

**IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE**

HANWHA Q CELLS & ADVANCED
MATERIALS CORPORATION,

Plaintiff,

v.

REC SOLAR HOLDINGS AS,
REC SOLAR PTE. LTD., AND
REC AMERICAS, LLC

Defendants.

Civil Action No. _____

DEMAND FOR JURY TRIAL

COMPLAINT FOR PATENT INFRINGEMENT

Plaintiff Hanwha Q CELLS & Advanced Materials Corporation (“Hanwha Q CELLS” or “Plaintiff”) files this Complaint for patent infringement against Defendants REC Solar Holdings AS, REC Solar Pte. Ltd., and REC Americas, LLC (collectively, “REC,” “REC Defendants,” or “Defendants”), and alleges as follows:

NATURE OF THE ACTION

1. This action is brought against REC Defendants for infringement of U.S. Patent No. 9,893,215 (the “’215 Patent”), which is directed to solar cells. Hanwha Q CELLS is the sole owner by assignment of all right, title, and interest in the ’215 Patent, including the right to recover damages for past infringement.

2. A true and correct copy of the ’215 Patent is attached as Exhibit 1.

THE PARTIES

3. Plaintiff Hanwha Q CELLS & Advanced Materials Corporation is a corporation organized under the laws of the Republic of Korea with an address at 86 Cheonggyecheon-ro, Jung-gu, Seoul, Republic of Korea 04541.

4. Hanwha Q CELLS is one of the largest photovoltaic solar cell and solar module manufacturers in the world. Through its research and development facility, Hanwha Q CELLS has pioneered applications of solar cell technology that achieves higher energy conversion efficiency than traditional solar cells.

5. Defendant REC Solar Holdings AS (“REC Holdings”) is a Norwegian corporation with an address at Drammensveien 169, Oslo, 0277, Norway. REC Holdings has subsidiary and/or affiliate corporations in locations including Singapore, Germany, Japan, India, and the United States.

6. Defendant REC Solar Pte. Ltd. (“REC Pte”) is a Singaporean corporation with an address at 20 Tuas South Ave. 14, Tuas, 637312, Singapore. Upon information and belief, REC Pte is one of REC Holdings’ subsidiaries and/or affiliates.

7. Defendant REC Americas LLC (“REC Americas”) is a Delaware corporation that is, upon information and belief, one of REC Holdings’ subsidiaries and/or affiliates. Upon information and belief, REC Americas has an address at 1820 Gateway Drive, Suite 170, San Mateo, California 94404. Upon information and belief, REC Americas offers for sale and sells REC’s solar modules for solar projects throughout the United States.

JURISDICTION AND VENUE

8. This is an action for patent infringement under the patent laws of the United States of America, 35 U.S.C. §§ 1, *et seq.*, including 35 U.S.C. §§ 271 and 281–85. This Court therefore has subject matter jurisdiction over this action pursuant to 28 U.S.C. §§ 1331 and 1338.

9. This Court has personal jurisdiction over each of the Defendants.

10. Defendant REC Americas is a Delaware corporation. Thus, REC Americas resides within, and has consented to, personal jurisdiction within the District of Delaware.

11. Defendant REC Holdings has conducted and continues to conduct business in the State of Delaware and in the District of Delaware. REC Holdings, upon information and belief, directly and/or through its subsidiaries, makes or assembles products that are covered by the subject matter of the '215 Patent and that are and have been imported, offered for sale, sold, purchased, and used within the District of Delaware. REC Holdings, upon information and belief, directly or through intermediaries (including subsidiaries, distributors, retailers, contractors, and others), purposefully and voluntarily ships, distributes, offers for sale, sells, installs, uses, and advertises infringing products to consumers in the District of Delaware. Additionally, REC Holdings, directly and/or through distribution networks, regularly places infringing products within the stream of commerce, with the knowledge and/or understanding that such products will be sold in the District of Delaware. Upon information and belief, REC Holdings has committed acts of patent infringement within the State of Delaware and in the District of Delaware. REC Holdings has purposefully availed itself of the benefits of the State of Delaware and the exercise of jurisdiction over REC Holdings would not offend traditional notions of fair play and substantial justice.

