. Dr. Mancini's testimony is reliable.

An expert's testimony must be reliable.[80] For purposes of Fed. R. Evid. 702, that means that the testimony must be based on sufficient facts or data; that the testimony is the product of reliable principles and methods; and that the expert has reliably applied the principles and

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[79] Fed. R. Evid. 702; *Cinema Pub, L.L.C. v. Petilos*, 2017 WL 1066628, at *3, 4 (D. Utah Mar. 21, 2017) ("In determining whether expert testimony is admissible the first step is to determine whether the expert is qualified, and then if the expert is qualified determine whether the expert's opinion is reliable by assessing the underlying reasoning and methodology. If the expert is qualified and the opinion reliable, the subject of the opinion must be relevant; i.e. the opinion must help the trier of fact to understand the evidence or to determine a fact *in issue*." (quotation and footnotes omitted, emphasis in original) (Nuffer, J.).

[80] *Daubert v. Merrell Dow Pharma., Inc.*, 509 U.S. 579, 592 (1993); *iFreedom Direct Corp. v. First Tennessee Bank Nat. Ass'n*, No. 2:09-CV-205-DN, 2012 WL 3067597, at *1 (D. Utah July 27, 2012) (Nuffer, J.).

methods to the facts of the case.[81] An expert's testimony must be grounded "in the methods and procedures of science" and based on actual knowledge, not "subjective belief or unsupported speculation."[82] There are many factors that go into the evaluation of whether a proffered expert offers reliable testimony, including the degree of experience and education of an expert; whether the expert's methodology has been generally accepted by the scientific community; whether the expert is "proposing to testify about matters growing naturally and directly out of research [he has] conducted independent of the litigation, or whether [he has] developed [his] opinions expressly for purposes of testifying."[83] All reliability factors share the ultimate purpose of making certain that an expert's opinion "employs in the courtroom the same level of intellectual rigor that characterizes the practice of an expert in the relevant field."[84] The Court should generally focus on an expert's methodology rather than the conclusions it generates.[85]

As described above, Dr. Mancini's practice, for more than 35 years at both Sandia National Laboratories and in his consulting work, was to receive data, drawings, test results, and other information from the proponent of a solar energy technology system about its design and operation. At times, Dr. Mancini made site visits to see the solar energy technology in

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[81] Fed. R. Evid. 702(b)-(d).

[82] *Dodge v. Cotter Corp.*, 328 F.3d 1212, 1222 (10th Cir. 2003) (citing *Daubert*, 509 U.S. at 589-90); *see also Mitchell v. Gencorp Inc.*, 165 F.3d 778, 783 (10th Cir. 1999) (citing *Daubert*, 509 U.S. at 589-93).

[83] *Smith v. Terumo Cardiovascular Sys. Corp.*, No. 2:12-CV-00998-DN, 2017 WL 2985749, at *6 (D. Utah July 12, 2017) (Nuffer, J.); *Daubert*, 509 U.S. at 593-94; *Bitler v. A.O. Smith Corp.*, 400 F.3d 1227, 1233 (10th Cir. 2005); *In re Paoli R.R. Yard PCB Litigation*, 35 F.3d 717, 789-90 (3d Cir. 1994); *In re Cessna 208 Series Aircraft Products Liability Litigation*, 2009 WL 3756980, at *6-8 (D. Kan. Nov. 9, 2009); *Kumho Tire Co., Ltd. v. Carmichael*, 526 U.S. 137, 150 (1999). *See also Bimbo Bakeries USA, Inc. v. Sycamore*, No. 2:13-CV-00749, 2017 WL 1377991, at *4-7, 13 (D. Utah Mar. 2, 2017) (Nuffer, J.).

[84] *Dodge*, 328 F.3d at 1222-23 (citing *Kumho Tire*, 526 U.S. at 152); *see also Daubert*, 509 U.S. at 593-94.

