IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

MAXEON SOLAR PTE. LTD.,	
Plaintiff,	**CIVIL ACTION NO. 2:24-cv-262**
v.	**JURY TRIAL DEMANDED**
HANWHA SOLUTIONS CORPORATION and HANWHA ENERGY CORPORATION,	
Defendants.	

COMPLAINT FOR PATENT INFRINGEMENT

Maxeon Solar Pte. Ltd. ("Maxeon") files this complaint for patent infringement ("Complaint") against Hanwha Solutions Corporation ("Hanwha Solutions") and Hanwha Energy Corporation ("Hanwha Energy") (collectively, "Hanwha" or "Defendants"), and alleges as follows:

THE PARTIES

Maxeon

1. Maxeon is a limited liability company organized and existing under the laws of Singapore. Its principal place of business is located at 8 Marina Boulevard #05-02, Marina Bay Financial Centre, Singapore 018981.

2. Maxeon's history dates back to 1985, when its predecessor, SunPower Corporation ("SunPower"), was founded by Richard Swanson, a professor of electrical engineering at Stanford University, who conducted groundbreaking research on high-efficiency silicon solar cells. Swanson, often referred to as "The father of solar in the U.S.," led SunPower to become one of the preeminent solar companies in the world, producing high-performance solar panels, systems, and

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services for residential, commercial, and utility-scale markets. Eric Wesoff, "Dick Swanson Retiring from SunPower, But Not Done," Greentech Media (Oct. 8, 2012). Swanson is also known for suggesting a famous correlation, "that the cost of the photovoltaic cells needed to generate solar power falls by 20% with each doubling of global manufacturing capacity," referred to as "Swanson's Law." Geoffrey Carr, "Sunny uplands," The Economist (Nov. 21, 2012).

3. Since its inception, SunPower has made major investments in solar technology development and innovation, and has become a global leader in the field. SunPower's innovations are embodied in, and protected by, a large patent portfolio spanning more than 1,650 patents worldwide (including those asserted herein). These innovations have also been successfully implemented in various industries around the world through best-in-class solar panel product lines. Due to SunPower's efforts, continued by Maxeon, today's solar modules are significantly more efficient and sustainable, and solar energy has become a viable alternative to non-renewable energy sources.

4. One specific innovation relates to solar cell technologies that utilize a tunnel oxide layer with a silicon emitter. The term "TOPCon" stands for **t**unnel **o**xide **p**assivated **con**tact, and refers to solar cells that incorporate a thin layer of silicon oxide (e.g., silicon dioxide, SiO_2) to form a tunnel barrier between the silicon wafer and the metal contacts. *See* Feldman, et al., "A Passivated Rear Contact for High-Efficiency n-Type Silicon Solar Cells Enabling High V_{oc}S and *FF* > 82%" at 1 (28th European PV Solar Energy Conference & Exhibition, Paris, Sept. 30 – Oct. 4, 2013) (hereinafter, "Feldman").[1] This oxide layer acts as a passivation layer that reduces the surface recombination of the charge carriers, as well as a tunnel layer that allows the charge carriers

[1] The term "TOPCon" appears to have been coined by researchers at the Fraunhofer Institute for Solar Energy Systems (ISE) in 2013. *See* Feldman at 1. Unsurprisingly, these researchers rely on, and cite throughout, research performed by Swanson. *See generally id.*

to tunnel through the barrier and reach the contacts. SunPower had designed and patented a Front Contact Solar Cell using an oxide layer in this configuration years before the "TOPCon" moniker was ever used. *Compare* asserted U.S. Patent No. 8,222,516, Fig. 1 (annotated) *with* Feldman, Fig. 3.

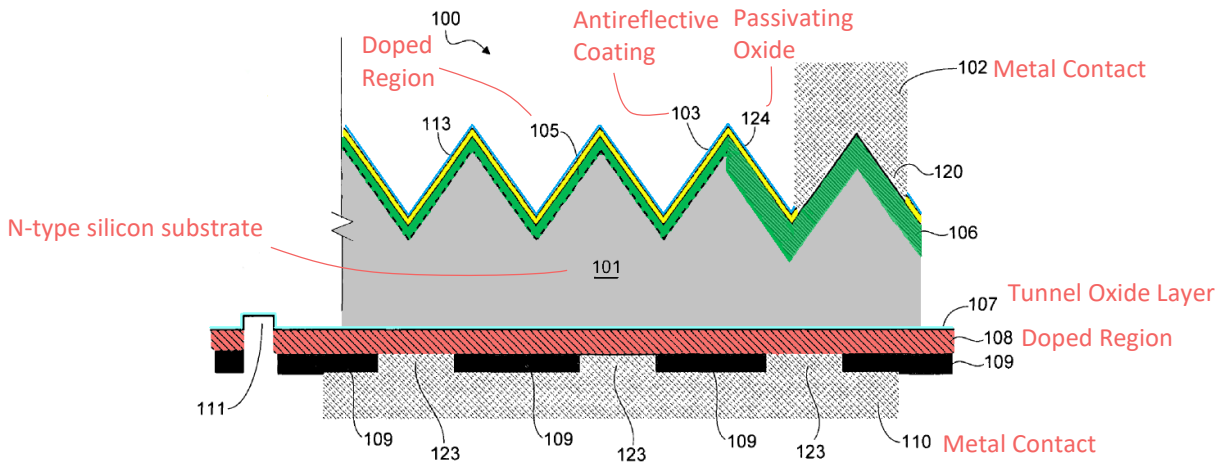


FIG. 1

Exemplary SunPower Front Contact Solar Cell Patent (2008)

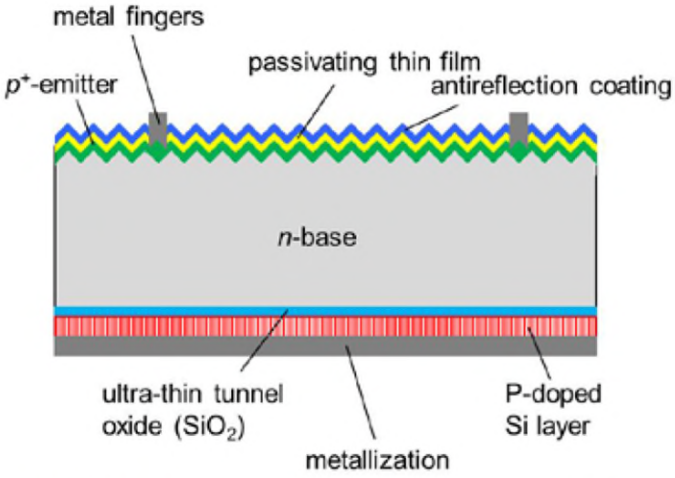


Figure 3: Solar cell with boron-doped emitter at the front and passivated rear contacts.

Feldman "TOPCon" Solar Cell (2013)

5. TOPCon technology is an improvement over conventional solar cell technologies, such as **p**assivated **e**mitter and **r**ear **c**ell ("PERC"), because it can achieve improved operating characteristics, including higher conversion efficiency and power output. Another benefit to TOPCon technology is its compatibility with existing industrial processes and equipment for solar cell manufacturing, and its ability to be integrated with other solar cell technologies, such as heterojunction, tandem, and bifacial solar cells, to further boost solar cell efficiency and performance. For these reasons, TOPCon technology has emerged as the predominant technology for new expansion and replacement of PERC technology, and has generated significant market interest.

6. In 2020, a group of researchers conducted a patent landscape report related to TOPCon technology and found that "SunPower is the earliest patent assignee among the top six companies" who own the most TOPCon patents and that SunPower's "early patents might be the parent applications of the initial structure of the TOPCon solar cell." Chieh-Wa Tsai, et. al, *Patent Analysis of High Efficiency Tunneling Oxide Passivated Contact Solar Cells*, 13 ENERGIES 3060, 10 (2020); *see also id.*, Fig. 8 (below, red box added).

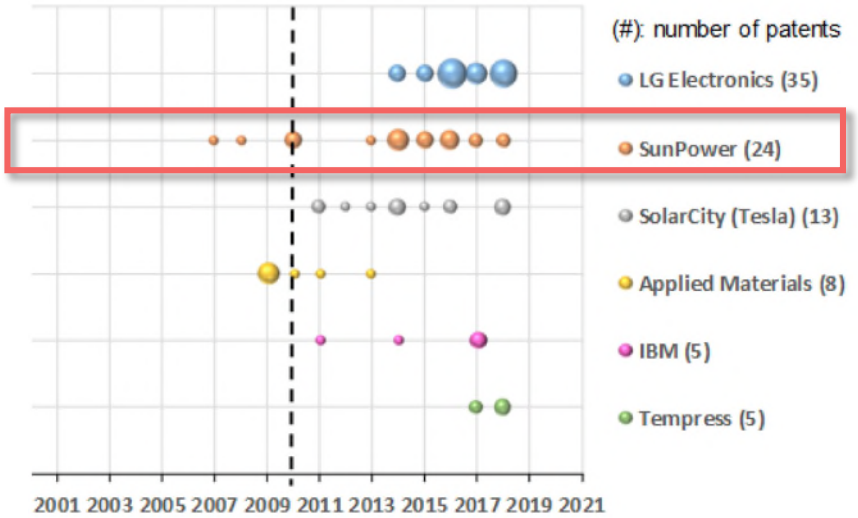


Figure 8. Timeline of technology development of major patent assignees.

TOPCon Patent Analysis (2020)

7. In August 2020, SunPower completed a strategic spin-off of its solar panel manufacturing and international operations to Maxeon Solar Technologies, Ltd., which is the ultimate parent company to Maxeon. Maxeon and SunPower continued to develop and commercialize next generation solar panel technologies, with early stage research conducted by SunPower's Silicon Valley-based research and development group, and deployment-focused innovation and scale-up carried out by Maxeon.

Defendants

8. Upon information and belief, Hanwha Solutions is a corporation organized and existing under the laws of the Republic of Korea. Its principal place of business is located at 24F, 86, Cheonggyecheon-ro, Jung-gu, Seoul, Republic of Korea, 04541.

9. Upon information and belief, Hanwha Energy is a corporation organized and existing under the laws of the Republic of Korea. Its principal place of business is located at 411, Hannuri-daero, Sejong-si, Republic of Korea.

