

LG ENERGY SOLUTION LTD. Vs. MOLECULAR REBAR DESIGN, LLC.
Samuel Gido on 03/20/2025

1 UNITED STATES PATENT AND TRADEMARK OFFICE
2 BEFORE THE PATENT TRIAL AND APPEAL BOARD
3
4 LG ENERGY SOLUTION LTD.,)
5 Petitioner,) Case IPR2024-01012
6 VS) Patent No. 10,608,282
7 MOLECULAR REBAR DESIGN, LLC,)
8 Patent Owner.)

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11 DEPOSITION OF: Samuel Gido
12 DATE: March 20, 2025
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20 Reporter: Wendy Allen, RMR, CRR
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WITNESS:

PAGE :

Samuel Gido
Direct Examination by Mr. Zinda

5

1 S T I P U L A T I O N S

2

3 It is stipulated by counsel for the parties
4 that all objections are reserved until the time of
5 trial, except those objections as are directed to the
6 form of the question.

7

8 It is stipulated and agreed between counsel
9 for the parties that the proof of the authority of the
10 Commissioner before whom this deposition is taken is
11 waived.

12

13 It is further stipulated that any defects in
14 the notice are waived.

15

16 It is further stipulated that the reading and
17 signing of the deposition transcript by the witness
18 may be signed before any Notary Public.

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1 (Deposition commenced: 10:58 a.m.)

2

3 Samuel Gido, Deponent, having been first
4 remotely sworn by Wendy Allen, a Notary Public
5 in and for the State of Connecticut, was
6 examined and testified as follows:

7

8 DIRECT EXAMINATION BY MR. ZINDA:

9

10 Q. Good morning, Dr. Gido. How are you?

11 A. Good morning. I'm fine.

12 Q. Can I ask you, sir, how many times
13 you've been deposed before?

14 A. Well, last week I told your colleague
15 more than 15 and less than 30, so I guess now it's
16 more than 16 and less than 31.

17 Q. Okay. I was going to ask you for
18 ballpark. That's a little bit better than
19 ballpark so I appreciate that.

20 So you're familiar with the process of
21 being deposed, but just a couple minor ground
22 rules I want to lay out. If I ask you a question
23 and you don't understand the question I'm asking
24 you, will you let me know and ask me to clarify?

25 A. Yes.

1 Q. And you understand if you answer my
2 question, I'm going to assume that you understood
3 it. Is that fair?

4 A. Yes.

5 Q. And of course your counsel, I will be
6 shocked if they don't object to some of the
7 questions I ask, they will probably be objecting
8 throughout the deposition, and you have to answer
9 unless your counsel instructs you otherwise. Does
10 that make sense?

11 A. Yes.

12 Q. And of course you know we'll take
13 breaks throughout the deposition. Obviously
14 you're the one being deposed, it's up to you to --
15 typically 45 minutes to an hour, roughly, is kind
16 of routine, but again, that's your call.

17 So with that being said, Dr. Gido,
18 you're here today to testify about U.S. patent
19 10,608,282, correct?

20 A. Yes.

21 Q. And you understand if I refer that as
22 the 282 patent I'm referring to that patent
23 number?

24 A. Yes.

25 Q. And that's Exhibit -- well, that's

1 Exhibit LGES-1001 in this proceeding, correct?

2 A. It is.

3 Q. And do you have -- do you happen to
4 have that exhibit handy?

5 A. I do. Give me a moment here.

6 Yeah, I do.

7 Q. Can I ask you to turn to Claim One of
8 the 282 patent?

9 A. Yes.

10 Q. Just let me know when you're there.

11 A. I am.

12 Q. And do you see in Claim One where it
13 says, quote unquote, "A plurality of discrete
14 carbon nanotube fibers"?

15 A. Yes.

16 Q. From the perspective of a person of
17 ordinary skill in the art, what is a discrete
18 carbon nanotube fiber?

19 MR. RIFFE: Objection, legal
20 conclusion.

21 THE WITNESS: Well, I talked about
22 this in my Declaration and should probably look
23 at that, but I remember, you know, what I said,
24 and basically individual nanotubes that are not
25 associated with each other along the majority of

1 their length, or something to that effect.

2 BY MR. ZINDA:

3 **Q. Does a discrete carbon nanotube fiber**
4 **have to be separate from another carbon nanotube?**

5 MR. RIFFE: Objection, form.

6 THE WITNESS: It has -- well, it
7 should not be associated with other carbon
8 nanotubes along a substantial portion of its
9 length.

10 BY MR. ZINDA:

11 **Q. And what is a substantial portion of**
12 **its length?**

13 A. That is not well, you know, defined,
14 necessarily. You just have to look at these
15 things and see whether they look like they're
16 aggregating or associating, and, you know, it's
17 not along a substantial or most of its length or a
18 significant part of its length.

19 **Q. Okay. So if it's along 50 percent of**
20 **its length, would that be substantial?**

21 MR. RIFFE: Objection to form, asked
22 and answered.

23 THE WITNESS: What percentage of the
24 length did you say?

25 BY MR. ZINDA:

1 Q. 50 percent. Would that be
2 substantial?

3 A. I didn't really think -- I mean I was
4 not asked to think about and attach a number to a
5 particular, you know, a particular amount of
6 association. I would say that 50 percent is a
7 fair amount of association.

8 Q. Okay, but you can't tell me what would
9 qualify as a substantial association versus a
10 non-substantial association?

11 A. I didn't try and put a number on that.

12 Q. Well, as you sit here today, can you
13 tell me how one would distinguish between a
14 substantial association between nanotubes?

15 MR. RIFFE: Objection, form.

16 THE WITNESS: I might do something
17 like -- well, are you asking how I would do
18 it -- well, with respect to the distribution of
19 nanotubes, I would just say that they're not
20 associated with each other or stuck to one
21 another, basically, along a substantial part of
22 their length, most of their length.

23 BY MR. ZINDA:

24 Q. Does a discrete carbon nanotube fiber
25 have to be disentangled from another carbon

1 **nanotube?**

2 MR. RIFFE: Objection, foundation.

3 THE WITNESS: To the extent that
4 entanglement might involve them being associated
5 with one another along a substantial part of
6 their length, you know, they shouldn't be,
7 although certainly in some cases, you know,
8 particularly long fibers might loop around one
9 another without actually being stuck together.

10 BY MR. ZINDA:

11 Q. Okay. Well, I'm going to ask again,
12 and I'm looking for a yes or no here because this
13 to me seems like a pretty straightforward
14 question. Does a discrete carbon nanotube fiber
15 have to be disentangled from another carbon
16 nanotube?

