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CORPORATION, FUJI SOLAR CO., LTD.,
VIETNAM SUNERGY JOINT STOCK
COMPANY, VIETNAM SUNERGY (BAC
NINH) COMPANY LIMITED, VSUN
SOLAR USA INC., TOYO CO., LTD.,
and TOYO SOLAR COMPANY LIMITED
F/K/A VIETNAM SUNERGY CELL COMPANY LTD.

**UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA
SAN FRANCISCO DIVISION**

SHANGHAI JINKO GREEN ENERGY
ENTERPRISE MANAGEMENT CO., LTD. and
ZHEJIANG JINKO SOLAR CO., LTD.,

Plaintiffs,

vs.

ABALANCE CORPORATION, WWB
CORPORATION, FUJI SOLAR CO., LTD.,
VIETNAM SUNERGY JOINT STOCK
COMPANY, VIETNAM SUNERGY (BAC
NINH) COMPANY LIMITED, VSUN SOLAR
USA INC., TOYO CO., LTD., and VIETNAM
SUNERGY CELL COMPANY LTD.,

Defendants.

Case No. 3:24-cv-08828-JSC

**VIETNAM SUNERGY JOINT STOCK
COMPANY, VIETNAM SUNERGY (BAC
NINH) COMPANY LIMITED, VSUN
SOLAR USA INC., TOYO CO., LTD., AND
TOYO SOLAR COMPANY LIMITED
F/K/A VIETNAM SUNERGY CELL
COMPANY LTD.'S ANSWER AND
AFFIRMATIVE DEFENSES TO
COMPLAINT**

JURY TRIAL DEMANDED

Defendants Vietnam Sunergy Joint Stock Company, Vietnam Sunergy (Bac Ninh) Company Limited, VSUN Solar USA Inc., TOYO Co., Ltd., and TOYO Solar Company Limited f/k/a Vietnam Sunergy Cell Company Ltd. (“VSUN and TOYO Defendants”), through their undersigned attorneys, hereby answer Plaintiffs Shanghai Jinko Green Energy Enterprise Management Co., Ltd. and Zhejiang Jinko Solar Co., Ltd.’s (“Plaintiffs” or “Jinko”) Complaint (“Complaint”) and state their affirmative defenses as follows. The VSUN and TOYO Defendants provide this Answer subject to, and without waiving, their right to protect from disclosure all communications protected by the attorney-client privilege, the attorney work product doctrine, and any other applicable privilege or applicable discovery protection. Each paragraph of the Answer below responds to the corresponding numbered or lettered paragraph of the Complaint. The VSUN and TOYO Defendants deny all allegations and characterizations, including those contained in any headings in the Complaint and that are used herein solely for organizational purposes, except as expressly admitted in the following paragraphs.

RESPONSE TO ALLEGATIONS

AND NOW, incorporating the foregoing, the VSUN and TOYO Defendants further answer the allegations in the Complaint as follows:

THE PARTIES

1. The VSUN and TOYO Defendants lack information sufficient to form a belief as to the truth of the allegations of paragraph 1, and on that basis deny the allegations of paragraph 1 of the Complaint.

2. The VSUN and TOYO Defendants lack information sufficient to form a belief as to the truth of the allegations of paragraph 2, and on that basis deny the allegations of paragraph 2 of the Complaint.

3. The VSUN and TOYO Defendants admit the allegations of paragraph 3 of the Complaint.

4. The VSUN and TOYO Defendants admit the allegations of paragraph 4 of the Complaint.

1 5. The VSUN and TOYO Defendants admit the allegations of paragraph 5 of the
2 Complaint.

3 6. The VSUN and TOYO Defendants admit the allegations of paragraph 6 of the
4 Complaint.

5 7. The VSUN and TOYO Defendants admit the allegations of paragraph 7 of the
6 Complaint.

7 8. The VSUN and TOYO Defendants admit the allegations of paragraph 8 of the
8 Complaint.

9 9. The VSUN and TOYO Defendants admit the allegations of paragraph 9 of the
10 Complaint.

11 10. The VSUN and TOYO Defendants admit the allegations of paragraph 10 of the
12 Complaint.

13 **BACKGROUND OF THE PARTIES**

14 11. The VSUN and TOYO Defendants lack information sufficient to form a belief as to
15 the truth of the allegations of paragraph 11, and on that basis deny the allegations of paragraph 11
16 of the Complaint.

17 12. The VSUN and TOYO Defendants lack information sufficient to form a belief as to
18 the truth of the allegations of paragraph 12, and on that basis deny the allegations of paragraph 12
19 of the Complaint.

20 13. The VSUN and TOYO Defendants lack information sufficient to form a belief as to
21 the truth of the allegations of paragraph 13, and on that basis deny the allegations of paragraph 13
22 of the Complaint.