10. In 2012, Hanwha introduced Q.ANTUM, "a proprietary Passivated Emitter Rear Cell (PERC) technology," which purportedly "set the industry standard by boosting the amount of electricity a solar module generates." https://www.hanwha.com/en/news_and_media/stories/sustainability/growth-models-for-renewables-its-time-for-more-investment-innovation-and-industry-leadership.html; [2] *see also* QCELLS Brochure Q.ANTUM NEO at 2 (Rev01_En December 2021) (introducing "The World's First Commercialized PERC" in 2012) (hereinafter, "Q.ANTUM Neo Brochure"), *available at* https://media.q-cells.com/v/FllBdFI1/. Hanwha reports that its Q.ANTUM PERC technology provides an increase of seven percent power output

[2] Unless otherwise indicated, all websites cited herein were last accessed on April 19, 2024.

"compared to standard BSF cell (PERT technology)." *See* https://us.qcells.com/energy-harvesting-technology/.

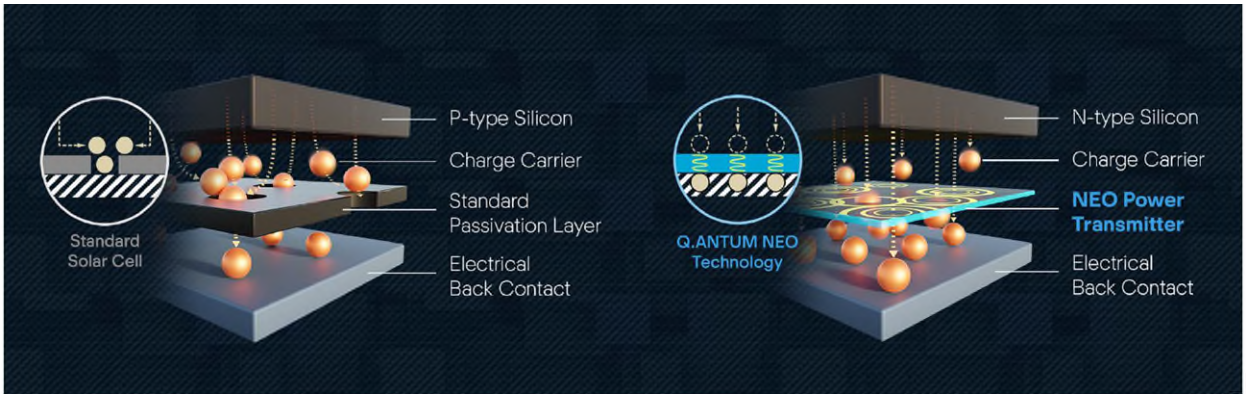
11. Nine years later, in 2021, Hanwha announced a purported "New Era of Solar" coinciding with the release of its Q.TRON Series, promoted as a "highly efficient N-type solar module based on Q.ANTUM NEO Technology." Q.ANTUM Neo Brochure at 2, 5; *see also* Qcells Product Video Q.TRON G1+ (English) at 0:29 (May 16, 2022), *available at* https://www.youtube.com/watch?v=vO2u9hopL3A&list=PPSV (screenshot below).

Qcells Product Video Q.TRON G1+ (English)

Q.ANTUM NEO Product Video

12. Q.ANTUM NEO technology refers to a N-type solar cell where the "passivation layer and electrical interconnection functionality are integrated in the NEO Power Transmitter layer" that "allows for a full area passivation and full area contact at the same time thus overcoming the PERC limitations." Q.ANTUM Neo Brochure at 2 (partial screenshot below). Hanwha reports

that its Q.ANTUM NEO technology provides a 12.7 percent increase in power output compared to standard PERC technology. *See* https://us.qcells.com/energy-harvesting-technology/.



Q.ANTUM NEO "NEO Power Transmitter"

13. The "NEO Power Transmitter" layer, however, is not new technology, but a design based on the same TOPCon technology that Maxeon had pioneered and patented years before. *See* Q.Tron Residential Flyer at 1 ("Q.TRON is Qcells' latest **TOPCon** N-type panel, incorporating cutting-edge and proprietary Q.ANTUM NEO Technology." (emphasis added)), *available at* https://us.qcells.com/wp-content/uploads/2024/03/Flyer_Q.TRON_Residential_Flyer_Rev02.pdf; Qcells plugs in Completely Clean Energy for Intersolar Europe 2022 (May 6, 2022) ("Q.ANTUM NEO is based on a **TopCON-type cell structure** that incorporates passivating contact technology to deliver higher efficiencies than typical PERC-type cells." (emphasis added)), *available at* https://www.q-cells.eu/en/press-releases/detail?tx_news_pi1%5Baction%5D=detail&tx_news_pi1%5Bcontroller%5D=News&tx_news_pi1%5Bnews%5D=179&cHash=51dac6916e76006abe3eda52302350bb.

14. Recently, Hanwha analyzed the performance of a "Q.Tron module with 132 M6-size half-cells, using Q.antum Neo technology" (i.e., TOPCon technology) and found that these

cells "exhibit[ed] excellent efficiencies." *See* Benjamin G. Lee et al.,[3] "Towards >25% Efficiency of Passivating-Contact Solar Cells in Mass Production," SiliconPV 2023, 13th Int'l Conf. on Crystalline Silicon (published Feb. 22, 2024) at 4 (hereinafter, "Hanwha Q.ANTUM Neo Analysis"), *available at* https://www.tib-op.org/ojs/index.php/siliconpv/article/view/883/942. Hanwha's analysis of its products' efficiency also reveals that it began experimenting with using TOPCon technology as early as 2018 and plans to continue using this technology in the future. *See id.* at 2 (partial screenshot below).

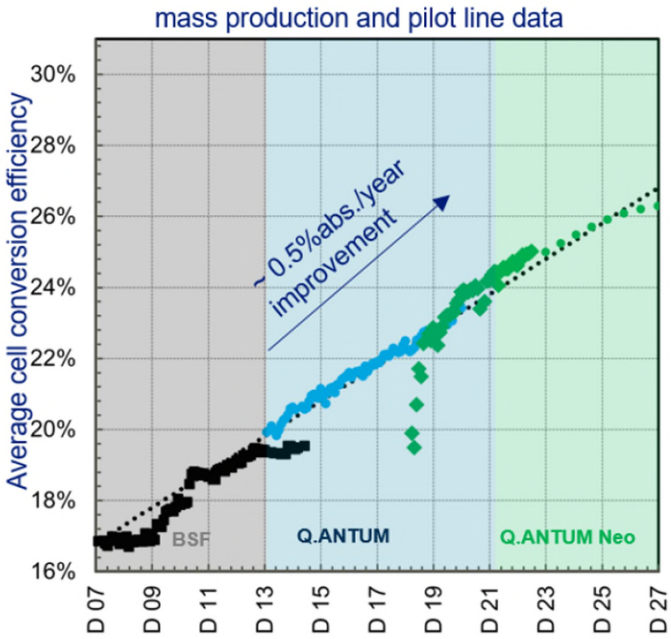


Figure 3. Learning curve of cell efficiency over time at Qcells, showing approx. 0.5%abs yearly improvement.

JURISDICTION AND VENUE

15. This is an action for infringement arising under the patent laws of the United States 35 U.S.C. § 271. Accordingly, this Court has subject matter jurisdiction pursuant to 28 U.S.C. §§ 1331 and 1338(a).

[3] All contributing authors are noted as being affiliated with Hanwha Q Cells GmbH, Germany.

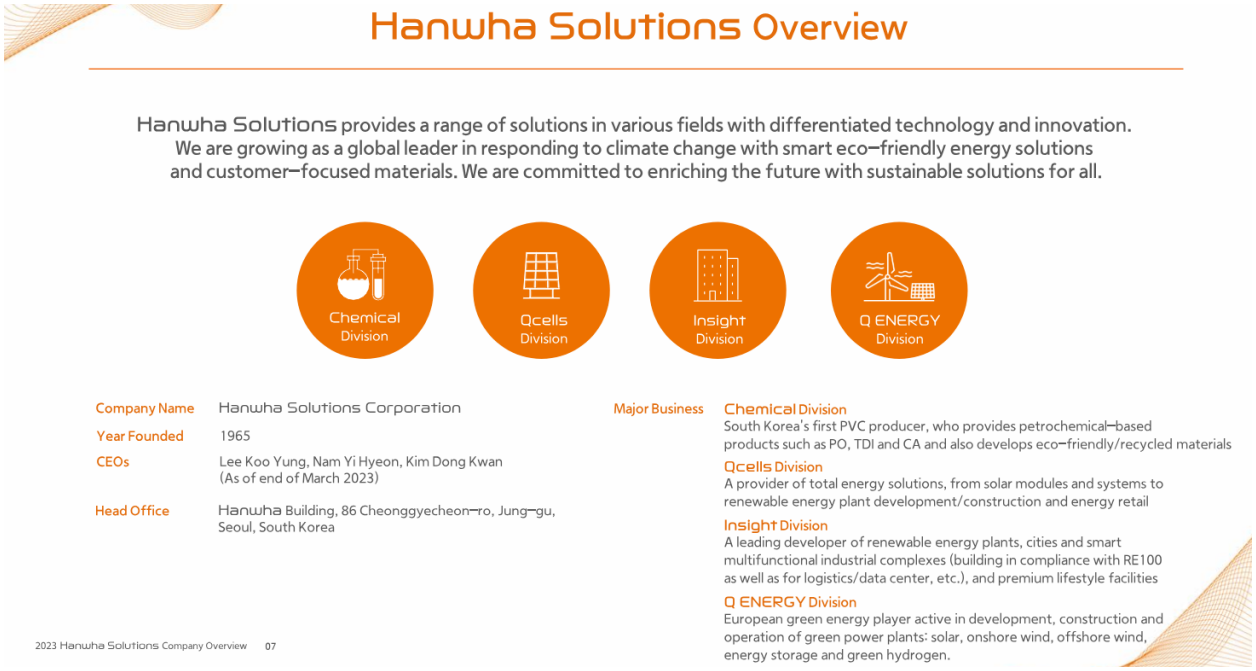
16. Upon information and belief, each of the Defendants are subject to this Court's specific and general personal jurisdiction pursuant to due process and/or the Texas Long Arm Statute, due at least to its substantial business in this State and District, including: (A) at least part of its infringing activities alleged herein; and (B) regularly doing or soliciting business, engaging in other persistent conduct, and/or deriving substantial revenue from infringing goods offered for sale, sold, and imported in or to Texas, and services provided to Texas residents directly and/or vicariously through and/or in concert with its alter egos, intermediaries, agents, distributors, importers, customers, subsidiaries, and/or consumers. For example, in a brochure titled "Hanwha Snapshot 2023" describing Hanwha entities generally, Hanwha touts itself as "South Korea's seventh-largest business group"—"a multinational company" with "a robust network of domestic and global affiliates." *See* Hanwha Snapshot 2023 at 3, *available at* https://www.hanwha.com/content/dam/hanwha/download/Hanwha-Snapshot-2023-en.pdf. Hanwha states they "have secured a reputation as a reliable and committed partner in **major global markets, including the U.S.** and Europe, by offering a diverse portfolio of energy solutions including solar power . . . ." *Id.* at 15 (emphasis added).