17 A. Well, it depends on how tight they're
18 entangled. I mean if they're entangled in such a
19 way that they associate with each other and are
20 basically pi-pi stacked with one another along a
21 substantial length, if that's part of the
22 entangling, then they would be, but if they're
23 entangled in such a way that they're just long
24 nanotubes that loop around and happen to loop
25 around one another, they are like pieces of string

1 or pieces of hose, you know, they can just -- if
2 they're long enough they just kind of might be
3 entangled, but they still might not be associated
4 with one another or stuck together along a
5 substantial length.

6 Q. Does a discrete carbon nanotube fiber
7 lack a direct association with another carbon
8 nanotube?

9 MR. RIFFE: Objection, incomplete
10 hypothetical.

11 THE WITNESS: Along a substantial part
12 of the length, which is what I said.

13 BY MR. ZINDA:

14 Q. From the perspective of a person of
15 ordinary skill in the art, what is an exfoliated
16 carbon nanotube fiber?

17 A. An exfoliated nanotube carbon fiber is
18 the same thing as a dispersed carbon nanotube
19 fiber.

20 Q. And when you say dispersed nanotube
21 fiber, do you mean it has to be dispersed apart
22 from another nanotube fiber?

23 A. Well, they would be discrete.

24 Q. So is it your testimony that an
25 exfoliated carbon nanotube fiber would be

1 understood by a person of ordinary skill in the
2 art to have the same meaning as a discrete carbon
3 nanotube fiber?

4 MR. RIFFE: Objection, legal
5 conclusion.

6 THE WITNESS: The words have, you
7 know -- they're slightly different words, I
8 would say, but I think that if you told a POSITA
9 that carbon nanotubes were exfoliated, that they
10 would believe them to be discrete or dispersed.

11 BY MR. ZINDA:

12 Q. Does an exfoliated carbon nanotube
13 have to be separate from other carbon nanotubes?

14 MR. RIFFE: Objection, form.

15 THE WITNESS: Well, as I said, it
16 would be along a substantial part of its length.

17 BY MR. ZINDA:

18 Q. Turning back to Claim One, do you see
19 the preamble of Claim One, and it says "A
20 composition for use as a binder material and
21 electrolyte material or a separator film material
22 of an energy-stored or collection device," did I
23 read that correctly?

24 A. You did.

25 Q. Would a person of ordinary skill in

1 the art understand that the claimed invention can
2 be used as a binder material?

3 A. Yes, that's what it says.

4 Q. And would a person of ordinary skill
5 in the art understand that the claimed composition
6 can be used as an electrolyte?

7 A. Yes, that's what the claim says.

8 Q. And would a person of ordinary skill
9 in the art understand that the claim composition
10 can be used as a separator film?

11 A. Yes.

12 Q. And what is a binder?

13 A. The binder is a material that is used
14 in an electrode to hold the active material
15 particles together. So the active material
16 particles are little ceramic particles, typically
17 lithium-containing, and you need some kind of
18 stuff to -- because they're crumbly, you need
19 something to stick it together, which is typically
20 a mixture of a polymer, and a conductive component
21 in the binder, which often is something like
22 carbon black, but, you know, in this particular
23 case is carbon nanotube.

24 Q. So is it a fair characterization to
25 say that the binder acts like a glue to hold

1 active material together?

2 A. Yeah, well, that's one of the things
3 it does, certainly.

4 Q. And is the reason that you add the
5 conductive -- did you call it, is it conductive
6 material or conductive agent, sorry?

7 A. Could be either. You've added a
8 conductive component to that binder. Electrically
9 conductive.

10 Q. Is the purpose of adding that
11 electrically conductive material to make the
12 binder more electrically conductive?

13 A. Yes.

14 Q. And is that to help achieve better
15 conductivity between your active material?

16 A. That's basically to allow the
17 electrons, which get separated from the lithium
18 cations at the cathode a path to get to the
19 current collector.

20 Q. And you mentioned carbon black before.
21 Are you familiar with the process where carbon
22 black would be mixed with resin to create an
23 electrically conductive binder?

24 A. Yes.

25 Q. And then that electrically-conductive

1 binder would then be mixed with the active
2 material to hold the active material particles
3 together?

4 A. Yes.

5 Q. And is it pretty common -- well, is it
6 your understanding that it was common to invent
7 carbon black within a binder to make it more
8 electrically conductive?

9 A. Yes.

10 Q. And in the 282 patent it talks about
11 using carbon nanotubes as a binder, correct?

12 A. It does.

13 Q. And that could be the same process
14 that you just described where the conductive --
15 the nanotubes are embedded within the binder and
16 then the binder is mixed with active material,
17 correct?

18 A. The nanotubes are part of the binder,
19 they're not embedded within the binder, they
20 comprise the binder. They're part of the binder.

21 Q. So you're putting the nanotubes in the
22 binder and then the binder with the nanotubes is
23 mixed with the active material?

24 A. The binder that includes the nanotubes
25 is part of the active material.

1 **Q. Got it. Okay. Thank you.**

2 **And now let's talk about the claims**
3 **mentioned an electrolyte. What is an electrolyte?**

4 A. The electrolyte is a material in a
5 battery that facilitates the transport of the
6 positively charge ions, lithium ions in the case
7 of a lithium ion battery, between the two
8 electrodes, so those ions diffuse between the two
9 electrodes to the electrolyte.

10 **Q. And what is the -- I guess how would**
11 **you characterize the structure of an electrolyte?**

12 A. Well, there are many different types
13 of electrolytes, and it's an area of active
14 research. Some electrolytes are, for instance,
15 organic liquids, some electrolytes are solid
16 polymers, some electrolytes are polymers swollen
17 with liquids. If you get out of the realm of
18 lithium ion batteries some electrolytes may be
19 aqueous.

20 **Q. And what is a separator? To be more**
21 **specific, what is a separate film material?**

22 A. A separator is something that is put
23 in the battery to keep the anoded cathode, the
24 positive and negative, or negative and positive I
25 guess in the order I named them, electrodes from

1 touching one another. So for instance, if you use
2 a liquid electrolyte, which is, you know, commonly
3 used in a lot of commercial lithium ion batteries,
4 that liquid by itself doesn't have the mechanical
5 structure to separate the anode from the cathode.
6 If the anode and cathode touch one another you get
7 this violent potentially dangerous explosive
8 reaction, so you need to separate them from one
9 another, and so -- and they could touch one
10 another if there's no structure in there to
11 separate them. For instance, when you're winding
12 a battery into a cylinder, for instance, and so a
13 porous material was put in there which provides
14 the structure that separates the two electrodes,
15 but also has a porosity that allows the
16 electrolyte to permeate it and allows the ions to
17 pass through it.