23 14. The VSUN and TOYO Defendants lack information sufficient to form a belief as to
24 the truth of the allegations of paragraph 14, and on that basis deny the allegations of paragraph 14
25 of the Complaint.

26 15. The VSUN and TOYO Defendants lack information sufficient to form a belief as to
27 the truth of the allegations of paragraph 15, and on that basis deny the allegations of paragraph 15
28 of the Complaint.

ASSERTED PATENTS

21. The VSUN and TOYO Defendants lack information sufficient to form a belief as to the truth of the allegations of paragraph 21, and on that basis deny the allegations of paragraph 21 of the Complaint.

22. The VSUN and TOYO Defendants admit that Exhibit 1 appears to be a copy of the '454 patent and that it shows an issue date of February 14, 2023, but deny that the '454 patent is valid and enforceable. The VSUN and TOYO Defendants lack information sufficient to form a belief as to the truth of the remaining allegations of paragraph 22, and on that basis deny the allegations of paragraph 22 of the Complaint.

23. The VSUN and TOYO Defendants admit that Exhibit 2 appears to be a copy of the '136 patent and that it shows an issue date of November 21, 2023, but deny that the '136 patent is valid and enforceable. The VSUN and TOYO Defendants lack information sufficient to form a belief as to the truth of the remaining allegations of paragraph 23, and on that basis deny the allegations of paragraph 23 of the Complaint.

24. The VSUN and TOYO Defendants lack information sufficient to form a belief as to the truth of the allegations of paragraph 24, and on that basis deny the allegations of paragraph 24 of the Complaint.

25. The VSUN and TOYO Defendants admit that they have not taken a license to the Asserted Patents but deny that any license is needed and deny that any of their products infringe any valid and enforceable claim of the Asserted Patents.

26. The VSUN and TOYO Defendants deny the allegations of paragraph 26 of the Complaint.

DEFENDANTS' INFRINGEMENT OF AND KNOWLEDGE OF THE ASSERTED PATENTS

27. The VSUN and TOYO Defendants admit that they are involved with certain solar panels that are sold in or imported to the United States, including certain TOPCON N-type solar modules. The VSUN and TOYO Defendants deny that any of their products infringe any valid and

1 enforceable claim of the Asserted Patents and deny the remaining allegations of paragraph 27 of
2 the Complaint.

3 28. The VSUN and TOYO Defendants admit that Vesta N TOPCon N-type modules are
4 shown at the website “vsun-solar.com/pro_page/88.html” but deny that this product or any of their
5 other products infringe any valid and enforceable claim of the Asserted Patents and deny the
6 remaining allegations of paragraph 28 of the Complaint.

7 29. The VSUN and TOYO Defendants admit that the website “vsun-
8 solar.com/sol_list.html” lists solar panels, some of which have been sold and used in the United
9 States, but deny that these products or any of their other products infringe any valid and
10 enforceable claim of the Asserted Patents and deny the remaining allegations of paragraph 29 of
11 the Complaint.

12 30. The VSUN and TOYO Defendants admit that Vietnam Sunergy Joint Stock
13 Company and VSUN Solar USA Inc. may provide support to customers and that the datasheet at
14 www.vsun-solar.com/uploads/image/20230727/64c1da329f833.pdf indicates a “1.0% First-year
15 degradation warranty” and “0.4% Annual degradation over 30 years.” The VSUN and TOYO
16 Defendants deny any remaining allegations of paragraph 30 of the Complaint.

17 31. The VSUN and TOYO Defendants deny the allegations of paragraph 31 of the
18 Complaint and deny that any of their products infringe any valid and enforceable claim of the
19 Asserted Patents.

20 32. The VSUN and TOYO Defendants admit that they learned of the Asserted Patents
21 through the filing of this lawsuit and were aware of the Asserted Patents at least as of the date of
22 service of the summons and Complaint.

23 **COUNT 1**
24 **(Infringement of U.S. Patent No. 11,581,454)**

25 33. The VSUN and TOYO Defendants hereby incorporate by reference their responses
26 to the foregoing paragraphs as if fully set forth herein.

50. The VSUN and TOYO Defendants deny that any of their products infringe any valid and enforceable claim of the Asserted Patents, deny that Jinko is entitled to any injunction, and deny the remaining allegations of paragraph 50 of the Complaint.

PRAYER FOR RELIEF

The VSUN and TOYO Defendants deny all allegations that Plaintiffs are entitled to any of the relief requested against the VSUN and TOYO Defendants in its Prayer for Relief, or any other relief.

DEMAND FOR JURY TRIAL

The VSUN and TOYO Defendants acknowledge Plaintiffs' demand for a jury trial and demand the same on all issues so triable.