17. Additionally, in a separate brochure describing Hanwha entities generally, Hanwha describes its U.S. presence. *See* Hanwha Global Presence United States (hereinafter, "Hanwha's United States Brochure"), *available at* https://www.hanwha.com/content/dam/hanwha/news_and_media/Hanwha_at_a_glance/gallery/pdf/hanwha_global_presence_usa.pdf. According to Hanwha, "[p]rospects abound in the U.S., where Hanwha first established its presence in 1982." *Id*. at 1. Hanwha touts that "Hanwha's American businesses are major players in the manufacture, sale, and support of a wide variety of products" including "solar power solutions," and plans to "mak[e] a push to further expand its American operations." *Id.*

Hanwha Solutions

18. Hanwha Solutions claims to be "[c]harging the world with solar power." https://www.hanwhasolutions.com/en/. Its "head office, which is located in Seoul, Korea, plays a crucial role in managing Hanwha Solutions global network" and the company "aspires to expand its global network to proactively respond to changes in the global market." *Id.*

19. Hanwha Solutions provides an overview of the key sectors of its business with its "Qcells Division" described as "[a] provider of total energy solutions, from solar modules and systems to renewable energy plant development/construction and energy retail." Hanwha Solutions 2023 Company Overview at 7 (hereinafter, "2023 Hanwha Solutions Company Overview") (screenshot below), *available at* https://www.hanwhasolutions.com/static/en/data/Hanwha_Solutions_PPT_2023_EN.pdf.

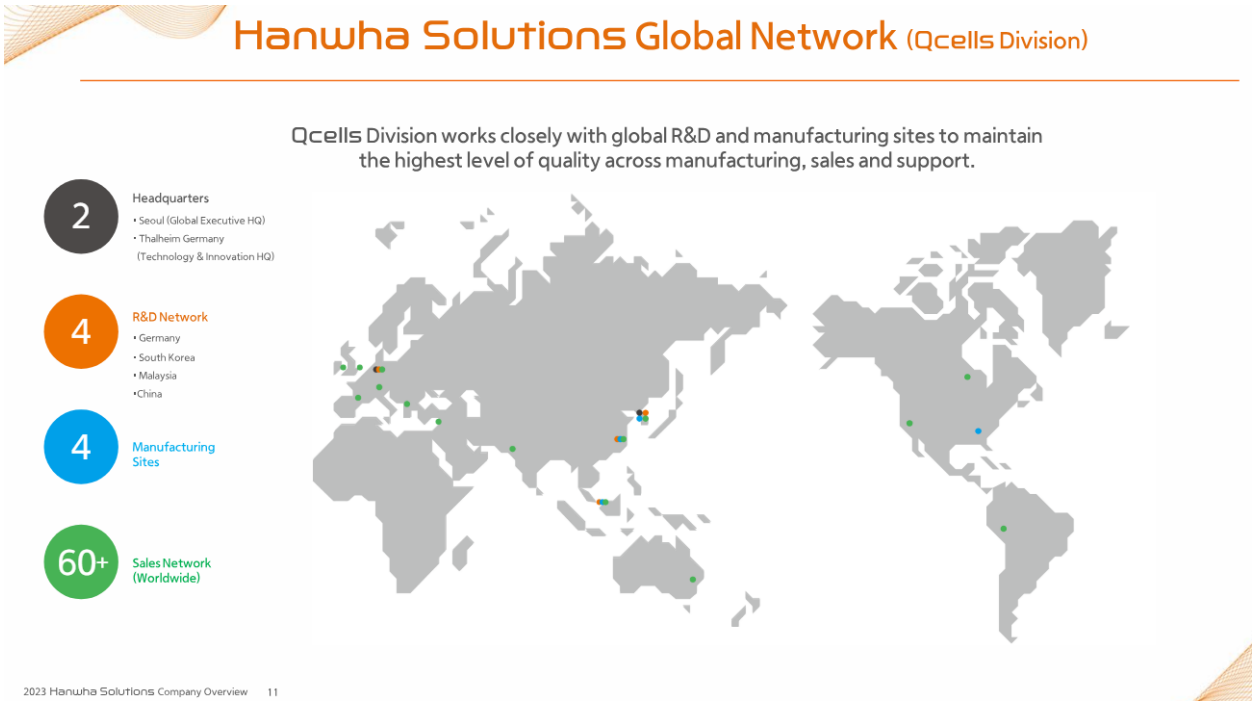


2023 Hanwha Solutions Company Overview

20. Hanwha Solutions states that its "Qcells Division is a **global** provider of complete energy solutions" which is "actively pursuing businesses in **major global markets** by not only

producing solar cells and modules in the midstream sector, but also securing downstream value chains, which includes renewable energy power plant development, construction, and operation as well as energy retail service." https://www.hanwhasolutions.com/en/ (emphasis added).

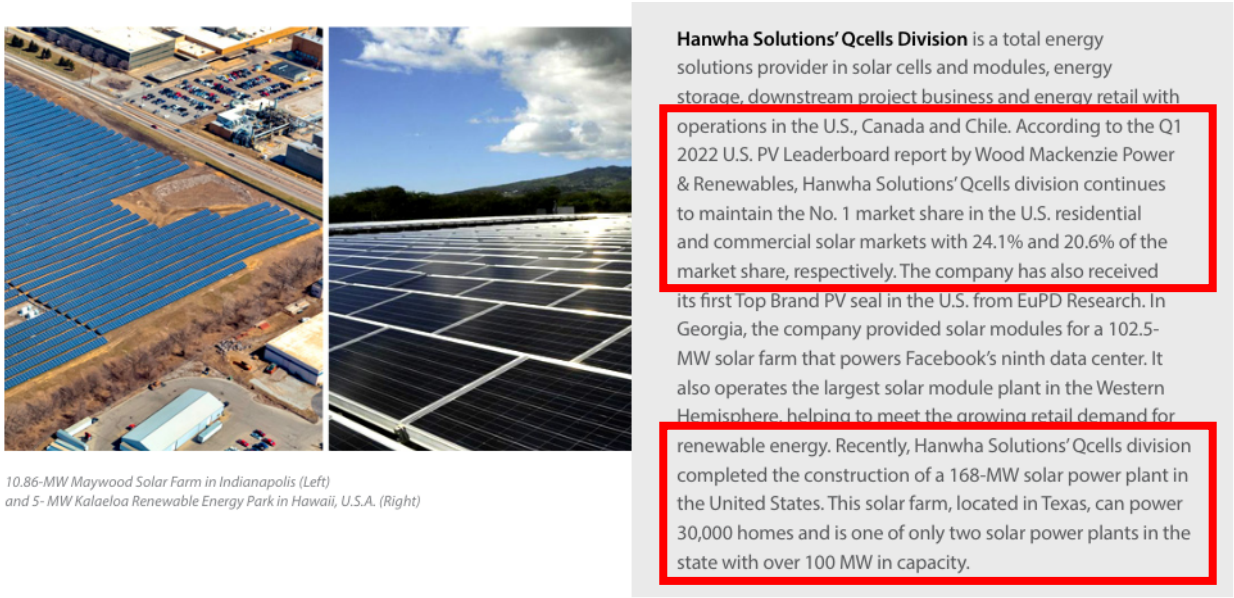
21. Hanwha Solutions' Qcells Division has its "Global Executive HQ" in Seoul, its "Technology & Innovation HQ" in Thalheim, Germany, and many other locations around the world. *See* 2023 Hanwha Solutions Company Overview at 11 (screenshot below). These locations include "Manufacturing Sites" and "Sales Network" in the United States. *See id.*[4]



2023 Hanwha Solutions Company Overview

[4] *See also* Hanwha invests over $300M in cell and module manufacturing capacity expansions to meet growing solar demand (May 11, 2022) ("Hanwha said it will spend $170 million building a 1.4-gigawatt solar module production facility in Dalton, Georgia, where Qcells already operates a 1.7 gigawatt module factory. With the newly-built factory expected to come online as early as the first half of 2023, Qcells' total production capacity in the U.S. will exceed 3 gigawatt – equivalent to one-third of current US solar module production capacity."), *available at* www.hanwhasolutions.com/en/cs/news/view?idx=653&ref=%2Fen%2Fcs%2Fnews%2Flist; https://us.qcells.com/our-locations/ (listing "Sales offices" at 300 Spectrum Drive, Suite 1400, and 400 Spectrum Drive, Suite 1250, Irvine, California, and "Manufacturer" in Dalton, Georgia.).

22. Hanwha Solutions states that, as of Q1 2022, it "maintain[s] the No. 1 market share in the U.S. residential and commercial solar markets with 24.1% and 20.6% of the market share, respectively." Hanwha's United States Brochure at 1. Further, Hanwha Solutions has directed projects at Texas, including "the construction of a 168-MW solar power plant" that "can power 30,000 homes and is one of only two solar power plants in the state with over 100 MW in capacity." *Id.* (partial screenshot below, red boxes added); *see also* Plugging into the Sun: How Hanwha is Leading with Innovations in Solar Energy (Jan. 11, 2022) (promoting "Hanwha Q CELLS' solar modules installed at a power plant in Texas, U.S.") (partial screenshot below), *available at* https://www.hanwha.com/en/news_and_media/stories/sustainability/plugging-into-the-sun-how-hanwha-is-leading-with-innovations-in-solar-energy.html.