18 Q. So we talked -- the claims talk about
19 three different structures, a binder, an
20 electrolyte and a separator, right?

21 A. Yes.

22 Q. So when I say the three structures,
23 for this conversation that's referring to the
24 three we just talked about.

25 Do these three structures have

1 different ionic and electronic conductivity goals?

2 A. Yes.

3 Q. Can you walk me through -- let's start
4 with the binder. What is the electron -- the
5 ionic or electronic conductivity goal of a binder?

6 A. Well, the binder has to conduct
7 electrons because electrons need to make their way
8 to the current collector from the cathode or from
9 the current collector into the active material at
10 the anode, so you have to have some electrical
11 electron conductivity, but you also have to have
12 ion conductivity, both in, you know, in the
13 electrodes as well as in the electrolyte and the
14 separator, because basically the battery works
15 by -- the battery works by having the lithium ions
16 diffuse from one electrode to the other while the
17 electrons take another path through an external
18 circuit, and you have to have ion conductivity and
19 electron conductivity, in fact in both cases. You
20 don't want a lot of electron conductivity in the
21 electrolyte of the separator, they're supposed to
22 prevent the electrons from going across that gap
23 and really just allow the lithium ions, but you do
24 need some electron conductivity in the electrodes.

25 Q. And when you go down to the last

1 paragraph of Claim One, the wherein clause at the
2 end there, do you see that? It begins wherein 40
3 percent to 90 percent by number?

4 A. Yes, I see that.

5 Q. Okay. And you see that there's two
6 different concentration ranges, there's a 40 to 90
7 percent concentration range of discrete carbon
8 nanotubes with an aspect ratio of 30 to 70, and
9 then there's a second concentration of 1 percent
10 to 30 percent of discrete carbon nanotubes having
11 an aspect ratio of 80 to 140. Do you see that?

12 A. I do.

13 Q. So those two different concentrations,
14 would a POSITA understand those to be altered to
15 tailor the invention for a particular purpose such
16 as a binder or an electrolyte?

17 A. Yes.

18 Q. So in one case you might want for a
19 binder because you want higher
20 electroconductivity -- my understanding is you
21 want higher electroconductivity, you might want a
22 higher percentage -- you might want to use a
23 number in the higher portion of the 1 to 30
24 percent concentration because those are higher
25 aspect ratio nanotubes that would presumably give

1 **you better conductivity?**

2 A. Well, higher aspect ratio nanotubes
3 would give you better conductivity if you can get
4 them dispersed well in your material, in your
5 structure. It's always a trade-off to, you know,
6 trying to pick these aspect ratios, and it's never
7 really done in isolation for only one property.
8 You need to keep in mind, you know, multiple
9 different considerations when making that
10 decision.

11 Q. And depending on -- so you got these
12 two different concentration ranges in the claims
13 at the end there, and depending on which number
14 you pick within each concentration range, you can
15 dictate whether you have better or worse ionic or
16 electronic -- ionic or electronic conductivity, is
17 that fair?

18 A. A POSITA would certainly, you know, it
19 would be within their skill set to adjust the
20 aspect ratios and relative amounts within those
21 ranges to tailor, you know, the material for a
22 particular application, certainly.

23 Q. Could I get you to pull out LGES-1003,
24 which is -- I'll pull it out first.

25 A. That's my declaration. I have it

1 here.

2 Q. I'm sorry, I gave you the wrong
3 number. No, actually, that's fine. Can you go to
4 paragraph 26 for me? I think that's easier
5 because there's two page numbers on each page,
6 makes it very confusing to cite.

7 A. All right.

8 Q. In paragraph 26, do you see that the
9 heading here is -- the subheading is overview of
10 Bosniak 392?

11 A. Yes.

12 Q. And Bosniak 392 is LGES-1005, correct?

13 A. Yes.

14 Q. And just for the record, if you could
15 pull out LGES-1005.

16 A. Okay.

17 Q. In the top right, that is
18 international publication number W0 2010-117392.
19 Do you see that?

20 A. Yes.

21 Q. So when I refer to the Bosniak 392
22 reference, you understand I'm referring to that
23 document, correct?

24 A. Yes.

25 Q. And so going back to your Declaration,

1 paragraph 26, you describe Bosniak 392, and the
2 first sentence states "Bosniak 392 describes using
3 exfoliated carbon nanotubes." Is one of the goals
4 of Bosniak 392 to have discrete carbon nanotubes?

5 A. Certainly Bosniak 392 talks about
6 dispersed carbon nanotubes. I'm not sure -- let's
7 see.

8 Bosniak 392 talks about exfoliated
9 carbon nanotubes and dispersed carbon nanotubes.
10 They don't use the term discrete very much, as far
11 as I can tell.

12 Q. Right. Well, so is exfoliated
13 nanotubes different than discrete carbon
14 nanotubes?

15 A. No. A POSITA would certainly
16 associate those two terms with a similar
17 arrangement of material.

18 Q. When you say similar arrangement of
19 material, but does exfoliated carbon nanotube mean
20 the same thing as discrete carbon nanotube?

21 MR. RIFFE: Objection, asked and
22 answered.

23 THE WITNESS: Yeah, I mean I think
24 that discrete, you know, carbon nanotubes are
25 nanotubes that are not associated with other

1 nanotubes along a substantial portion of their
2 length, and I think that that statement's also
3 consistent with what a POSITA would believe
4 exfoliated carbon nanotubes are.

5 Q. So is a discrete carbon nanotube
6 necessarily an exfoliated carbon nanotube?

7 A. I have not thought through all the
8 possible scenarios there, but in general,
9 exfoliated carbon nanotubes are usually discrete,
10 I think a POSITA would believe them to be
11 discrete.

12 Q. If I can get you to turn to LGES-1005,
13 which is Bosniak 392, can I get you to turn to
14 paragraph 8 of that reference.

15 A. Okay.

16 Okay.

17 Q. And you can, if you want to read that
18 to yourself, I mean it's pretty short, and just
19 let me know when you're done. You don't have to
20 read it out loud.