12. Defendant REC Pte, upon information and belief, directly and/or through their subsidiaries or affiliates, makes or assembles products that are covered by the subject matter of the '215 Patent and that are and have been imported, offered for sale, sold, purchased, and used within the District of Delaware. REC Pte, upon information and belief, directly and/or through intermediaries (including subsidiaries, affiliates, distributors, retailers, contractors, and others), including distribution networks controlled by affiliated entities, regularly places infringing products within the stream of commerce, with the knowledge and/or understanding that such products are shipped, distributed, offered for sale, sold, installed, used, and advertised to

consumers within the District of Delaware. REC Pte has committed acts of patent infringement within the State of Delaware and in the District of Delaware. REC Pte has purposefully availed itself of the benefits of the State of Delaware and the exercise of jurisdiction over REC Pte would not offend traditional notions of fair play and substantial justice.

13. In the event that this Court does not have personal jurisdiction over Defendants REC Holdings and REC Pte by virtue of the above, this Court nonetheless has personal jurisdiction over those Defendants pursuant to Federal Rule of Civil Procedure 4(k)(2) because this case arises under federal law, REC Holdings and REC Pte are not subject to jurisdiction in any state's courts of general jurisdiction, and REC Holdings and REC Pte have purposefully availed themselves of the privilege of conducting business in the United States by making, using, offering to sell, or selling infringing products within the United States, or importing infringing products into the United States.

14. Venue is proper in this District for Defendant REC Americas under 28 U.S.C. §§ 1391(b) and (c) and 28 U.S.C. § 1400 because, among other reasons, REC Americas is subject to personal jurisdiction in the District of Delaware and reside in the District of Delaware.

15. Venue is proper in this District for Defendants REC Holdings and REC Pte under 28 U.S.C. § 1391(c) because, among other reasons, those Defendants are subject to personal jurisdiction and are not resident in the United States.

THE PATENTED INVENTION

16. Hanwha Q CELLS incorporates the allegations of the preceding paragraphs as if fully set forth herein.

17. The '215 Patent is entitled "Method for Manufacturing a Solar Cell with a Surface-Passivating Dielectric Double Layer, and Corresponding Solar Cell." The '215 Patent issued from U.S. Patent Application Serial No. 12/742,818 (the "'818 Application"). The '818

Application is a national stage application of PCT/EP2008/065067, with a 35 U.S.C. § 371(c) date of July 2, 2010 and claims the benefit of German Patent Application Serial No. 10 2007 054 384.2, filed on November 14, 2007. The '215 Patent identifies Jan Schmidt and Bram Hoex as the inventors.

18. The technology claimed in the '215 Patent concerns solar cells, which are semiconductor devices that utilize the photovoltaic effect to convert sunlight (i.e., photons) into electricity. '215 Patent, col. 3:7–20, Ex. 1. The photovoltaic effect refers to the generation of energy-containing charge carriers when a material, such as silicon, is exposed to sunlight. Sunlight exposure creates negative and positive charge carriers within a silicon substrate. *See id.*, col. 1:16–22. The energy contained in these charge carriers must be extracted and utilized externally without the charge carriers recombining at the boundary surface of the silicon substrate and neutralize each other, a process known as recombination. *See id.*, col. 1:14–22.

19. The '215 Patent discloses a structure of solar cells with certain efficiency advantages versus other types of solar cells. *See id.*, col. 6:8–34. The solar cell structure of the '215 Patent includes a silicon substrate, a first dielectric layer comprising aluminum oxide on a surface of the silicon substrate, and a second dielectric layer on the first dielectric layer of different materials and with hydrogen being embedded into the second dielectric layer. *Id.*, col. 5:58–64.

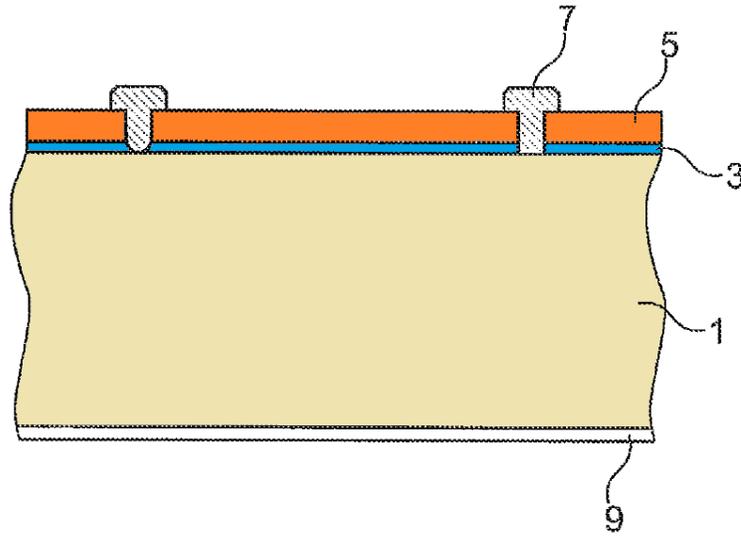


Figure 1

20. Figure 1 (above and colored) from the '215 Patent shows an exemplary illustration depicting the first and second dielectric layers on a silicon substrate (1). The first dielectric layer comprising aluminum oxide (3) is deposited on a surface of the silicon substrate, and the second dielectric layer (5) is deposited on top of the first dielectric layer. *Id.*, col. 7:30–35. The second dielectric layer has hydrogen embedded within the layer. *Id.*, col. 7:65–8:3.