[85] *Daubert*, 509 U.S. at 595.

construction or operation. Using all of this information, Dr. Mancini and his colleagues applied their understanding of the scientific and engineering principles that apply to such technology (such as systems analysis, applied optics, thermodynamics, fluid mechanics, heat transfer, experimental methods, and applied mathematics) to evaluate whether the proposed technology was viable or could be improved. This is a reliable method for evaluating the validity and viability of proposed solar energy technology.[86] Dr. Mancini wrote and presented, for peer review, his research and conclusions using this method.

Here, Dr. Mancini applied the same reliable principles and methodology he has used for more than 35 years to the available facts in this case. Dr. Mancini reviewed the documents Defendants produced, some of which contained technological information (as limited and contradictory as that information was). Dr. Mancini attended two site visits, both hours-long, during which he was able to observe the actual purported technology itself, along with the machines that purportedly make certain components. During these site visits, Dr. Mancini listened to extensive lectures and other commentary from Neldon Johnson, during which Johnson demonstrated his lack of understanding of the basic scientific and engineering principles that apply to all solar energy technology systems. When Dr. Mancini asked specific questions, he received non-answers.

[86] *See Bitler*, 400 F.3d at 1235 ("Employing his experience and knowledge as a fire investigator, Boh observed the physical evidence at the scene of the accident and deduced the likely cause of the explosion. Although such a method is not susceptible to testing or peer review, it does constitute generally acceptable practice as a method for fire investigators to analyze the cause of fire accidents. Nothing in Rule 702 or *Daubert* requires more. We conclude that the trial court did not abuse its discretion in finding Boh's personal experience, training, method of observation, and deductive reasoning sufficiently reliable to constitute 'scientifically valid' methodology." (citation omitted)); *Corr v. Terex USA, LLC*, No. CIV.A. 08-1285-MLB, 2011 WL 976718, at *4-6 (D. Kan. Mar. 17, 2011).

Dr. Mancini applied his broad and deep knowledge, skills, and experience in solar energy technology to the facts he learned[87] – just like he did at Sandia and just like he does in his current consulting practice. This is consistent with the ordinary practice of a witness offering expert testimony under Fed. R. Evid. 702: they review documents, information, observe processes and places at issue in a litigation, and then apply their specialized skills and experience to assist the court in understanding a unique body of knowledge.[88]

The facts Dr. Mancini observed on his site visits and learned through reviewing documents from Defendants and others in this case are more than sufficient to support his two opinions[89]: 1) that "[t]he IAS Solar Dish Technology is in the research Stage 1 of development. The 'Technology' comprises separate component parts that do not work together in an operational solar energy system. The IAS Solar Dish Technology does not produce electricity or other useable energy from the sun"[90] and 2) that "[t]he IAS Solar Dish Technology is not now nor will it ever be a commercial-grade dish solar system converting sunlight into electrical power or other useful energy."[91]

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[87] *E.g.*, Mancini Report ¶¶ 14-208.

[88] *E.g.*, Fed. R. Evid. 703 ("An expert may base an opinion on facts or data in the case that the expert has been made aware of or personally observed."); *Bimbo Bakeries*, 2017 WL 1377991, at *13 (allowing testimony from a proffered expert who spoke to a former employee of one of the parties, "visited a Bimbo facility to observe production, asked current employees questions regarding the production processes, examined the finished bread, examined competing companies' breads, considered the ingredients on the labels of all the breads, considered the feel and texture of the breads, and also tasted them") (Nuffer, J.); *id.* at *7 (allowing expert opinion testimony critiquing the work of the opposing party's expert because it was the result of reliable principles and methods: "Dr. Mishra adequately explains why he believes some of Christensen's questions were improper. Dr. Mishra may therefore testify to perceived flaws in Dr. Christensen's questions").

[89] *See generally* Mancini Report ¶¶ 14-208.

[90] Mancini Report at 39, "Conclusion 1."

[91] Mancini Report at 44, "Conclusion 2."