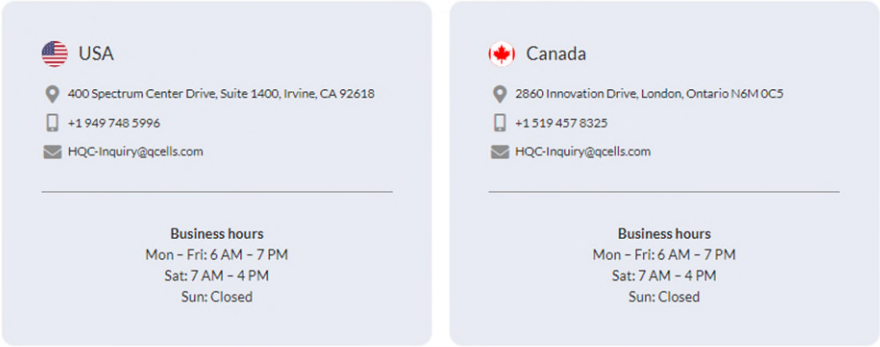
10.86-MW Maywood Solar Farm in Indianapolis (Left) and 5- MW Kalaeloa Renewable Energy Park in Hawaii, U.S.A. (Right)

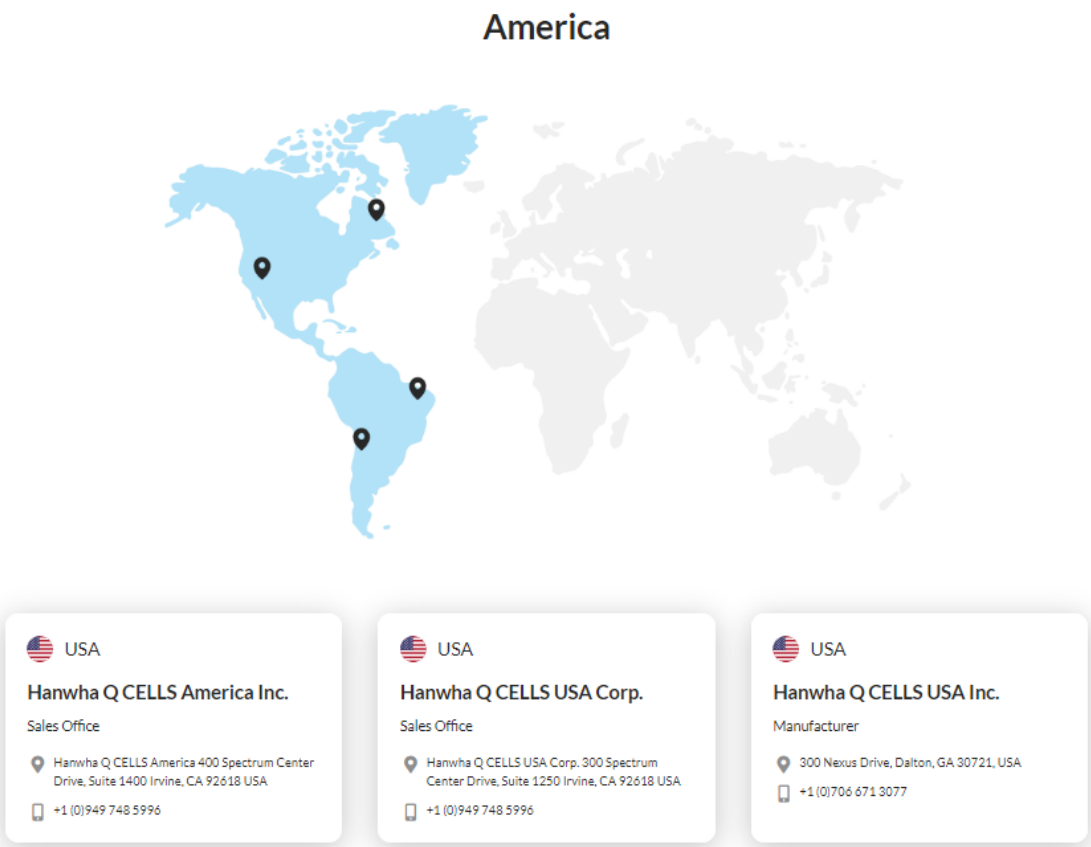
Hanwha Solutions' Qcells Division is a total energy solutions provider in solar cells and modules, energy storage, downstream project business and energy retail with operations in the U.S., Canada and Chile. According to the Q1 2022 U.S. PV Leaderboard report by Wood Mackenzie Power & Renewables, Hanwha Solutions' Qcells division continues to maintain the No. 1 market share in the U.S. residential and commercial solar markets with 24.1% and 20.6% of the market share, respectively. The company has also received its first Top Brand PV seal in the U.S. from EuPD Research. In Georgia, the company provided solar modules for a 102.5-MW solar farm that powers Facebook's ninth data center. It also operates the largest solar module plant in the Western Hemisphere, helping to meet the growing retail demand for renewable energy. Recently, Hanwha Solutions' Qcells division completed the construction of a 168-MW solar power plant in the United States. This solar farm, located in Texas, can power 30,000 homes and is one of only two solar power plants in the state with over 100 MW in capacity.

Hanwha's United States Brochure

Promoted Hanwha Solutions' Qcells Power Plant in Texas

23. Hanwha Solutions operates on its own and/or through direction and control of its subsidiaries including Hanwha Q CELLS America Inc., Hanwha Q CELLS USA Corp., and Hanwha Q CELLS USA Inc. The three entities operate in both a sales and/or manufacturing capacity within the United States. *See* https://us.qcells.com/our-locations/ (partial screenshot below).





Hanwha Solutions' Subsidiaries in the United States

24. For example, Hanwha Q CELLS USA Corp. "develops, invests, and delivers photovoltaic (PV) and battery energy storage system (BESS) projects through Development and Engineering, Procurement, and Construction (EPC) solutions in North America." Q CELLS Reaches Completion of 168 its MWp Fannin County, Texas Project (December 14, 2021), *available at* https://us.qcells.com/blog/operations-have-commenced-at-its-coniglio-solar-project-

located-in-fannin-county-texas-and-interconnecting-in-the-north-ercot-load-zone/. In December 2021, Hanwha Q CELLS USA Corp. announced that "operations have commenced at its Coniglio Solar Project, located in Fannin County, Texas"—in this district—comprising "solar modules, supplied by Q CELLS America Inc." *Id.*

25. On May 26, 2022, Hanwha Q CELLS USA Corp. announced a "solar panel manufacturing expansion [] in Dalton, Georgia"—a "$171 million investment [to] boost production of advanced photovoltaic modules" and "serve the needs of U.S. customers with increased local manufacturing capacity." Qcells announces solar panel manufacturing expansion will be in Dalton, Georgia (May 26, 2022), *available at* https://us.qcells.com/blog/qcells-announces-solar-panel-manufacturing-expansion-will-be-in-dalton-georgia/. The project was slated to "bring Qcells' total capacity in the U.S. to 3.1 gigawatts, equivalent to **one-third of the country's solar module manufacturing capacity**." *Id.* (emphasis added). Per the announcement, the Dalton facility would produce "Qcells' next generation photovoltaic cells, a high efficiency tunnel oxide passivated contact technology, better known as **TOPCon**." *Id.* (emphasis added). "Qcells currently operates the largest solar module factory of its kind in the United States, based in Dalton, Georgia." https://us.qcells.com/complete-energy-solutions/our-commitment/.

26. In January 2023, Hanwha Q CELLS USA Corp. "announced the largest investment in U.S. solar history to build a complete and sustainable solar supply chain in the United States," signaling "a production capacity of 8.4 GW by 2024" to "underscore[] Qcells' commitment to USA manufacturing." *Id.*

27. Additionally, Hanwha Solutions offers a program to its Texas-based solar customers through Hanwha Q CELLS America Inc. called the "Qcells Texas SREC Program." Qcells Flyer (June 2023), *available at* https://www.qpartnerus.com/qpp/s/article/Qcells-SREC-

Program-Flyer-Texas (partial screenshot below). SRECs (Solar Renewable Energy Credits) "represent the positive environmental impact of generating one megawatt-hour (MWh) of electricity from solar energy." *Id.* at 2. The SREC Program "allows [the customer] to transfer [its] solar renewable energy credits (SRECs) to Qcells, and [Qcells] will give [the customer] an eGift card ($10 per kW)." *Id.* at 1. The program is meant to "contribut[e] to Texas' renewable energy goals." *Id.*

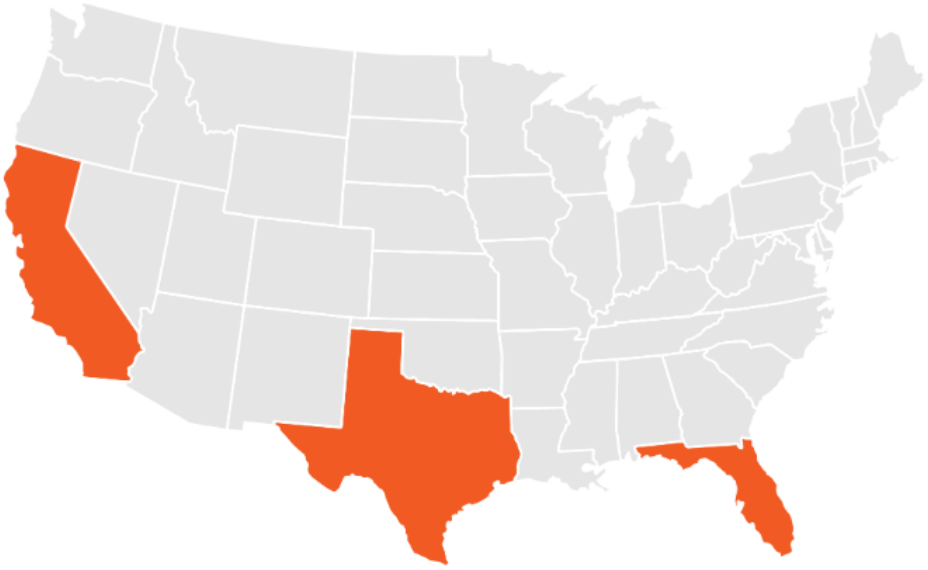
Qcells Texas SREC Program

28. Further, Hanwha Q CELLS America Inc. operates Axia Solar Corporation ("Axia Solar"),[5] which states that it is "a one-stop-shop that owns every aspect of the home solar experience" offering everything "[f]rom solar equipment manufacturing and sales to solar financing, installation, service and beyond." https://axiasolarusa.com/. Axia Solar "proudly serves residents across California, Florida, and Texas." *Id.* (screenshot below). Further, Axia Solar claims to "take[] great pride in providing Texas residents with effortless solar solutions that support energy independence and power up lifestyles." https://axiasolarusa.com/locations/texas/.