21. The use of these surface-passivating dielectric layers reduces surface recombination of charge carriers, allowing greater extraction of energy-containing charge carriers for external utilization. *Id.*, col. 2:58–60, 3:1–4. The use of the surface-passivating dielectric layers may increase light absorption in the substrate, and increase the efficiency of light conversion into electricity. *Id.*, col. 3:7–20. Further, the solar cells with the disclosed structure maintain their stable passivation properties while withstanding the high temperatures used in today's industrial manufacturing processes. *Id.*, col. 3:4–7. As a result, the invention of the '215 Patent allows more energy to be extracted from the solar cell, while remaining durable through the manufacturing process. *Id.*, col. 3:4–27.

CLAIMS FOR PATENT INFRINGEMENT

Count I: Infringement of U.S. Patent No. 9,893,215

22. Hanwha Q CELLS incorporates the allegations of the preceding paragraphs as if fully set forth herein.

23. REC Defendants are in the business of designing, manufacturing, using, offering to sell, selling, and importing products, including solar cells and modules, both under the REC brand and, upon information and belief, as a contract manufacturer for other companies.

24. Hanwha Q CELLS is informed and believes, and thereon alleges, that REC has infringed, is currently infringing, or will infringe the '215 Patent in violation of 35 U.S.C. § 271 by, among other things, making, using, offering to sell, or selling, within the United States, or importing into the United States, without license or authority, products—including solar cells and solar modules—that infringe the '215 Patent (the “Accused Products”), literally or under the doctrine of equivalents.

25. Upon information and belief, REC manufactures solar cells and incorporate those cells into REC-branded solar modules at REC’s factory or factories in Singapore. Upon information and belief, REC Pte operates such a factory located in Singapore. REC, including through REC Americas, offers for sale and sells the aforementioned solar products to customers within the United States. Upon information and belief, REC has entered into business agreements that depend on its importation of infringing solar cells and/or modules. Upon information and belief, REC has sold over 2.2 gigawatts of its solar modules, with approximately forty percent of these sales to the United States. Upon information and belief, REC sold 200 megawatts of its solar modules in December 2018 for installations and solar projects across the United States. REC has installed its solar modules in a number of solar installations throughout the United States, including in San Rafael, California; Fresno, California; Kaua’i, Hawaii;

Sandy, Utah; Sweetwater, Florida; Indianapolis, Indiana; Pacific Palisades, California; Tucson, Arizona; Madera, California; Morrisville, North Carolina, and Siler City, North Carolina.

26. Based on the information presently available to it, Hanwha Q CELLS alleges that REC's Accused Products include, but are not limited to, the following solar modules: REC265TP; REC270TP; REC275TP; REC280TP; REC285TP; REC265TP BLK; REC270TP BLK; REC275TP BLK; REC280TP BLK; REC285TP BLK; REC275TP2; REC280TP2; REC285TP2; REC290TP2; REC295TP2; REC300TP2; REC275TP2 BLK2; REC280TP2 BLK2; REC285TP2 BLK2; REC300TP2M; REC305TP2M; REC310TP2M; REC315TP2M; REC320TP2M; REC330TP2S72; REC335TP2S72; REC340TP2S72; REC345TP2S72; REC350TP2S72; REC355TP2S72; REC360TP2SM72; REC365TP2SM72; REC370TP2SM72; REC375TP2SM72; REC380TP2SM72. Hanwha Q CELLS further alleges that the Accused Products are manufactured in REC's factory or factories including at least one operated by REC Pte.