AFFIRMATIVE DEFENSES

The VSUN and TOYO Defendants reserve all defenses under Rule 8(c) of the Federal Rules of Civil Procedure, the patent laws of the United States, and any other defenses at law or in equity, that may now exist or in the future may be available based on discovery and further factual investigation in this case. Inclusion of a defense in this section is not an admission as to whether the defense is "affirmative" or which party bears the burden of proof.

FIRST DEFENSE

(Non-Infringement)

Plaintiffs are not entitled to any relief on their patent infringement claims because the VSUN and TOYO Defendants have not and do not infringe, induce infringement, or contributorily infringe, directly, indirectly, willfully, or otherwise, any valid and enforceable claim of the Asserted Patents literally or under the doctrine of equivalents, and have not otherwise committed any acts in violation of 35 U.S.C. § 271, *et seq.* As one example, the VSUN and TOYO Defendants' products do not meet the claim limitations of, for example, "a rear surface of the semiconductor substrate has a first texture structure, the first texture structure has a non-pyramid microstructure and includes two or more first substructures at least partially stacked on one another, a top surface of the first substructure is a polygonal plane, and in a direction away from the rear surface and perpendicular to the rear surface, a distance between a top surface of an outermost first substructure and a top

1 surface of an adjacent first substructure is less than or equal to 2 μm ; and a one-dimensional size of
2 the top surface of the outermost first substructure is less than or equal to 45 μm , an average of the
3 one-dimensional size ranges from 10 μm to 15 μm ” as recited in claim 1 of the ’454 patent and “a
4 rear surface of the semiconductor substrate has a first texture structure, the first texture structure has
5 a non-pyramid-shaped microstructure and includes two or more first substructures at least partially
6 stacked on one another, a top surface of the first substructure is a polygonal plane, and a one-
7 dimensional size of the top surface of the outermost first substructure is less than or equal to 45 μm ;
8 and wherein a front surface of the semiconductor substrate has a second texture structure, the second
9 texture structure includes a pyramid-shaped microstructure, the pyramid-shaped microstructure
10 includes a top portion away from the front surface of the semiconductor substrate and a bottom
11 portion close to the front surface of the semiconductor substrate, and in a direction away from the
12 front surface and perpendicular to the front surface, a distance between the top portion and the
13 bottom portion of the pyramid-shaped microstructure is less than or equal to 5 μm ” as recited in
14 claim 1 of the ’136 patent.

15 SECOND DEFENSE

16 (Invalidity)

17 The claims of the Asserted Patents are invalid for failure to comply with one or more
18 requirements of the patent laws of the United States, including but not limited to 35 U.S.C. §§ 101,
19 102, 103, and/or 112. For example, the claims of the Asserted Patents are anticipated and/or
20 rendered obvious by at least the following, alone or in combination, including in combination with
21 the knowledge of one of ordinary skill in the art: (1) Challenges for single-sided chemical
22 processing, by Rentsch, et al. (disclosing, *e.g.*, polishing the rear side of the wafer using an inline
23 etching system); (2) US 2018/0182905 A1 (disclosing, *e.g.*, polishing the back surface of a
24 semiconductor substrate); (3) CN105826411 (disclosing, *e.g.*, preparing a back platform structure
25 using a wet chemical method including one or more mixed aqueous solution of sodium hydroxide,
26 potassium hydroxide, tetramethylammonium hydroxide, nitric acid, phosphoric acid, hydrofluoric
27 acid, ethanol, isopropanol or ethylene glycol); (4) CN113035978 (disclosing, *e.g.*, using an alkali
28 etching process to form a polished rear surface with an out-of-plane structure); (5) US

1 2019/0207040 (disclosing, *e.g.*, reducing surface roughness of the rear surface using a hydroxide-
2 based etch).

3 The claims of the Asserted Patents are invalid pursuant to 35 U.S.C. § 112, at least under
4 Jinko's apparent interpretation of the claims as reflected in its Complaint, due to indefiniteness, lack
5 of written description and/or lack of enablement. For example, the Asserted Patents merely state
6 that "polish[ing] with an alkali solution" will result in the claimed "first texture structure [which]
7 includes two or more first substructures at least partially stacked." '454 patent, col. 12, ll. 28-39.
8 The process steps disclosed in col. 14, ll. 22-41 do not provide specific solutions to be used in
9 forming the claimed "first texture structure." Rather, all that is provided in the patent specification
10 are vague instructions such as "clean[ing] with the alkali solution having a mass fraction of 5% to
11 10% to remove porous silicon," "polishing with a polishing liquid including "NaOH having a mass
12 fraction of 1% to 15%, KOH having a mass fraction of 0.5% to 2.5% and an additive having a mass
13 fraction of 0.5% to 2.5%." '454 patent, col. 14, ll. 30-37. Not only is the "additive" not disclosed,
14 but the concentration range for NaOH can vary by up to 15 times the amount, and the mass fraction
15 ranges of the KOH and secret additive can vary by up to 5 times the amount. Therefore, the
16 specification fails to teach a person of ordinary skill in the art how to make and use the invention
17 without undue experimentation and fails to show that the inventor had possession of the claimed
18 invention.