Where You Can Find Us

Axia by Qcells proudly serves residents across California, Florida, and Texas. We're passionate about bringing the benefits of affordable solar energy to as many people as possible. Contact us to learn how we can help you start saving money and reducing your carbon footprint — and check back soon for updates on the areas we serve.

California Solar | Texas Solar | Florida Solar



Axia Solar's U.S. Reach

[5] Axia Solar has a principal place of business at 400 Spectrum Center Drive, Suite 1400, Irvine, California 92618—the same address as Hanwha Solutions' subsidiary Hanwha Q CELLS America Inc. *Compare* https://axiasolarusa.com/contact/ *with* https://us.qcells.com/our-locations/.

29. Upon information and belief, Hanwha Solutions, through Axia Solar, manufactures and sells Accused Products (as defined later herein) to customers in Texas.

30. This Court has personal jurisdiction over Hanwha Solutions, directly or through intermediaries, distributors, importers, customers, subsidiaries, and/or consumers including its U.S.-based, wholly owned subsidiaries, Hanwha Q CELLS America Inc., Hanwha Q CELLS USA Corp., Hanwha Q CELLS USA Inc., and Axia Solar Corporation (collectively "Hanwha Q Cells Entities"). On its own and/or through direction and control of its subsidiaries, Hanwha Solutions has committed acts of direct and/or indirect patent infringement within Texas, and elsewhere within the United States, giving rise to this action, and/or has established minimum contacts with Texas such that personal jurisdiction over Hanwha Solutions would not offend traditional notions of fair play and substantial justice.

31. Hanwha Solutions also maintains a corporate presence in the United States through, at least, the Hanwha Q Cells Entities. On a company webpage titled "Hanwha Q CELLS," it states that "the Hanwha Group has transformed Hanwha Q CELLS into the world's leading producer of solar cells and modules." https://www.hanwha.com/en/products_and_services/affiliates/hanwha_q_cells.html. Hanwha Q Cells "penetrated the US market" in Q1 2019 and "began [its] acceleration to expand into the country by building a 1.7GW capacity module plant in the US state of Georgia." *Id.*

32. Upon information and belief, Hanwha Solutions controls or otherwise directs and authorizes all activities of the Hanwha Q Cells Entities, including the Hanwha Q Cells Entities manufacturing, using, offering for sale, selling, and/or importing Accused Products, their components, and/or products containing the same, which incorporate the fundamental technologies covered by the Asserted Patents (as defined later herein). The Hanwha Q Cells Entities are

authorized to import, sell, or offer for sale the Accused Products on behalf of its controlling parent. Upon information and belief, Hanwha Solutions researches, designs, develops, manufactures, and sells the Accused Products and directs the Hanwha Q Cells Entities to do the same, as well as import, offer for sale, and sell the Accused Products in the United States. Accordingly, the Hanwha Q Cells Entities conduct infringing activities on behalf of Hanwha Solutions.

33. Upon information and belief, the Hanwha Q Cells Entities' corporate presence in the United States gives Hanwha Solutions substantially the same business advantages it enjoys in conducting its business through its own offices or paid agents in the state. This includes the Hanwha Q Cells Entities respective office locations in Irvine, California and Dalton, Georgia.

34. Upon information and belief, on its own behalf and/or via its alter egos, representatives, authorized distributors, agents, intermediaries, importers, customers, subsidiaries, and/or consumers maintaining a business presence, operating in, and/or residing in the United States, Hanwha Solutions has distributed and sold the Accused Products in Texas, including within this District.

35. Upon information and belief, Hanwha Solutions has placed and continues to place the Accused Products into the stream of commerce via established distribution channels comprising at least representatives, customers, and/or its U.S.-based subsidiaries, the Hanwha Q Cells Entities, for the sale of the Accused Products, with the knowledge and/or intent that those Accused Products are imported, used, offered for sale, sold, and continue to be sold in the United States and Texas, including in this District.

36. In the alternative, the Court has personal jurisdiction over Hanwha Solutions under Federal Rule of Civil Procedure 4(k)(2), because the claims for patent infringement in this action arise under federal law, Hanwha Solutions is not subject to the jurisdiction of the courts of general

jurisdiction of any state, and exercising jurisdiction over Hanwha Solutions is consistent with the U.S. Constitution.

37. Venue is proper in this judicial district pursuant to 28 U.S.C. § 1391 because, among other things, Hanwha Solutions is not resident in the United States, and thus may be sued in any judicial district, including this one, pursuant to 28 U.S.C. § 1391(c)(3).

Hanwha Energy

38. According to its website, "Hanwha Energy specializes in comprehensive energy solutions" including the production of "high-quality electricity." https://www.hanwha.com/en/products_and_services/affiliates/hanwha_energy.html. It purports to be "diversifying [its] energy business and building businesses **overseas in solar power generation**" with plants in Japan, Turkey, and India. *Id.* (emphasis added). Furthermore, Hanwha Energy has "signed more than 1GW PPAs through [its] local subsidiary **across several locations, including Texas and Nevada**." *Id.* (emphasis added).

39. Hanwha Energy operates on its own and/or through direction and control of its subsidiaries including 174 Power Global.[6] "174 Power Global is headquartered in Irvine, California and midtown Manhattan, New York" and is reportedly "the leading solar energy company that is wholly owned by Hanwha Energy Corporation." https://174powerglobal.com/faq/. 174 Power Global states that it "works closely with landowners, local communities, financial investors, and other partners to build highly productive, utility-scale

[6] According to public filings, 174 Power Global Corporation is also known as Hanwha Energy USA Holdings Corp. *Silicon Photovoltaic Cells and Modules with Nanostructures, and Products Containing the Same*, ITC-337-TA-1271, Hanwha Respondents' Response to the Complaint and Notice of Investigation at 10 (Aug. 18, 2021). The entity is a corporation existing under the laws of the State of Delaware with a principal place of business at 300 Spectrum Center Drive, Irvine, California 92618—the same address as Hanwha Solutions' subsidiary Hanwha Q CELLS USA Corp. *See id.*

solar power plants and commercial/industrial projects **throughout North America**." *Id.* (emphasis added). Per its website, 174 Power Global claims to have "signed nearly 2 gigawatts (GW) of power purchase agreements and has more than 8 GW of additional projects in the development pipeline," and was ranked "2018's #1 solar project development company by project size in the United States by Wood Mackenzie." *Id.*

40. Hanwha Energy discusses plans directed at "the North American solar energy market" through Hanwha Energy's subsidiary, 174 Power Global, along with the acquisition of "Texas-based energy retailer," Chariot Energy. https://www.hanwha.com/en/news_and_media/ifr-hanwha-at-a-glance/global-presence.html (partial screenshot below).

Hanwha Energy is a comprehensive energy solutions company. Through its subsidiary 174 Power Global, the company is involved in all aspects of the North American solar energy market—from power financing to power plant operations. It provides clean solar energy through 364 MW of Power Purchase Agreements with utility providers in various states. The company generates 364 MW of renewable energy and operates 4 MWh of energy storage systems under active development for customers in North America. In 2019, 174 Power Global acquired Chariot Energy, a Texas-based energy retailer. It also acquired OnForce Solar, a New York-based solar power developer of retail and commercial & industrial (C&I) projects. In 2021, Hanwha Energy signed a joint venture agreement with TotalEnergies, a broad energy company, to develop utility-scale solar and energy storage projects in the United States.

Hanwha Energy's North American Footprint

41. Per its website, 174 Power Global is involved in a joint venture for "12 utility-scale solar and energy storage projects" located in several states including Texas which "will be put on stream between 2022 and 2024." Total and 174 Power Global to Jointly Develop 1.6 GW of Solar and Energy Storage Projects in the U.S. (Feb. 3, 2021), *available at* https://174powerglobal.com/total-and-174-power-global-to-jointly-develop-1-6-gw-of-solar-and-energy-storage-projects-in-the-u-s/ (partial screenshot below, red box added).

Total and 174 Power Global to Jointly Develop 1.6 GW of Solar and Energy Storage Projects in the U.S.

News · February 3, 2021 Share:

Houston and Paris, January 14, 2021 – Total and 174 Power Global, a wholly owned Hanwha Group affiliate, have signed an agreement to form a 50/50 joint venture (JV) to develop 12 utility-scale solar and energy storage projects of 1.6 gigawatts (GW) cumulative capacity in the United States, transferred from 174 Power Global's development pipeline.

The first project started production in 2020, and the remainder will be put on stream between 2022 and 2024. Located in Texas, Nevada, Oregon, Wyoming and Virginia the projects will produce clean and reliable energy across the U.S. and lead to the creation of jobs in engineering, construction and plant operations.

Hanwha Energy's Subsidiary Activities

42. Additionally, on October 5, 2021, 174 Power Global announced "the beginning of construction of the Midlothian, Texas Gerdau Solar project, one of the largest behind-the-meter (BTM) solar facilities in the U.S."—a project "comprised of more than 231,000 solar panels." 174 Power Global, Gerdau Long Steel North America and TotalEnergies Break Ground on Gerdau Solar Project in North Texas (Oct. 5, 2021), *available at* https://174powerglobal.com/174-power-global-gerdau-long-steel-north-america-and-totalenergies-break-ground-on-gerdau-solar-project-in-north-texas/. 174 Power Global's President, Henry Yun, Ph.D., stated that "[b]reaking ground at the Gerdau Solar project is an important milestone that expands our solar footprint and brings us one step closer to **generating more clean power for Texas**." *Id.* (emphasis added). According to the press release, the site was expected to commence commercial operation by Summer 2022. *Id.*

43. This Court has personal jurisdiction over Hanwha Energy, directly or through intermediaries, distributors, importers, customers, subsidiaries, and/or consumers including its U.S.-based, wholly owned subsidiary, 174 Power Global. On its own and/or through direction and control of its subsidiaries, Hanwha Energy has committed acts of direct and/or indirect patent infringement within Texas, and elsewhere within the United States, giving rise to this action, and/or has established minimum contacts with Texas such that personal jurisdiction over Hanwha Energy would not offend traditional notions of fair play and substantial justice.

44. Hanwha Energy also maintains a corporate presence in the United States through, at least, 174 Power Global, which "build[s] highly productive, utility-scale solar power plants and commercial/industrial projects throughout North America." https://174powerglobal.com/faq/.