Defendant's motion to exclude Dr. Mancini's testimony does not address *all* of the facts and analysis that support Dr. Mancini's two opinions.[92] Instead, Defendants focus on picayune distractions that (if anything) go to the weight of Dr. Mancini's testimony and not its admissibility.[93] They argue that Dr. Mancini's testimony should be excluded from evidence because 1) he did not personally test Defendants' purported solar energy technology, and 2) he made certain estimates and assumptions the course of his report, to fill gaps left by Defendants' failure to produce data, drawings, or other typical information that any serious solar energy technology enterprise would have readily provided.[94]

An expert witness is not required to test the materials at issue personally in order to provide admissible testimony about those materials under Fed. R. Evid. 702.[95] This is particularly true when the testimony at issue goes to "known science" that is "not in dispute."[96] The "known science" here, of the fundamental principles of science and engineering that apply to all solar energy technology systems, is not in dispute. Therefore, if Defendants have concerns

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[92] *Compare* Mancini Report ¶¶ 14-208 *with* ECF No. 253 at 4-9.

[93] *Ramsey v. Culpepper*, 738 F.2d 1092, 1101 (10th Cir. 1984) ("Mr. Culpepper's complaints about Dr. Simpson's personal unfamiliarity with real estate values and the reliability of the figures underlying his opinion go to the weight of his testimony, not to its admissibility."); *Corr*, 2011 WL 976718, at *4-6.

[94] ECF No. 253 at 4-9.

[95] *See* Fed. R. Evid. 703; *Bimbo Bakeries*, 2017 WL 1377991, at *7; *accord Kechi Twp. v. Freightliner, LLC*, 592 F. App'x 657, 669 (10th Cir. 2014) ("[a]n expert is [not] required to interview every potential source of information in order to pass the *Daubert* test"); *Corr*, 2011 WL 976718, at *4-6.

[96] *Bitler*, 400 F.3d at 1236 ("The core dispute—whether copper sulfide particles found on the valve seat in this case were sufficient to cause a leak—is one the district court could properly determine is a question for the jury. In light of this evidentiary dispute, the Bitlers need only establish by a preponderance of the evidence that copper sulfide particles caused the gas explosion in their basement. Had their experts conducted further tests on their water heater's safety valve and established by observation that it did intermittently fail, they may have established causation to a near certainty. But such a high degree of certainty is not required.").

about the thoroughness of Dr. Mancini's investigation, they can easily express those through cross-examination and closing argument.[97]

Further, the principles and methodology that Dr. Mancini has used throughout his career, and that he used here, do not require the evaluator of a proposed solar energy technology to test the proposed equipment himself, especially when Defendants offered a ramshackle, incomplete, disassembled, dirty, and hazardous "testing environment" that was not even operational on either of Dr. Mancini's *two* site visits. There simply was no system to test while Dr. Mancini was on-site, and he had no need to test the components themselves. Dr. Mancini could simply observe the disassembled components of Defendants' purported technology, note the limited facts Defendants produced about them, and draw conclusions about this information in light of his 35 years of knowledge, experience, and education on the scientific and engineering principles that apply to all solar energy technology.

Next, Defendants attempt to exclude Dr. Mancini's testimony because he used certain estimates in the course of preparing his report because basic data evidently does not exist for Defendants' purported solar energy technology. This basic information does not exist because *Defendants failed* to produce the data, drawings, and other information that is typically in possession of a person or entity serious about producing electrical power from solar energy. Dr. Mancini was under no obligation to manufacture such data, drawings, and other information.

Defendants also wrongfully claim that Dr. Mancini's ultimate conclusions rest entirely on the reasonable estimates he made to fill gaps in Defendants' data.[98] But Dr. Mancini's opinions

[97] *Kechi Twp.*, 592 F. App'x at 669.