21 MR. RIFFE: Stephen, again, could you
22 repeat that paragraph?

23 MR. ZINDA: Sure. It's paragraph 8 of
24 Bosniak 392.

25 MR. RIFFE: Thanks.

1 MR. ZINDA: No problem.

2 THE WITNESS: Yeah, I've read that.

3 BY MR. ZINDA:

4 Q. Based on that paragraph, is it a goal
5 of Bosniak 392 to achieve discrete carbon
6 nanotubes?

7 A. Well, it says "Compositions of
8 exfoliated carbon nanotubes are disclosed.
9 Exfoliated carbon nanotubes are dispersed in solid
10 state and/or maintained in exfoliated state
11 without being dispersed in a continuous matrix."

12 So what they're saying there is, for
13 instance, that the carbon nanotubes may be
14 dispersed or exfoliated or separated from one
15 another, say in a solution, or in some kind of a,
16 you know, liquid kind of state because they used
17 an acid, or maybe they used these little nano
18 platelets in a liquid, and what they're saying is
19 that you can then dry off that liquid and the
20 nanotubes will kind of collapse down on one
21 another. Right? So they were floating around
22 substantially separate from one another in this
23 liquid, but then you've either filtered them, they
24 talk a lot about filtering, or you've dried it and
25 then there's no liquid anymore between them, so by

1 gravity they just collapse onto one another, but
2 then that mat of material that they talk about,
3 the nanotubes have not sort of reattached to one
4 another. They may be entangled, they may be
5 touching one another, but they've not sort of
6 reattached and re-bonded to one another along
7 their length such that they can then be easily
8 re-dispersed in a liquid or in, say, a polymer
9 precursor to make a composite.

10 Q. So just to make sure I'm
11 understanding, so you're saying that they mixed
12 the -- well, let me walk you through the way I'm
13 picturing this and you tell me where I'm getting
14 it wrong if I am, but the way I picture it is you
15 have a bundle of carbon nanotubes, they mix it in
16 a solution to separate out the carbon nanotubes,
17 and then I think you used the word they're
18 floating around, so you've got all these nanotubes
19 floating around, and then they dry them off and
20 they kind of come back together. Is that
21 generally kind of what you're saying?

22 A. I wouldn't say they come back
23 together. That implies that there's some
24 similarity between the initial state and the
25 second state after you've filtered them or dried

1 them off. In the initial state the nanotubes may
2 be aggregated in bundles as they come from the
3 manufacturer due to the electronic structure of
4 the surface of the nanotubes they associate with
5 one another, but then after one of a number of
6 different separation processes that are discussed
7 in Bosniak 392, they're no longer associated with
8 one another along a substantial portion of their
9 length, but if you remove the liquid that they're
10 floating around in, just by gravity, they do have
11 to collapse on one another.

12 It's kind of like pasta noodles in a
13 pot of boiling water all floating around with
14 water between them, and then if you strain the
15 noodles by gravity they have to fall on top of one
16 another, but that doesn't mean that they've, you
17 know, reattached along their length.

18 **Q. You use the word -- you talk about**
19 **attached along their length between carbon**
20 **nanotubes. How does that attachment occur?**

21 A. It's a physical association of pi
22 orbitals in the surface of the carbon sheet
23 structures in the carbon nanotubes.

24 **Q. Is that -- are those referred to as**
25 **Van der Waals forces, or is that a --**

1 A. It could be. There's Van der Waals
2 forces involved. There's also something called
3 pi-pi stacking, which is a little bit different.

4 Q. So there could be -- this attachment
5 can occur, Van der Waals forces and/or the pi-pi
6 stacking that you referenced?

7 A. They're both occurring.

8 Q. And that's -- okay. That's how the
9 nanotubes are attached together, the way you
10 described it?

11 A. That's how they would be initially
12 attached to one another, before the process is
13 taught, you know, in this various art.

14 Q. Understood. So I want to the turn
15 your attention, Dr. Guido, to LGES-1008, which is a
16 reference you'll know by shorthand Son, S-O-N?

17 A. Yes.

18 Q. And if you look at the top right --
19 well, let me know when you have it up.

20 A. Okay.

21 Q. So on the top right you see it says
22 publication 10-2010-0086854?

23 A. Yes.

24 Q. And it's an LGES-1008 is a Korean
25 patent application publication, is that correct?

1 A. Well, it's a -- what I have is an
2 English translation of that, but yes.

3 Q. Okay, fair, yes, so LEGS-1008 is an
4 English translation of this Korean patent
5 application, correct?

6 A. Yes.

7 Q. So when I refer to Son, you understand
8 I'm referring to LGES-1008, which is this Korean
9 publication?

10 A. Yes.

11 Q. And if I could get you to turn to
12 paragraphs 20 to 22 of Son.

13 A. Yes, I'm there.

14 Q. Can you -- so starting with paragraph
15 20 Son describes how it uses -- in reference to
16 Figure One it uses carbon nanotubes with a, quote
17 unquote, large aspect ratio that it refers to as
18 carbon nanotube A, and then carbon nanotubes with
19 small aspect ratio that it references to as carbon
20 nanotube B. Do you see that?

21 A. Yes.

22 Q. Do you know why Son is using these two
23 different aspect -- these small and large aspect
24 ratio carbon nanotubes?

25 A. Yes. Son tells you in their

1 specification why they're doing that.

2 Q. So let's go to paragraph 21. And you
3 can read that to yourself and let me know when
4 you're finished.

5 A. Yes.

6 Q. So is Son describing in paragraph 21
7 how the small aspect ratio carbon nanotubes are
8 more -- have, quote unquote, excellent
9 dispersability whereas the large aspect ratio
10 nanotubes have better electrical properties?

11 A. That's what it says.

12 Q. And going to paragraph 22, that first
13 sentence he says "Therefore, as shown in Figure
14 Two, it is possible to prevent the rupture of the
15 carbon nanotubes even through the injection
16 process so that the electrical network before
17 injection can be maintained. Then it says -- did
18 I read that correctly?

19 A. You did.

20 Q. Let me read the second sentence real
21 quick. "As shown in Figure Three the electrical
22 network is mainly composed of carbon nanotubes
23 having a large aspect ratio. The portion marked
24 with dots in Figure Three is a position where an
25 electric contact is made."

1 So paragraphs 20 to 22 are referring
2 to the embodiment in Figures One to Three,
3 correct?

4 A. Let me take a look at Figures One to
5 Three.

6 Yes, they are -- well, they're
7 referring to those figures in that discussion,
8 yes.

9 Q. And when it talks about in paragraph
10 22 maintaining the electrical network, or it says
11 in the first sentence it refers to electrical
12 network that is, quote unquote, maintained, is
13 that referring to the connections in Figure Three
14 that are represented by the little dots?