19 Further, the asserted claims are indefinite, lack written description, and lack enablement
20 based on at least the claim terms "a distance between a top surface of an outermost first substructure
21 and a top surface of an adjacent first substructure is less than or equal to 2 μm "; "a one-dimensional
22 size of the top surface of the outermost first substructure is less than or equal to 45 μm "; "an average
23 of the one-dimensional size ranges from 10 μm to 15 μm "; and "a distance between the top portion
24 and the bottom portion of the pyramid-shaped microstructure is less than or equal to 5 μm ."

25 **THIRD DEFENSE**

26 **(Failure to Mark)**

27 To the extent that Plaintiffs or a licensee of the Asserted Patents failed to properly mark
28 relevant products as required by 35 U.S.C. § 287 or otherwise give proper notice that the VSUN

1 and TOYO Defendants’ actions allegedly infringed the Asserted Patents, the VSUN and TOYO
 2 Defendants are not liable to Plaintiffs for the acts alleged to have been performed before receiving
 3 actual notice that they were allegedly infringing the Asserted Patents. For example, Jinko’s
 4 datasheet for the Eagle G6X, which states that it employs “Jinko’s in-house TOPCon technology”
 5 does not include any notice that it is protected by the Asserted Patents. *See, e.g.,*
 6 [https://jinkosolar.us/wp-content/uploads/2024/09/30mm-EAGLE-G6X-JKM580-600N-72HL4-](https://jinkosolar.us/wp-content/uploads/2024/09/30mm-EAGLE-G6X-JKM580-600N-72HL4-BDX-F30R-F2-US.pdf)
 7 [BDX-F30R-F2-US.pdf](https://jinkosolar.us/wp-content/uploads/2024/09/30mm-EAGLE-G6X-JKM580-600N-72HL4-BDX-F30R-F2-US.pdf).

8 **FOURTH DEFENSE**

9 **(Unavailability of Injunctive Relief)**

10 Plaintiffs are not entitled to injunctive relief against the VSUN and TOYO Defendants
 11 because any injury to Plaintiffs as a result of the VSUN and TOYO Defendants’ alleged activities
 12 is not immediate or irreparable, and Plaintiffs have an adequate remedy at law.

13 **FIFTH DEFENSE**

14 **(Equitable Doctrines)**

15 Plaintiffs’ claim for damages are barred or limited by the equitable doctrines of estoppel,
 16 unclean hands, waiver, and/or other equitable doctrines.

17 **RESERVATION OF ADDITIONAL DEFENSES**

18 The VSUN and TOYO Defendants reserve all defenses under Rule 8(c) of the Federal Rules
 19 of Civil Procedure, the patent laws of the United States, and any other defenses, at law or in equity,
 20 which may now exist or in the future may be available based on discovery and further factual
 21 investigation in this case.

22 **PRAYER FOR RELIEF**

23 The VSUN and TOYO Defendants deny that Plaintiffs are entitled to any of the relief
 24 requested in its prayer for relief, or any relief whatsoever.

25 The VSUN and TOYO Defendants pray for a judgment that they have *not* infringed literally
 26 or under the Doctrine of Equivalents, contributorily infringed, or induced the infringement of any
 27 valid and enforceable claim of U.S. Patent Nos. 11,581,454 and 11,824,136; that Plaintiffs’ claims
 28 against the VSUN and TOYO Defendants be dismissed with prejudice; that judgment be rendered

1 in favor of the VSUN and TOYO Defendants and Plaintiffs take nothing by way of its Complaint;
2 and that the VSUN and TOYO Defendants be awarded their costs and reasonable attorneys incurred
3 in this action as provided by 35 U.S.C. § 285. The VSUN and TOYO Defendants pray for such
4 other and further relief as the Court deems just and proper.

5 **JURY DEMAND**

6 The VSUN and TOYO Defendants hereby request a trial by jury for all issues so triable.

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9 Date: April 16, 2025

10 Respectfully Submitted,

11 /s/ Irene Yang
12 Irene Yang

13 *Attorneys for Defendants*
14 VIETNAM SUNERGY JOINT STOCK
15 COMPANY, VIETNAM SUNERGY (BAC
16 NINH) COMPANY LIMITED, VSUN
17 SOLAR USA INC., TOYO CO., LTD., AND
18 TOYO SOLAR COMPANY LIMITED F/K/A
19 VIETNAM SUNERGY CELL COMPANY
20 LTD
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