are well-supported by many other facts in the report that do not depend on those estimates. Defendants' purported solar energy technology was disassembled and did not work while Dr. Mancini was on site. Dr. Mancini had no data or other information from Defendants to show that it had *ever* been fully assembled or *ever* worked. So Dr. Mancini analyzed the efficiency of the purported system *as if* it were assembled (rather than disassembled) and *as if* it did work (although there is no evidence it ever has). Dr. Mancini used his extensive experience and knowledge of the scientific and engineering principles applicable to solar energy technology to arrive at the estimates he provided, and he gave Defendants every benefit of the doubt in doing so. Dr. Mancini's optical and efficiency analyses are two illustrations of why Defendants' purported solar energy technology will never be a commercial-grade system that converts sunlight into electrical power or other useful energy. But Dr. Mancini offers *many* reasons, based on the plain facts of this case and his extensive training and experience, that Defendants' purported solar energy technology will never be a commercial-grade system. It is permissible for an expert witness to offer alternative methods of analysis, this does not render his opinion testimony unreliable.[99] If Defendants wish to cross-examine Dr. Mancini about his estimates, they are free to do so at trial.[100]

(…continued)

[98] ECF No. 253 at 6.

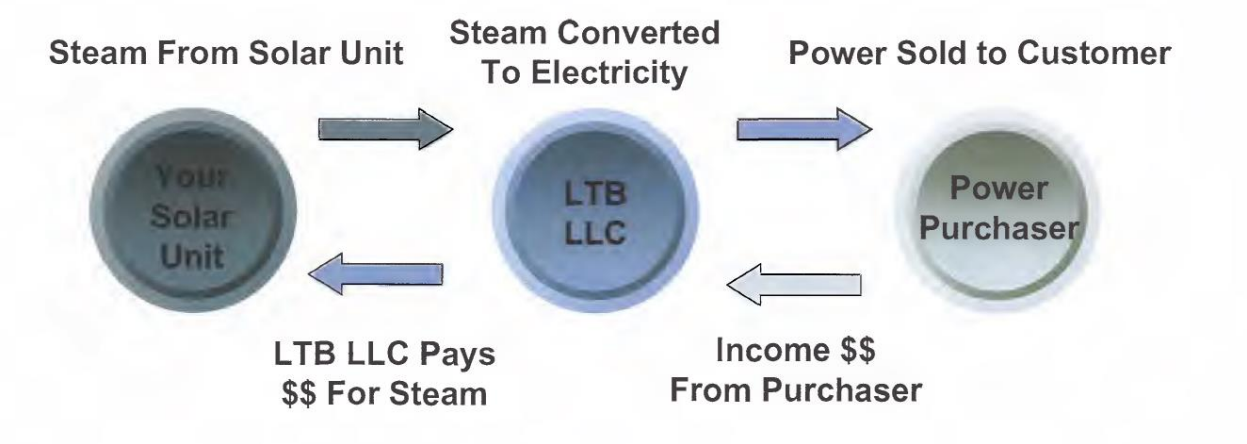
[99] *Bimbo Bakeries*, 2017 WL 1377991, at *11 (an expert may present alternative analyses to the factfinder).

[100] *See Martin v. Fleissner GmbH*, 741 F.2d 61, 64 (4th Cir. 1984) ("Although, as the defendant has noted, neither witness was an expert on crimpers, both were knowledgeable in the pertinent areas of engineering design and familiar with the processes used by a crimper. This lack of direct experience is not a sufficient basis to reject their testimony, but may affect the weight that testimony is given, a decision properly made by the jury." (footnote omitted)); *Ramsey*, 738 F.2d at 1101 ("Mr. Culpepper's complaints about Dr. Simpson's personal unfamiliarity with real estate values and the reliability of the figures underlying his opinion go to the weight of his testimony, not to its

(continued...)