15 A. Let me read what they're saying again.
16 The figure is highly schematic, so, you know,
17 obviously those connections aren't little groups
18 of dots in real life, so I'm trying to figure out
19 exactly how they're using -- the portion marked
20 with dots is a portion where electrical contact is
21 made. So that's what they are indicating with
22 those dots.

23 Q. So the way I kind of conceptually view
24 this as admittedly a layperson is I kind of view
25 the large aspect ratio nanotubes are essentially

1 acting as electrically conductive highways
2 throughout the material, and the smaller aspect
3 ratio nanotubes are helping to get into the areas
4 that the larger ones can't, for dispersability.
5 Is that a fair characterization, or am I wrong?

6 A. There's some of that going on. I mean
7 certainly the long range electrical conductivity
8 throughout this material is mostly taking place by
9 the network of the larger nanotubes, but the
10 smaller ones also sometimes are bridging between
11 the larger ones. I mean all the nanotubes are
12 contributing to the electrical conductivity. The
13 longer ones, you know, are certainly more
14 effective, at least with respect to the electrical
15 conductivity property, which is basically one of
16 the two properties that Son is concerned with.

17 Q. Right, and based on my reading of Son
18 is that it -- once the electrical conductivity
19 provided that -- I guess the network conductivity
20 provided by the larger aspect ratio, but it
21 recognizes that the larger aspect ratio nanotubes
22 aren't as dispersible as the smaller aspect ratio
23 nanotubes, is that fair?

24 A. That is kind of the gist of Son's
25 teaching, yes.

1 Q. And one of the goals of Son, like in
2 many other composite materials, is to provide
3 improved electrical conductivity throughout the
4 composition, correct?

5 A. That is one of the goals.

6 Q. Now, one thing I wanted to point out
7 is, I noticed in Figure Three it says carbon
8 nanotube A, it identifies a carbon nanotube A and
9 a carbon nanotube B. Do you see that?

10 A. Yes.

11 Q. And carbon nanotube B, would you agree
12 that appears to be the larger aspect ratio
13 nanotube?

14 A. Yes. This is all very confusing as
15 opposed to the first nanotube being B and the
16 second nanotube being A, but that looks to me like
17 it might be turned around.

18 Q. That was my point. As a person
19 skilled in the art reading this, and we can go to
20 the text, actually, but would you agree that it
21 appears that there's an error in that they've
22 flipped carbon nanotube A and B as between Figure
23 Two and Figure Three?

24 A. Yes, that appears to be the case, and
25 I don't know -- there were a number of things that

1 in this, you know, piece of prior art that I asked
2 native Korean speakers to look at the original and
3 tell me what it said, because, you know, of
4 potential ambiguities in the -- or, you know,
5 issues with the translation, so it's not entirely
6 clear to me. We'd have to look at the original
7 Korean, whether they -- whether that was reversed
8 in the original Korean as well, or whether maybe
9 the translator got turned around and started
10 thinking, you know, maybe carbon nanotube 1 ought
11 to be carbon nanotube A and carbon nanotube 2
12 ought to be carbon nanotube B, which would seem
13 logical to a native English speaker.

14 I think that the patent people that
15 did this patent A and B, it's not really their
16 alphabet, so they're just symbols to them, and
17 there's no reason why one is necessarily before
18 the other. So yeah, I don't know.

19 Q. Let me ask you this way. If you go to
20 the text of, let me see here, paragraph 21, and it
21 says "As a result, the excellent dispersability of
22 the carbon nanotube B with the small aspect ratio
23 and the electrical properties of the carbon
24 nanotube A with the large aspect ratio are
25 simultaneously expressed." Would you agree at

1 least there it is -- the text is describing the
2 larger aspect ratio as being carbon nanotube A and
3 the smaller -- the carbon nanotube with the
4 smaller aspect ratio is being carbon nanotube B?

5 A. Yes. That's what it says there, and
6 that is in fact the consistent usage throughout
7 Son, except in this figure labeling.

8 Q. Right. And for the figures to be
9 consistent, if you were viewing the figures as
10 intending to be consistent, a POSITA would read
11 Figure Three where carbon nanotube A and carbon
12 nanotube B are reversed, correct?

13 A. Yeah. Well, if you look at Figure Two
14 above, the labeling is, you know, consistent in
15 Figure Two with what it says in the specification
16 and the text, but then it's reversed when you go
17 to Figure Three, so yeah. And like I said, I
18 don't know whether that's actually in the original
19 patent or whether it is something that the
20 translator did and -- at any rate, a POSITA would
21 certainly recognize that to just be a simple
22 error.

23 Q. Understood. So in Figure Three, the
24 nanotubes, if we look at the one that's identified
25 as carbon nanotube B, which is in this figure the

1 larger aspect ratio nanotube -- strike the
2 question.

3 Let's start with carbon nanotube A in
4 Figure Three, which is the smaller aspect ratio
5 nanotube, correct?

6 A. That is the way it's mislabeled,
7 basically, in Figure Three.

8 Q. Correct, yes. So carbon nanotube A in
9 Figure Three appears to be a smaller aspect ratio
10 nanotube, correct?

11 A. That's what it shows in Figure Three,
12 again mistakenly, I believe.

13 Q. And in Figure Three the nanotube that
14 is labeled carbon nanotube A, is it your opinion
15 that's discrete?

16 A. I mean, this is just a drawing, so,
17 you know, it's just a drawing, but certainly it's
18 not associated with another drawing of another
19 nanotube along a substantial portion of its
20 length, so it would be discrete.

21 Q. And then assuming that this Figure
22 Three is somewhat realistic, same question for the
23 nanotube, the large aspect ratio nanotube labeled
24 carbon nanotube B, would you consider that to be
25 discrete?

1 A. Yeah, it would be discrete, although
2 it appears in the figure that it, you know, is
3 touching other carbon nanotubes at sort of a
4 point, which is, you know, necessary, or is
5 important to get this electrical conductivity that
6 they want, and so you want the nanotubes to be
7 discrete, but they need to have some point
8 contacts to preserve the conductivity.