45. Upon information and belief, Hanwha Energy controls or otherwise directs and authorizes all activities of 174 Power Global, including 174 Power Global's manufacturing, using, offering for sale, selling, and/or importing Accused Products, their components, and/or products containing the same, which incorporate the fundamental technologies covered by the Asserted Patents. 174 Power Global is authorized to import, sell, or offer for sale the Accused Products on behalf of its controlling parent. Upon information and belief, Hanwha Energy researches, designs, develops, manufactures, and sells the Accused Products and directs 174 Power Global to do the same, as well as import, offer for sale, and sell the Accused Products in the United States. Accordingly, 174 Power Global conducts infringing activities on behalf of Hanwha Energy.

46. Upon information and belief, 174 Power Global's corporate presence in the United States gives Hanwha Energy substantially the same business advantages it enjoys in conducting its business through its own offices or paid agents in the state. This includes 174 Power Global's headquarters in Irvine, California.

47. Upon information and belief, on its own behalf and/or via its alter egos, representatives, authorized distributors, agents, intermediaries, importers, customers, subsidiaries, and/or consumers maintaining a business presence, operating in, and/or residing in the United States, Hanwha Energy has distributed and sold the Accused Products in Texas, including within this District.

48. Upon information and belief, Hanwha Energy has placed and continues to place Accused Products into the stream of commerce via established distribution channels comprising at least representatives, customers, and/or its U.S.-based subsidiary, 174 Power Global, for the sale of the Accused Products, with the knowledge and/or intent that those Accused Products are imported, used, offered for sale, sold, and continue to be sold in the United States and Texas, including in this District.

49. In the alternative, the Court has personal jurisdiction over Hanwha Energy under Federal Rule of Civil Procedure 4(k)(2), because the claims for patent infringement in this action arise under federal law, Hanwha Energy is not subject to the jurisdiction of the courts of general jurisdiction of any state, and exercising jurisdiction over Hanwha Energy is consistent with the U.S. Constitution.

50. Venue is proper in this judicial district pursuant to 28 U.S.C. § 1391 because, among other things, Hanwha Energy is not resident in the United States, and thus may be sued in any judicial district, including this one, pursuant to 28 U.S.C. § 1391(c)(3).

THE ASSERTED PATENTS AND TECHNOLOGY

51. The Asserted Patents include Maxeon's United States Patent Nos. 8,222,516 ("the '516 patent"), 8,878,053 ("the '053 patent"), and 11,251,315 ("the '315 patent") (collectively, "the Asserted Patents").

52. On July 17, 2012, the United States Patent and Trademark Office ("USPTO") duly and legally issued the '516 patent, titled "Front Contact Solar Cell with Formed Emitter," to SunPower. The named inventor of the '516 patent is Peter John Cousins. A true and correct copy of the '516 patent is attached as Exhibit 1 to this Complaint.

53. The '516 patent is generally directed to a low-cost, high-efficiency front contact solar cell. The '516 patent discloses and specifically claims novel and non-obvious subject matter that represents improvements over conventional solar cells that were available as of the priority date of the '516 patent.

54. On November 4, 2014, the USPTO duly and legally issued the '053 patent, titled "Front Contact Solar Cell with Formed Emitter," to SunPower. The named inventor of the '053 patent is Peter John Cousins. The '053 patent is a division of the application that issued as the '516 patent. A true and correct copy of the '053 patent is attached as Exhibit 2 to this Complaint.

55. The '053 patent is generally directed to methods for fabricating a low-cost, high-efficiency front contact solar cell. The '053 patent discloses and specifically claims novel and non-obvious subject matter that represents improvements over conventional methods for fabricating solar cells that were available as of the priority date of the '053 patent.

56. On February 15, 2022, the USPTO duly and legally issued the '315 patent, titled "Solar Cells with Improved Lifetime, Passivation and/or Efficiency," to SunPower. The named inventors of the '315 patent are David D. Smith, Tim Dennis, and Russelle De Jesus Tabajonda. A true and correct copy of the '315 patent is attached as Exhibit 3 to this Complaint.

57. The '315 patent relates generally to solar cell fabrication processes and structures. The '315 patent claims novel and non-obvious subject matter that represents improvements over

solar cell fabrication processes and structures that were available as of the priority date for the ’315 patent.

58. On December 14, 2022, SunPower assigned the Asserted Patents to Maxeon. Maxeon owns the entire right, title, and interest in and to each of the Asserted Patents.

HANWHA’S INFRINGING PRODUCTS AND ACTIVITIES

59. As described in detail above, Hanwha designs, manufactures, imports, sells, and/or offers to sell solar modules with “Q.ANTUM NEO Technology” (i.e., TOPCon technology), including, but not limited to the Q.TRON solar module series. Upon information and belief, the Q.TRON solar modules series includes at least the following models:

Q.TRON BLK-G1+ Series	Q.TRON BLK M-G2+ Series	Q.TRON XL-G2.3/BFG
Q.TRON SMART BLK-G1+		
Q.TRON SMART-G1+		

Upon information and belief, each of these models and all other models of Hanwha’s solar modules with “Q.ANTUM NEO Technology” that incorporate TOPCon technology (the “Accused Products”) are fabricated in a substantially similar way and/or have substantially similar features, such that each infringes the asserted claims in the same way.

COUNT I

(INFRINGEMENT OF U.S. PATENT NO. 8,222,516)

60. Maxeon re-alleges and incorporates by reference the allegations in paragraphs 1-59 above.

61. Maxeon is the assignee of the ’516 patent. Maxeon has all substantial rights to enforce the ’516 patent, including the right to exclude others and to sue and recover damages for past and future infringement.

62. The ’516 patent is valid, enforceable, and was duly issued in full compliance with Title 35 of the United States Code.

63. Hanwha has infringed and continues to infringe directly and/or indirectly, either literally or under the doctrine of equivalents, one or more claims of the ’516 patent in this District and elsewhere.

Direct Infringement

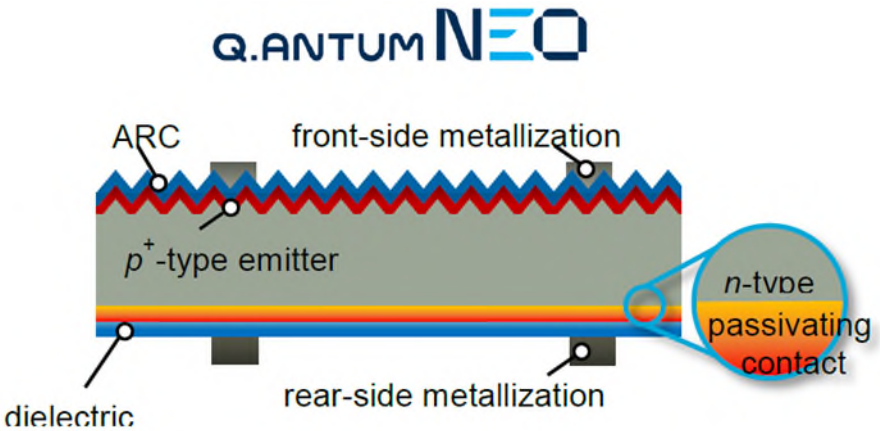
64. Hanwha directly infringes at least claims 9 and 10 of the ’516 patent under 35 U.S.C. § 271(a) by making, using, selling, offering for sale in the United States, and/or importing into the United States, without permission, consent, authority or license, the Accused Products, including without limitation the Q.TRON solar module series. Furthermore, upon information and belief, Hanwha sells and makes the Accused Products outside of the United States, delivers the Accused Products to its customers, distributors, and/or subsidiaries in the United States, or in the case that it delivers the Accused Products outside of the United States, Hanwha does so intending and/or knowing that the Accused Products are destined for the United States, thereby directly infringing at least claims 9 and 10 of the ’516 patent.

65. For example, independent claim 9 of the ’516 patent recites:

> 9. A solar cell having a front side facing the sun to collect solar radiation during normal operation and a backside opposite the front side, the solar cell comprising:
>
> a substrate having a textured front surface;
>
> an emitter layer formed over a back surface of the substrate, the emitter layer forming a backside junction with the substrate;
>
> an oxide layer formed between the back surface of the substrate and the emitter layer;
>
> a first metal contact making an electrical connection to the substrate on the front side of the solar cell; and

> a second metal contact making an electrical connection to the emitter layer on the backside of the solar cell, the first metal contact and the second metal contact being configured to allow an external electrical circuit to be powered by the solar cell.

66. The Accused Products include a solar cell having a front side facing the sun to collect solar radiation during normal operation and a backside (or rear side) opposite the front side. *See* Hanwha Q.ANTUM Neo Analysis at 1 (partial screenshot below). The Accused Products use "a n-type" substrate (i.e., "substrate") that is textured. *See id.* at 1-2 (disclosing that Qcells has "developed the Q.antum Neo technology, which is a n-type cell with passivating-contact technology . . . [, where t]he overall process flow from the raw wafter to finished cell" includes the step of "wafer texturing").



Hanwha Q.ANTUM Neo Analysis

67. The Accused Products have a "passivating contact," which is an emitter layer formed over a back surface of the n-type substrate. *See id.* at 1 (Fig. 1), 2 (disclosing that the cell "has the n-type passivating contact on the rear"), 5 (disclosing that the cells have an "n-polysilicon passivation stack" on the rear-side).

68. The "passivating contact" (i.e., the emitter layer) in the Accused Products is formed on the backside of the of the solar cell and forms a backside junction with the "n-type" substrate (i.e., the substrate). *See id.* at 1.

69. Hanwha solar cells with Q.ANTUM Neo technology are described as a "TOPCon" cell, which indicates by the name that the cell includes a "**T**unnel **O**xide" layer in the "**P**assivating **C**ontact." *See id.* at 4 ("Energy loss of 25.3% TOPCon cell"); *see also* Qcells plugs in Completely Clean Energy for Intersolar Europe 2022 (May 6, 2022) ("Q.ANTUM NEO is based on a TopCON-type cell structure that incorporates passivating contact technology to deliver higher efficiencies than typical PERC-type cells."). Thus, the Accused Products have a "Tunnel oxide" layer, which is an oxide layer formed between the back surface of the "n-type" substrate (i.e., the substrate) and the "passivating contact" (i.e., the emitter layer). *See* Hanwha Q.ANTUM Neo Analysis at 1 (Fig. 1, shown above).

70. The Accused Products have "front-side metallization," which include a first metal contact making an electrical connection to the "n-type" substrate (i.e., the substrate) on the front side of the solar cell. *See id.* at 1 (Fig. 1, shown above), 4 (disclosing the Hanwha "engineer[ed] the front metal contact to decrease its recombination and improve its contact to silicon").