C. Dr. Mancini's specialized knowledge will help this Court understand the evidence and determine facts in issue.

At the heart of the United States § 7408 claims in this case are Defendants' statements that, by buying a solar lens and signing Defendants' transaction documents, a solar lens customer was in the "trade or business" of leasing solar lenses. Defendants told customers they would be allowed a tax deduction for depreciation on the lens and the solar energy tax credit. Further, Defendants told customers that the solar lenses were worth at least $3,000 in earlier years and $3,500 in more recent years. Underlying all of these statements is the implicit assertion that the technology actually *works* to generate electricity which, in turn, would generate income for customers[101]:



(…continued)

admissibility."); *see also Obieli v. Campbell Soup Co.*, 623 F.2d 668, 670 (10th Cir. 1980) (affirming judgment over argument that a new trial should be granted because doctors testified based on erroneous factual assumptions, when "[b]oth of these witnesses were fully examined, both on direct and extended cross-examination, on all matters, including the ones above referred to."); *Cinema Pub*, 2017 WL 1066628, at *7-8.

[101] ECF No. 252-19, Pl. Ex. 532 at 6.

Dr. Mancini's testimony will give this Court reliable insight into the specialized scientific and technical knowledge required to understand solar energy technology, generally. Dr. Mancini will also explain how solar energy systems actually work, the kind of knowledge and experience that is required to create and maintain such systems, and the challenges that face any solar energy technology system to generate electricity or heat at a reasonable cost. Dr. Mancini's evaluation of Defendants' purported solar energy technology will assist the Court in understanding what Defendants' purported solar energy technology is and does (or does not do); whether Defendants' purported solar energy technology is currently converting sunlight into useable energy; and whether Defendants' purported solar energy technology is or could be commercially viable on any scale to convert sunlight into electrical power.

Whether Defendants' purported solar energy technology actually works as Defendants claim is a material matter and is directly at issue in this case.[102] Dr. Mancini's testimony will better equip this Court, with reliable evidence, to determine whether Defendants' statements about that material matter were false or fraudulent, and whether Defendants knew, or had reason to know, that such statements were false or fraudulent.[103] Dr. Mancini's testimony will also shed light on the "correct valuation" for the lenses Defendants sold.[104] If the technology does not work as Defendants claim it does, the correct valuation of a lens is likely far less than the $3,000 or

[102] *E.g.*, ECF No. 251 at 56-65. In spite of this Court's recognition that "the technology's viability might be a 'material matter' about which the defendants made certain representations" (ECF No. 202 at 2), Defendants' motion to exclude Dr. Mancini's testimony on relevance grounds (ECF No. 253 at 1-3 (quoting ECF No. 158 at 5)) shows that they persist in their failure "to see that the allegations about the technology may be material to the claims in the complaint" (ECF No. 202 at 2 (noting Defendants' misreading of this Court's order on the motion to bifurcate)).

[103] *See* 26 U.S.C. § 6700(a)(2)(A).

[104] *See* 26 U.S.C. § 6700(b)(1)(A).

$3,500 prices Defendants quoted to customers. Dr. Mancini will provide reliable evidence for this Court to evaluate whether Defendants made or furnished gross valuation overstatements when telling customers the purchase price for each lens.[105]

IV. Conclusion

Dr. Mancini has extensive knowledge, skills, experience, training, and expertise in the field of concentrating solar power technology, developed over more than 35 years in that industry. He offers reliable testimony, based soundly on the facts and data in this case and using reliable principles and methods, that will assist this Court in understanding the specialized field of concentrating solar power technology. His testimony will assist the Court, sitting as the trier of fact, to understand the evidence regarding the status and viability of Defendants' purported solar energy technology which is relevant to 1) whether Defendants made or furnished statements about the allowability of the depreciation deduction and solar energy tax credit that Defendants knew, or had reason to know, were false or fraudulent as to the material matter of whether their purported solar energy technology did work or *could* work to generate income for their customers; and 2) whether Defendants made or furnished gross valuation overstatements when they sold lenses. Therefore, Dr. Mancini's testimony is admissible under Fed. R. Evid. 702. Defendants' motion to exclude his testimony should be denied.

[105] § 6700(a)(2)(B).

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Respectfully submitted,

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CERTIFICATE OF SERVICE

I hereby certify that on December 15, 2017, the foregoing document and its supporting exhibits were filed with the Clerk of the Court through the CM/ECF system, which sent notice of the electronic filing to all counsel of record.

/s/ Erin Healy Gallagher
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