9 I would also indicate that you see in
10 this drawing, and it's just a drawing, but you
11 always have this issue when looking at either
12 drawings of this type of structure or even looking
13 at some things like electronic scope images, that
14 these are, you know, inherently three-dimensional
15 arrangements of objects, of the nanotubes, and in
16 this sort of two-dimensional image nanotubes that
17 look like they're crossing one another, for
18 instance, might be passing over and under one
19 another and not touching in the polymer matrix
20 composite or in the solution that they're in. And
21 so, you know, the inventors here, Son, they marked
22 with those little dots where they're saying
23 there's a contact point, but then there are other
24 places where the tubes cross one another that
25 there aren't little dots, and there's no

1 explanation of that given by Son, but a POSITA
2 looking at that might reasonably draw the
3 inference that those tubes that appear to cross
4 one another are not actually touching, they're
5 going above and below one another.

6 Q. And do you see in Figure Three, in the
7 top left quadrant there's a large aspect ratio
8 nanotube, do you see that one?

9 A. Sure. You mean right underneath the
10 one that's labeled carbon nanotube A?

11 Q. Correct.

12 A. Yes.

13 Q. And then do you see beneath that large
14 aspect ratio nanotube there's another nanotube,
15 another large aspect ratio nanotube that's
16 somewhat parallel with the one in the top left, do
17 you see that one?

18 A. Yeah, I mean it is -- it is for part
19 of its length, but then it sort of deviates, but
20 okay.

21 Q. Right. Would you consider that large
22 aspect ratio nanotube to be discrete?

23 A. Yeah, similarly it is not associated
24 with other nanotubes along a substantial portion
25 of its length. There are indicated there, at

1 least schematically, places where there's, you
2 know, supposedly contact with other nanotubes, but
3 it's not along a substantial portion of the
4 length, it's not bundled, it's just a point
5 contact, and that's what Son wants anyway for
6 electrical conductivity.

7 **Q. When carbon nanotubes are made, are**
8 **they -- do they start off bundled?**

9 A. Generally yes, they do start off
10 bundled.

11 **Q. And why is that?**

12 A. Just because of the process. They
13 might grow from a catalyst on a surface and they
14 all grow kind of in a parallel bunch. It kind of
15 has to do with how they grow.

16 **Q. And when carbon nanotubes are**
17 **purchased commercially from a supplier, do they**
18 **come bundled?**

19 A. Generally, yes.

20 **Q. So generally you have to do something**
21 **to make them unbundle once you've purchased them**
22 **then?**

23 A. Well, if what you want are discrete
24 nanotubes you would.

25 **Q. And when you -- when -- do bundles of**

1 CNTs all have the same -- do the CNTs in the
2 bundle of CNTs that you can purchase have the same
3 diameter?

4 A. Depends on how they're made. Some do,
5 some don't.

6 Q. So you said that you can purchase them
7 when they have, or every nanotube in the bundle
8 has the same, exact same diameter?

9 A. It won't be exactly the same, you
10 know, but you could purchase single-walled, you
11 know, single-walled nanotubes which would be
12 aggregates of single-walled nanotubes that have
13 similar diameters, or if they're multi-walled
14 nanotubes they may also have similar diameters,
15 but they may have a distribution of diameters. It
16 depends on the samples, depends on how it's made.

17 Q. So to better -- for me to better
18 understand this, so it sounds like for single --
19 for single-walled -- strike that.

20 It sounds like for single-walled
21 carbon nanotubes there's like kind of a known
22 diameter for those, is that true?

23 A. No. There's still some variability,
24 but they tend to be small, on the order of about a
25 nanometer, a little less than that, a little

1 bigger than that.

2 Q. So you kind of have an idea a POSITA
3 that a single-walled carbon nanotube is probably
4 going to have a diameter of a micrometer or less?

5 A. Yes.

6 Q. And then for multi-wall carbon
7 nanotubes, there can be a much wider range of
8 diameters, but you can purchase them where the
9 diameters fall within a certain average, is that
10 fair to say, or diameter range?

11 A. Yes.

12 Q. If I could get you to turn to
13 paragraph 50 of your Declaration.

14 A. Oh, boy, 33 matches for 50.

15 Q. I bet. Let me help you out here.

16 A. I'll just scroll down through it.

17 Q. Page 29 of the PDF, if that helps.

18 A. Yeah, because there's, you know,
19 there's all kinds of 500s in there, and everything
20 else that pops up.

21 Okay. All right.

22 Q. And you see where you say "The weight
23 ratio of carbon nanotube A/carbon nanotube B may
24 be 0.1 to 10?

25 A. Yes.

1 Q. So that means you could have one
2 hundred times more of one group than the other
3 group, and vice versa, correct?

4 A. No. Ten times more.

5 Q. Why is it ten if it's 0.1 to 10 rather
6 than 1 to 10?

7 A. No, that's from -- basically the ratio
8 is from one-tenth to ten, and so a hundredth would
9 be .01.

10 Q. Okay. I see.

11 If I could get you to go to paragraph
12 52 of your Declaration.

13 A. Yes.

14 Q. You say "For my first approach." Can
15 you just give me a high level explanation of what
16 you mean by "my first approach"?

17 A. Well, the first approach is to say
18 that the number average distribution and the
19 weight average distribution are the same. So if a
20 certain, you know -- for instance, if Son is
21 teaching a certain distribution and it's a -- say
22 it's a weight distribution, that the number
23 distribution would be the same.

24 Q. So if the first approach, starting at
25 paragraph 52 of your Declaration, you're assuming

1 **that every carbon nanotube has the same weight,**
2 **correct?**

3 A. Yes, that is the case. And I do that
4 because Son does say in one place that the number
5 base and the -- it basically quotes the same range
6 for both the number based and the weight based
7 distributions. I think this is paragraph 29 of
8 Son says that. So to some degree to use Son, I
9 don't really even have to go through a conversion
10 from a number based distribution -- from a mass
11 based distribution to a number based distribution
12 because Son also discloses the same ranges at 29
13 that it does for mass, you know, for mass
14 distribution of aspect ratios, as it does, you
15 know, number. So it discloses them both.

16 But, you know, regardless, I do go
17 through a whole bunch of other calculations, but
18 at least in that one place Son is saying that
19 number aspect -- number frequencies of different
20 aspect ratios, they're quoting them as well.

21 **Q. Okay, but in reality carbon nanotubes**
22 **having different aspect ratios don't necessarily**
23 **have the same weight, do they?**

24 A. They do not.

25 **Q. So if you had a carbon nanotube with**

1 an aspect ratio of ten and another carbon nanotube
2 with an aspect ratio of a hundred, you would
3 assume they don't have the same weight, right?