71. The Accused Products have "rear-side metallization," which include a second metal contact making an electrical connection to the "passivating contact" layer (i.e., the emitter layer) on the backside (or rear side) of the solar cell. *See id.* at 1 (Fig. 1, shown above).

72. The "front-side metallization" (i.e., the first metal contact) on the front side of the solar cell and the "rear-side metallization" (i.e., the second metal contact) on the backside of the solar cell are configured to allow an external electrical circuit to be powered by the solar cell. For example, the Q.TRON BLK M-G2+ Series datasheet shows the electrical characteristics for powering an external electrical circuit by the solar cell. Q.TRON BLK M-G2+ Series datasheet at 2 (December 2023), *available at* https://us.qcells.com/wp-

content/uploads/2024/01/Qcells_Data_sheet_Q.TRON_BLK_M-G2_series_405-430_DA_2023-12_Rev02_NA.pdf (partial screenshot below).

Electrical Characteristics

POWER CLASS				405	410	415	420	425	430
MINIMUM PERFORMANCE AT STANDARD TEST CONDITIONS, STC[1] (POWER TOLERANCE +5 W / −0 W)									
Minimum	Power at MPP[1]	P_{MPP}	[W]	405	410	415	420	425	430
	Short Circuit Current[1]	I_{SC}	[A]	13.33	13.41	13.49	13.58	13.66	13.74
	Open Circuit Voltage[1]	V_{OC}	[V]	37.91	38.19	38.47	38.75	39.03	39.32
	Current at MPP	I_{MPP}	[A]	12.69	12.76	12.83	12.91	12.98	13.05
	Voltage at MPP	V_{MPP}	[V]	31.93	32.13	32.34	32.54	32.74	32.94
	Efficiency[1]	η	[%]	≥20.7	≥21.0	≥21.3	≥21.5	≥21.8	≥22.0
MINIMUM PERFORMANCE AT NORMAL OPERATING CONDITIONS, NMOT[2]									
Minimum	Power at MPP	P_{MPP}	[W]	306.1	309.9	313.7	317.5	321.2	325.0
	Short Circuit Current	I_{SC}	[A]	10.74	10.81	10.87	10.94	11.00	11.07
	Open Circuit Voltage	V_{OC}	[V]	35.96	36.23	36.50	36.77	37.04	37.31
	Current at MPP	I_{MPP}	[A]	9.98	10.04	10.10	10.15	10.21	10.27
	Voltage at MPP	V_{MPP}	[V]	30.66	30.87	31.07	31.26	31.46	31.65

[1]Measurement tolerances P_{MPP} ±3 %; I_{SC}; V_{OC} ±5 % at STC: 1000 W/m², 25±2 °C, AM 1.5 according to IEC 60904-3 • [2]800 W/m², NMOT, spectrum AM 1.5

Q.TRON BLK M-G2+ Series Electrical Characteristics

Indirect Infringement

73. Upon information and belief, Hanwha has actively induced, under 35 U.S.C. § 271(b), distributors, customers, subsidiaries, importers, and/or consumers that import, purchase, or sell the Accused Products that include or are made using all of the limitations of one or more claims of the ’516 patent to directly infringe one or more claims of the ’516 patent by using, offering for sale, selling, and/or importing the Accused Products. Hanwha has done so with knowledge, or with willful blindness of the fact, that the induced acts constitute infringement of the ’516 patent. Upon information and belief, Hanwha intends to cause, and has taken affirmative steps to induce infringement by distributors, customers, subsidiaries, and/or consumers by, inter alia, creating advertisements that promote the infringing use of the Accused Products, creating established distribution channels for the Accused Products into and within the United States, manufacturing the Accused Products, distributing or making available instructions or manuals for these products to purchasers and prospective buyers, and/or providing technical support,

replacement parts, or services for these products to those purchasers in the United States directly and/or through their U.S. subsidiaries and/or other affiliates and distributors.

74. At a minimum, Hanwha has known of the ’516 patent at least as early as the filing date of this Complaint.

75. Upon information and belief, despite having knowledge of the ’516 patent and knowledge that it is directly and/or indirectly infringing one or more claims of the ’516 patent, Hanwha has nevertheless continued its infringing conduct. Hanwha’s infringing activities relative to the ’516 patent have been, and continue to be willful and deliberate misconduct beyond typical infringement such that Maxeon is entitled under 35 U.S.C. § 284 to enhanced damages up to three times the compensatory amount awarded.

76. Maxeon has been damaged as a result of Hanwha’s infringing conduct. Hanwha is liable to Maxeon in an amount that adequately compensates Maxeon for Hanwha’s infringement, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284. Further, Hanwha Solutions and Hanwha Energy are jointly and severally liable for damages sustained by Maxeon on account of Hanwha’s infringement.

COUNT II

(INFRINGEMENT OF U.S. PATENT NO. 8,878,053)

77. Maxeon re-alleges and incorporates by reference the allegations in paragraphs 1-76 above.

78. Maxeon is the assignee of the ’053 patent. Maxeon has all substantial rights to enforce the ’053 patent, including the right to exclude others and to sue and recover damages for past and future infringement.

79. The ’053 patent is valid, enforceable, and was duly issued in full compliance with Title 35 of the United States Code.

80. Hanwha has infringed and continues to infringe directly, either literally or under the doctrine of equivalents, one or more claims of the ’053 patent in this District and elsewhere.

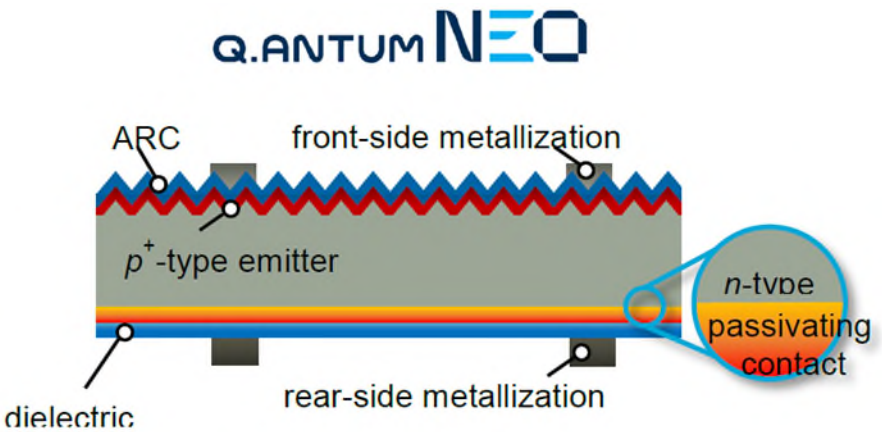
Direct Infringement

81. Hanwha directly infringes at least claims 9, 12, and 14-20 of the ’053 patent under 35 U.S.C. § 271(a) by making, using, selling, offering for sale in the United States, and/or importing into the United States, without permission, consent, authority or license, the Accused Products, including without limitation the Q.TRON solar module series, which are manufactured according to the methods of claims 9, 12, and 14-20. Furthermore, upon information and belief, Hanwha manufactures the Accused Products outside of the United States according to the methods of claims 9, 12, and 14-20, imports the Accused Products into the United States, and delivers the Accused Products to its customers, distributors, and/or subsidiaries in the United States, or in the case that it delivers the Accused Products outside of the United States, Hanwha does so intending and/or knowing that the Accused Products are destined for the United States, thereby directly infringing at least claims 9, 12, and 14-20 of the ’053 patent pursuant to 35 U.S.C. § 271(g).

82. For example, independent claim 16 of the ’053 patent recites:

> 16. A method of fabricating a solar cell comprising:
>
> forming an oxide layer over a back surface of a silicon substrate;
>
> forming a layer of polysilicon over the oxide layer;
>
> diffusing dopants into the layer of polysilicon to form a backside junction with the silicon substrate;
>
> diffusing dopants into a front surface of the silicon substrate, the front surface of the silicon substrate facing the sun during normal operation; and
>
> forming a metal contact on the front surface of the silicon substrate, wherein the metal contact is electrically coupled to the silicon substrate.

83. Upon information and belief, Hanwha performs the steps of claim 16 because the Accused Products are fabricated according to a "TOPCon" structure, as shown and described in Hanwha's published research. *See* Hanwha Q.ANTUM Neo Analysis at 1 (partial screenshot below).



Hanwha Q.ANTUM Neo Analysis

84. Upon information and belief, Hanwha performs the step of forming an oxide layer over a back surface of a silicon substrate because the Accused Products have a "Tunnel oxide" layer (i.e., an oxide layer) formed over a back surface of the "n-type" substrate (i.e., a silicon substrate). *See id.* (partial screenshot above). Hanwha solar cells with Q.ANTUM Neo technology are described as a "TOPCon" cell, which indicates by the name that the cell includes a "**T**unnel **O**xide" layer in the "**P**assivating **C**ontact." *See id.* at 4 ("Energy loss of 25.3% TOPCon cell"); *see also* Qcells plugs in Completely Clean Energy for Intersolar Europe 2022 (May 6, 2022) ("Q.ANTUM NEO is based on a TopCON-type cell structure that incorporates passivating contact technology to deliver higher efficiencies than typical PERC-type cells."). Thus, the Accused Products have a "Tunnel oxide" layer, which is an oxide layer formed between the back surface of the "n-type" substrate (i.e., the substrate) and the "passivating contact" (i.e., the emitter layer). *See* Hanwha Q.ANTUM Neo Analysis at 1 (Fig. 1, shown above)

85. Upon information and belief, Hanwha performs the step of forming a layer of polysilicon over the oxide layer because the Accused Products have a "passivating contact" (e.g., a layer of polysilicon) formed over the "Tunnel oxide" layer (i.e., the oxide layer). *See id.* The "passivating contact" is also referred to as a "n-polysilicon passivation stack." *See id.* at 5.

86. Upon information and belief, Hanwha performs the step of diffusing dopants into the layer of polysilicon to form a backside junction with the silicon substrate because, regarding the "passivating contact" layer, also referred to as the "n-polysilicon passivation stack" (e.g., the layer of polysilicon), the description of this layer as "n-polysilicon" indicates that dopants have been diffused into the layer of polysilicon to form a backside junction with the "n-type" substrate (i.e., silicon substrate). *See id.*

87. Upon information and belief, Hanwha performs the step of diffusing dopants into a front surface of the silicon substrate, the front surface of the silicon substrate facing the sun during normal operation, because the Accused Products have a "p^+-type emitter" on a front surface of the "n-type" substrate (i.e., silicon substrate), which indicates that dopants have been diffused into the front surface of the silicon substrate. *See id.* at 1 (Fig. 1). The textured surface is the front surface of the "n-type" substrate (i.e., silicon substrate) and faces the sun during normal operation.