27. As an exemplary infringing product, REC REC285TP2 BLK2 can be purchased within the United States and contains one hundred twenty individual solar cells. Upon information and belief, the REC REC285TP2 BLK2 solar module includes solar cells that infringe at least claims 12–14 of the '215 Patent. For example, REC REC285TP2 BLK2 contains each element of and infringes at least claim 12 of the '215 Patent, which recites the following:

12. A solar cell comprising:
 - a silicon substrate;
 - a first dielectric layer comprising aluminium oxide on a surface of the silicon substrate; and
 - a second dielectric layer directly on a surface of the first dielectric layer, materials of the first dielectric layer and the second dielectric layer differing and hydrogen being embedded into the second dielectric layer;

wherein the first dielectric layer has a thickness of less than 50 nm and is interposed between the surface of the silicon substrate and the second dielectric layer.

28. Specifically, the REC REC285TP2 BLK2 solar module is comprised of a silicon substrate and a stack of layers, including a first dielectric layer, and a second dielectric layer. The materials of the first and second dielectric layers differ. The first dielectric layer comprises aluminum oxide, and the second dielectric layer includes the elements silicon and nitrogen. The first dielectric layer is less than 50 nanometers thick. The second dielectric layer contains hydrogen. The first dielectric layer is interposed between the second dielectric layer and the surface of the silicon substrate.

29. A cross-sectional measurement mapping of the backside edge of a sample piece extracted from a representative solar cell in a REC REC285TP2 BLK2 module indicates that the solar cell comprises a silicon substrate, followed by a first dielectric layer including the elements of aluminum and oxygen, which is followed by a second dielectric layer of different materials than the layer including aluminum and oxygen.

30. A depth profile measurement on a sample prepared from a representative solar cell contained in a REC REC285TP2 BLK2 module shows that elements of aluminum and oxygen are present inside a 50-nanometer band, indicating a first dielectric layer comprising aluminum oxide of a thickness less than 50 nanometers.

31. A depth profile measurement on a sample prepared from a representative solar cell contained in a REC REC285TP2 BLK2 module shows the presence of hydrogen in the second dielectric layer, indicating that hydrogen is embedded into the second dielectric layer.

32. Upon information and belief, the exemplary REC REC285TP2 BLK2 solar module is representative of many other products that are made, used, offered for sale, or sold, within the United States, or imported into the United States, by or on behalf of REC, and that

present the same or substantially similar features as the exemplary REC REC285TP2 BLK2 solar module. Accordingly, on information and belief, Hanwha Q CELLS alleges that numerous REC products including the exemplary REC REC285TP2 BLK2 infringe at least claims 12–14 of the '215 Patent and have been made, used, offered for sale, or sold within the United States, or imported into the United States, by or on behalf of REC.

33. Hanwha Q CELLS anticipates that discovery will further confirm the full scope of infringing products that are made, used, offered for sale, or sold, within the United States, or imported into the United States, by or on behalf of REC. Hanwha Q CELLS makes the preliminary identification of the Accused Products without the benefit of discovery or claim construction in this action, and expressly reserves the right to augment, supplement, and revise its identifications based on additional information obtained through discovery or otherwise.

34. REC has had knowledge of the '215 Patent since before this Complaint was filed, or at a minimum will receive notice of the '215 Patent upon filing of the Complaint.

35. REC's acts of infringement have caused damage to Hanwha Q CELLS in an amount yet to be determined and subject to proof at trial.

PRAYER FOR RELIEF

WHEREFORE, Hanwha Q CELLS prays for relief as follows:

A. Judgment that REC Defendants have directly infringed the '215 Patent, both literally and under the doctrine of equivalents;

B. REC Defendants be ordered to account for and compensate Plaintiff Hanwha Q CELLS for REC Defendants' infringing activities, including supplemental damages for any post-verdict infringement up until entry of the final judgment with an accounting as needed, together with pre-judgment and post-judgment interest on the damages awarded;

C. An award of enhanced damages under 35 U.S.C. § 284 to the extent that the Court deems appropriate;

D. An award of reasonable attorney fees pursuant to 35 U.S.C. § 285 to the extent that the Court deems this case is an exceptional case;

E. Injunctive relief in that REC Defendants, their affiliates, subsidiaries, officers, agents, servants, employees, and successors and assigns, and other persons who are in active concert or participation with anyone in the foregoing, be preliminarily and permanently enjoined from infringement of the '215 Patent, including but not limited to an injunction against making, using, offering to sell, selling within the United States, and importing into the United States, products that infringes the '215 Patent;

F. Costs of suit incurred herein; and

G. Any and all other relief that the Court deems just and equitable.

DEMAND FOR JURY TRIAL

Hanwha Q CELLS hereby demands a trial by jury on all issues.

Dated: March 5, 2019

Respectfully submitted,

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