4 A. Probably not.

5 Q. And if all carbon nanotubes had the
6 same diameter, the carbon nanotube with an aspect
7 ratio of 20 would be twice as long as one with an
8 aspect ratio of 10, correct?

9 A. Yes.

10 Q. And you would expect that an aspect
11 ratio of 20 would be twice as heavy as the aspect
12 ratio of 10, correct?

13 A. Yes.

14 Q. Now I want to go to paragraph 55 of
15 your Declaration?

16 A. Yes.

17 Q. You say in the first sentence "For my
18 second --" well, actually let me start the same
19 way I started the last one. Can you give me the
20 cliff notes version of what your second approach
21 is in paragraph 55?

22 A. So here I am acknowledging what you've
23 just said, which is that longer nanotubes will
24 probably be heavier than shorter nanotubes, and if
25 in fact they have the same diameter, then one

1 that's twice as long will be twice as heavy as the
2 shorter one. And so using, you know, that
3 knowledge, one can correct the aspect ratio
4 fractions taught by Son on a mass basis to reflect
5 a number basis.

6 Q. But for this second approach in
7 paragraph 55 you're assuming that the diameter of
8 all the nanotubes is the same, correct?

9 A. Yes.

10 Q. And where in paragraph -- you cite to
11 paragraph 5 of Son in the first sentence.

12 A. Yes.

13 Q. Where in that paragraph of Son does it
14 mention diameter?

15 A. It does not.

16 Q. In fact in paragraph 5 it talks about
17 length, correct? Let me strike that.

18 In paragraph 5 it talks about carbon
19 nanotube length, but it does not talk about carbon
20 nanotube diameter, correct?

21 A. It talks about aspect ratio, it talks
22 about length.

23 Q. Right, and that paragraph, paragraph 5
24 of Son describes how you can -- how the length of
25 a carbon nanotube can be shortened to affect its

1 **aspect ratio, correct?**

2 A. Well, it says that shorter lengths
3 improve the compatibility with polymers, and
4 therefore mechanical properties. It doesn't
5 really include a statement of how that shortening
6 impacts aspect ratio, in that reference. I mean,
7 you know, a POSITA understands that shortening the
8 nanotube will certainly impact the aspect ratio.

9 **Q. If we can go back to your Declaration,**
10 **I'd like to go to paragraph 58, which is your**
11 **third approach.**

12 A. Yes.

13 **Q. Can you explain what the third**
14 **approach is?**

15 A. Yes. So this is, you know, more
16 involved, and what I'm doing here is I'm taking
17 examples taught by Son, they're examples 2 and 3,
18 which give at paragraph 42, it says what the --
19 there's two different, you know, populations of
20 nanotubes that have average aspect ratios of 150
21 and 50, and then in those embodiments, or
22 examples, those two aspect ratio tubes are mixed
23 together in different relative amounts, and what
24 I'm doing in this approach is recognizing that
25 first of all, when Son says that they have an

1 average aspect ratio of say 150 or of 50, that
2 doesn't mean that all those tubes have that aspect
3 ratio. There's a distribution. And Son draws
4 some pictures of distributions, but they're just
5 pictures, and in order to do a conversion from a
6 weight basis to a number basis, because Son is
7 listing for these examples, Son is, you know,
8 giving these compositions on a weight basis rather
9 than a number basis, we need to have a
10 mathematical representation of the distribution.
11 Right? So for that I am using a log-normal
12 distribution, which is in this write-up further
13 down, or maybe it's further up, no, it's further
14 down, and that is a distribution which has been
15 found and is known to a POSITA to be
16 representative of the distribution of carbon
17 nanotubes in populations that are produced by
18 similar methods as taught in Son, and also by the
19 282 patent, and so basically what I'm doing is I
20 am making a bimodal distribution of two
21 populations of nanotubes that have their location
22 of the peak of distribution or the location of
23 average of the distribution, which are actually
24 two slightly different things, matching the aspect
25 ratios that are given in those examples, so 50 and

1 150, and I use that to construct a model for the
2 bimodal distribution in these Son embodiments on a
3 mass basis, and then I go through a mathematical
4 calculation, which is something that's actually
5 kind of well known in polymer science, so in
6 polymers, which are also objects that kind of have
7 a similar structure and they vary in mass
8 depending on how long they are, number
9 distributions and weight distributions, the weight
10 is an important issue in polymers, so somebody
11 with a background in polymers and undergraduate
12 education knows how to do this conversion, but --
13 I do the conversion, I work through all the
14 examples and explain it in full rigor in my
15 Declaration, so, you know, even if you're not
16 familiar with it, if you, you know, have taken
17 undergraduate math you should be able to follow
18 it, and there's no -- yeah. So I basically use
19 that to convert from the Son mass distribution
20 bimodal arrangement to a number distribution. So
21 that's what's being done there.

22 Q. And does the third approach also
23 assume that you have carbon nanotubes that are
24 across the diameter?

25 A. It does not.

1 MR. ZINDA: You want to take a five
2 minute break?

3 THE WITNESS: Sure.

4 MR. ZINDA: Okay, five minutes.
5 Thanks, guys.

6 (Off record: 12:06 p.m. to 12:12 p.m.)

7 BY MR. ZINDA:

8 Q. Dr. Gido, one of the last questions,
9 maybe it was the last question I asked you, was
10 whether or not in the, quote unquote, third
11 approach discussed in paragraph 58 of your
12 Declaration, whether you assumed that the diameter
13 of the carbon nanotubes was the same. Do you
14 remember that question?

15 A. Yes.

16 Q. And your answer was that you were not
17 assuming that they were the same diameter.

18 A. That's right.

19 Q. Can I get you to go to paragraph 63 of
20 your Declaration. And it runs over to the
21 following page. But in the last sentence of that
22 paragraph you say "If we assume that the
23 distribution of carbon nanotube diameters is
24 similar across the range of aspect ratios range of
25 length then," so are you assuming that the

1 diameter of the carbon nanotubes is similar?

2 A. I'm assuming that -- well, there can
3 be any distribution of diameters. It could be
4 single modal, it could be bimodal, it could be any
5 distribution. I'm just saying that whatever that
6 distribution is, it's the same for carbon
7 nanotubes in the population of different lengths,
8 basically. And they can be represented by an
9 average.

10 Q. Could I get you to turn to LGES-1009.

11 A. What is 1009?

12 Q. It's referred to -- it's an article by
13 Julio Albuerne.

14 A. All right.

15 Sure. I have it.

16 Q. Okay, great. And before I ask you a
17 question about this reference, just to clarify,
18 you and I have both been using the word POSITA,
19 P-O-S-I-T-A, throughout this deposition, and that
20 refers to a person of ordinary skill in the art,
21 correct?