88. Upon information and belief, Hanwha performs the step of forming a metal contact on the front surface of the silicon substrate, wherein the metal contact is electrically coupled to the silicon substrate, because the Accused Products have "front-side metallization" (i.e., a metal contact) on the front surface of the "n-type" substrate (i.e., silicon substrate). *See id.* The "front-side metallization" is electronically coupled to the "n-type" substrate (i.e., silicon substrate). *See id.*

89. At a minimum, Hanwha has known of the ’053 patent at least as early as the filing date of this Complaint.

90. Upon information and belief, despite having knowledge of the ’053 patent and knowledge that it is directly infringing one or more claims of the ’053 patent, Hanwha has nevertheless continued its infringing conduct. Hanwha’s infringing activities relative to the ’053 patent have been, and continue to be willful and deliberate misconduct beyond typical infringement such that Maxeon is entitled under 35 U.S.C. § 284 to enhanced damages up to three times the compensatory amount awarded.

91. Maxeon has been damaged as a result of Hanwha’s infringing conduct. Hanwha is liable to Maxeon in an amount that adequately compensates Maxeon for Hanwha’s infringement, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284. Further, Hanwha Solutions and Hanwha Energy are jointly and severally liable for damages sustained by Maxeon on account of Hanwha’s infringement.

COUNT III

(INFRINGEMENT OF U.S. PATENT NO. 11,251,315)

92. Maxeon re-alleges and incorporates by reference the allegations in paragraphs 1-91 above.

93. Maxeon is the assignee of the ’315 patent. Maxeon has all substantial rights to enforce the ’315 patent, including the right to exclude others and to sue and recover damages for past and future infringement.

94. The ’315 patent is valid, enforceable, and was duly issued in full compliance with Title 35 of the United States Code.

95. Hanwha has infringed and continues to infringe directly and/or indirectly, either literally or under the doctrine of equivalents, one or more claims of the ’315 patent in this District and elsewhere.

Direct Infringement

96. Hanwha directly infringes at least claims 10-11 and 13-15 of the ’315 patent under 35 U.S.C. § 271(a) by making, using, selling, offering for sale in the United States, and/or importing into the United States, without permission, consent, authority or license, the Accused Products, including without limitation the Q.TRON solar module series. Furthermore, upon information and belief, Hanwha sells and makes the Accused Products outside of the United States, delivers the Accused Products to its customers, distributors, and/or subsidiaries in the United States, or in the case that it delivers the Accused Products outside of the United States, Hanwha does so intending and/or knowing that the Accused Products are destined for the United States, thereby directly infringing at least claims 10-11 and 13-15 of the ’315 patent.

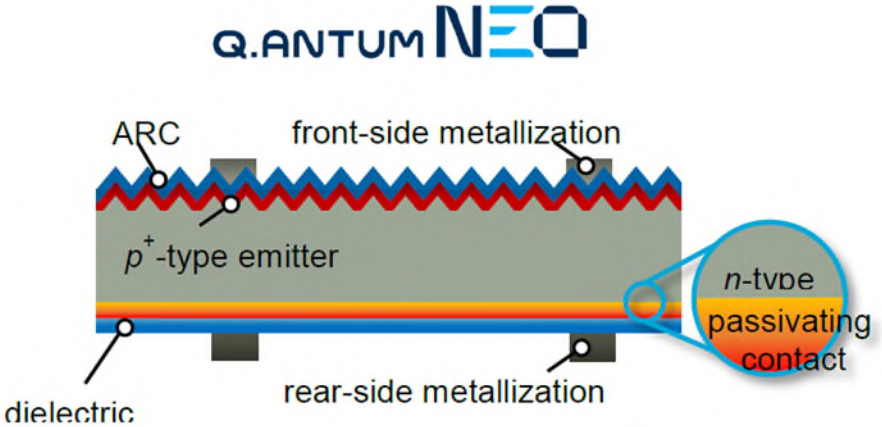
97. For example, independent claim 10 of the ’315 patent recites:

> 10. A solar cell, the solar cell having a front side which faces the sun during normal operation and a back side opposite the front side, the solar cell comprising:
>
> a silicon substrate, wherein a portion of the silicon substrate has a dopant concentration of approximately less than or equal to 2×10^{18} cm^{-3} and wherein the portion of the silicon substrate is formed at the front side of the solar cell;
>
> a dielectric region formed over the silicon substrate, wherein the dielectric region is formed over the back side of [the] solar [cell];[7]
>
> a first emitter region having metal impurities formed over the dielectric region; and

[7] *See* Ex. 3 at Certificate of Correction.

a first metal contact formed over the first emitter region.

98. The Accused Products include a solar cell having a front side facing the sun to collect solar radiation during normal operation and a back side (or rear side) opposite the front side. *See* Hanwha Q.ANTUM Neo Analysis at 1 (partial screenshot below).



Hanwha Q.ANTUM Neo Analysis

99. The Accused Products use "a n-type" substrate (i.e., a silicon substrate). *See id.* (partial screenshot above).

100. Upon information and belief, the Accused Products have a portion of the "n-type" substrate (i.e., the silicon substrate) having a dopant concentration of approximately less than or equal to 2×10^{18} cm^{-3}, which is formed on the front side of the solar cell. *See id.*

101. Hanwha solar cells with Q.ANTUM Neo technology are described as a "TOPCon" cell, which indicates by the name that the cell includes a "**T**unnel **O**xide" layer in the "**P**assivating **C**ontact." *See id.* at 4 ("Energy loss of 25.3% TOPCon cell"); *see also* Qcells plugs in Completely Clean Energy for Intersolar Europe 2022 (May 6, 2022) ("Q.ANTUM NEO is based on a TopCON-type cell structure that incorporates passivating contact technology to deliver higher efficiencies than typical PERC-type cells."). Thus, the Accused Products have a "Tunnel Oxide"

layer (i.e., a dielectric region) formed over the "n-type" substrate (i.e., the silicon substrate) on the back side of the solar cell. *See* Hanwha Q.ANTUM Neo Analysis at 1 (Fig. 1 shown above).

102. The Accused Products have a "passivating contact," which is an emitter layer formed over the dielectric region. *See id.* 1 (Fig. 1), 2 (disclosing that the cell "has the n-type passivating contact on the rear"), 5 (disclosing that the cells have an "n-polysilicon passivation stack" on the rear-side). Upon information and belief, the passivating contact ("the first emitter layer") has metal impurities.

103. The Accused Products have "rear-side metallization," which include a first metal contact formed over the passivating contact ("the first emitter layer"). *See id.* at 1 (Fig. 1, shown above).

Indirect Infringement

104. Upon information and belief, Hanwha has actively induced, under 35 U.S.C. § 271(b), distributors, customers, subsidiaries, importers, and/or consumers (e.g., Crawford Electric Supply) that import, purchase, or sell the Accused Products that include or are made using all of the limitations of one or more claims of the '315 patent to directly infringe one or more claims of the '315 patent by using, offering for sale, selling, and/or importing the Accused Products. Hanwha has done so with knowledge, or with willful blindness of the fact, that the induced acts constitute infringement of the '315 patent. Upon information and belief, Hanwha intends to cause, and has taken affirmative steps to induce infringement by distributors, customers, subsidiaries, and/or consumers by, inter alia, creating advertisements that promote the infringing use of the Accused Products, creating established distribution channels for the Accused Products into and within the United States, manufacturing the Accused Products, distributing or making available instructions or manuals for these products to purchasers and prospective buyers, and/or providing technical support, replacement parts, or services for these products to those purchasers

in the United States directly and/or through their U.S. subsidiaries and/or other affiliates and distributors.

105. At a minimum, Hanwha has known of the ’315 patent at least as early as the filing date of this Complaint.

106. Upon information and belief, despite having knowledge of the ’315 patent and knowledge that it is directly and/or indirectly infringing one or more claims of the ’315 patent, Hanwha has nevertheless continued its infringing conduct. Hanwha’s infringing activities relative to the ’315 patent have been, and continue to be willful and deliberate misconduct beyond typical infringement such that Maxeon is entitled under 35 U.S.C. § 284 to enhanced damages up to three times the compensatory amount awarded.

107. Maxeon has been damaged as a result of Hanwha’s infringing conduct. Hanwha is liable to Maxeon in an amount that adequately compensates Maxeon for Hanwha’s infringement, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284. Further, Hanwha Solutions and Hanwha Energy are jointly and severally liable for damages sustained by Maxeon on account of Hanwha’s infringement.

PRAYER FOR RELIEF

WHEREFORE, Maxeon requests the Court to grant the following relief:

A. A judgment that Hanwha has infringed one or more claims of each of the Asserted Patents and/or has induced infringement of the ’516 patent and/or ’315 patent;

B. A judgment that each of the Asserted Patents is valid and enforceable;

C. A permanent injunction enjoining Hanwha, its employees, agents, officers, directors, attorneys, successors, affiliates, subsidiaries, and assigns, and all of those in active concert and participation with any of the foregoing persons or entities, from infringing or inducing infringement of the Asserted Patents;

D. A judgment for an accounting of all damages and to pay damages adequate to compensate Maxeon for Hanwha's infringement of the Asserted Patents;

E. A judgment that Hanwha has willfully infringed the Asserted Patents;

F. A judgment that the damages award be increased up to three times the actual amount assessed, pursuant to 35 U.S.C. § 284;

G. A judgment requiring Hanwha to pay Maxeon's costs, expenses, and pre-judgment and post-judgment interest for Hanwha's infringement of each of the Asserted Patents pursuant to 35 U.S.C. § 284;

H. A judgment finding that this is an exceptional case and awarding Maxeon its reasonable attorneys' fees pursuant to 35 U.S.C. § 285; and

I. Such other relief that the Court deems just and proper.

DEMAND FOR JURY TRIAL

In accordance with Federal Rule of Civil Procedure 38 and Local Rule CV-38, Maxeon respectfully demands a jury trial of all issues triable to a jury in this action.

Dated: April 19, 2024

Respectfully submitted,

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