22 A. Yes.

23 Q. And that's how you've consistently
24 been using that term throughout the deposition,
25 correct?

1 A. Yes.

2 Q. So turning to LGES-1009 that is an
3 article titled Modification of Multi-wall Carbon
4 Nanotubes By Grafting From Controlled
5 Polymerization of Styrene. Effect of the
6 Characteristics of the Nanotubes. Did I say that
7 right?

8 A. Yes.

9 Q. And this is an article by Julio
10 Albuerne and other authors, correct?

11 A. Yes. I mean, as with a lot of these
12 academic articles, actually the last author is the
13 senior author. Volker Abetz is somebody I know.
14 The other people are students from post ox,
15 probably, but we've been referring to this by the
16 first author, Albuerne, so yes.

17 Q. So this Albuerne reference, if I could
18 get you to turn to, give me one second, page 6.

19 A. Could you give me the actual page in
20 the journal?

21 Q. Oh, it's 1040.

22 A. Okay.

23 Q. You see in the top left there's a
24 Figure Five?

25 A. Yes.

1 Q. And do you see that beneath Figure
2 Five and beneath the text that's actually just
3 below the figure, or right next to the words
4 Figure Five, there's other text, and it starts
5 "Approximately 100 independent length measurements
6 were done," do you see that?

7 A. This is where? This is in the text
8 below?

9 Q. Under Figure Five.

10 A. Yeah.

11 Q. If you go down toward -- where it
12 starts "be appreciated in Figure Five," do you see
13 that?

14 A. Yes.

15 Q. And then the --

16 A. Oh, I see. It's just right after
17 that. I was somehow drawn to the next full
18 paragraph, but it's just -- okay, I see.

19 Q. It says "Approximately 100 independent
20 length measurements were done on each case from
21 different positions on several silicon wafers."
22 Did I read that right?

23 A. You did.

24 Q. And that's -- is that referring to
25 measuring 100 different multi-wall carbon

1 **nanotubes?**

2 A. Yes, that's what they're saying.

3 **Q. And do you know what fraction of the**
4 **total number of carbon nanotubes that are in the**
5 **sample, what fraction would 100 be?**

6 A. I haven't really thought about that,
7 but certainly not a high percentage. It would be
8 a very small percentage.

9 **Q. In Albuerne he says his experiment**
10 **begins with one gram of multi-wall carbon**
11 **nanotubes, correct?**

12 A. Yes.

13 **Q. How many multi-wall carbon nanotubes**
14 **would you estimate would be in a one gram sample?**

15 MR. RIFFE: Objection, speculation.

16 THE WITNESS: Well, yeah, I mean that
17 would be -- I guess it would be a calculation
18 that I could do. I'm not going to perform that
19 calculation here. You know, you basically would
20 need to know some information about the lengths
21 of the nanotubes and, you know, their weight,
22 which I did calculate in that, you know,
23 previous example we showed, but yeah, I mean you
24 could make an approximation, but the answer is
25 going to be, you know, a very large number. I

1 mean billions, more than billions.

2 BY MR. ZINDA:

3 Q. Greater than billions. So the
4 measurements that are made in -- the results in
5 Figure Five are based on the measurement of 100
6 multi-wall carbon nanotubes, correct?

7 A. That's what it says.

8 Q. And that's out of a sample that you
9 say would have billions of multi-wall carbon
10 nanotubes, correct?

11 A. Yes.

12 Q. And then do you read the graph in
13 Figure Five of Albuerne to show that the sample
14 has more than twice as many carbon nanotubes with
15 a length of 1,000 nanometers than a length of 750
16 nanometers?

17 A. Well, first of all, we're talking
18 about the orange bars, presumably, because that's
19 what I discussed, right? And certainly there is a
20 bar around 750, I suppose. I mean it's not
21 labeled between 500 and 1,000, but that bar seems
22 to be kind of midway between the 500 and 1,000.
23 And that bar certainly is less than half of the
24 one that -- maybe half, maybe less than half,
25 although less than half of the one that's at

1 1,000.

2 MR. ZINDA: Pass the witness.

3 MR. RIFFE: Give us just a couple
4 minutes.

5 MR. ZINDA: Sure.

6 MR. RIFFE: We'll come back.

7 (Off record: 12:20 p.m. to 12:23 p.m.)

8 MR. RIFFE: We have no further
9 questions at this time.

10 THE REPORTER: Could I get orders of
11 the transcript for the record?

12 MR. ZINDA: We would like rush
13 transcript.

14 MR. RIFFE: We don't necessarily need
15 a rush. We're the petitioners. Normal delivery
16 for us.

17 (Deposition concluded: 12:25 p.m.)

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JURAT

I, Samuel Gido, do hereby certify that the foregoing testimony taken on March 20, 2025, is true and accurate, including any corrections noted on the corrections page, to the best of my knowledge and belief.

Samuel Gido

At _____ in said county of _____, this _____ day of _____, 2025, personally appeared Samuel Gido, and he made oath to the truth of the foregoing corrections by him subscribed.

Before me, _____, Notary Public
My commission expires:

1 TRANSCRIPT CORRECTIONS

2 REPORTER: Wendy Allen, RMR, CRR
3

4 CASE STYLE: LG ENERGY SOLUTION LTD.
5 VS
6 MOLECULAR REBAR DESIGN, LLC

7 PAGE LINE CORRECTION REASON

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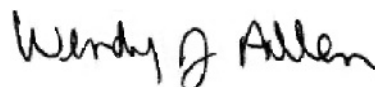
25 DATE : _____

CERTIFICATE OF REPORTER

I, Wendy Allen, a RMR, CRR/Notary Public within and for the State of Connecticut, do hereby certify there came remotely before me, on the 20th day of March, 2025, the following named person, to wit: Samuel Gido, who was by me duly sworn to testify to the truth and nothing but the truth; that he was thereupon carefully examined upon his oath and his examination reduced to writing under my supervision; that this deposition is a true record of the testimony given by the witness.

I further certify that I am neither counsel for, related to, nor employed by any of the parties to the action in which this deposition is taken; and further, that I am not a relative or employee of any attorney or counsel employed by the parties hereto, nor financially or otherwise interested in the outcome of the action.

WITNESS my hand and affixed my seal this 24th day of March, 2025.



Wendy Allen, RMR, CRR

My commission expires: April 30, 2025

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