



SUSTAINABILITY REPORT 2020.

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Note Regarding Forward-Looking Statements.



All financial numbers in this report are based on U.S. Generally Accepted Accounting Principles. This report contains forward-looking statements within the meaning of the United States federal securities laws. These forward-looking statements do not constitute guarantees of future performance. These forward-looking statements are based on current information and expectations, are subject to uncertainties and changes in circumstances, and involve a number of factors that could cause actual results to differ materially from those anticipated by these forward-looking statements, including risks described in the company's most recent annual report on Form 10-K, and other filings with the Securities and Exchange Commission. First Solar assumes no obligation to update any forward-looking information contained in this report or with respect to the information described herein.

Message From the CEO.



MARK WIDMAR
Chief Executive Officer

In 2019, we celebrated our 20th anniversary as a company and reached a significant milestone of 25 gigawatts (GW)DC of cumulative modules shipped. This achievement is a reflection of our resilience, financial discipline, and the value of our differentiated thin film photovoltaic (PV) technology, powered by our CdTe semiconductor.

We continued to ramp our Series 6 manufacturing capacity and produced 5.7 GWDC of modules in 2019, representing a total production output increase of 111% compared to 2018. The increased production capacity and throughput, along with the incorporation of resource efficiency measures into our Series 6 tool designs and processes, successfully reduced the greenhouse gas (GHG) emissions, energy and water intensity of our manufacturing operations by over 30%.

Our resource-efficient manufacturing process results in First Solar modules having the smallest carbon footprint, fastest energy payback time, and lowest lifecycle water footprint among any commercially available PV products today. The eco-efficiencies of our modules are widely acknowledged and recognized. In 2019, First Solar was honored as a joint winner of PV Magazine's inaugural Sustainability Award in recognition of our Series 6 modules' industry-leading environmental profile. We also received an A- from the Carbon Disclosure Project (CDP) in recognition of the company's disclosure and management of climate change risks and GHG emissions.

At our core, we are a solar technology manufacturing company driven by our vision to lead the world's sustainable energy future. We do this by providing a sustainable solution to climate change, energy security, water scarcity, and the unsustainable consumption of natural resources. From the beginning, we have placed sustainability alongside innovation at the heart of our business. We have long recognized our shared responsibility for environmental stewardship, and despite leading the industry in sustainability, we will not rest on our achievements.

This is why we have elected to join RE100, a global initiative led by The Climate Group in partnership with CDP, and to make a promise that we will power our operations with 100 percent renewable energy by 2028. In addition to further lowering the carbon footprint of our modules, we hope that our participation will support the effort to accelerate the shift to zero-carbon grids, while also aligning our goals with our customers' decarbonization commitments.

And we do not plan to stop there. As part of our efforts to support our customers' efforts to decouple their business growth from adverse environmental impacts, we continue

to drive thought leadership with the Renewable Energy Buyers Association (REBA), where we serve on the Board of Directors. We are also in the process of registering our Series 6 modules in the EPEAT registry for green electronics. Through conformance with the industry's first sustainability leadership standard (NSF 457), the EPEAT registry will enable public and private purchasers to identify environmentally preferable PV products.

These are just some of the ways that we are making the most of the day so that our customers and stakeholders can make the most of solar energy.

The past several months have been marked by the ongoing COVID-19 pandemic and protests over racial injustice, which has led us to reflect internally on our own inclusion and diversity practices. Though we pride ourselves on being an equal opportunity employer and actively seek to increase the racial, gender, and ethnic diversity of our candidate pool, we recognize there is more work to be done. Our people form the foundation of everything we do, and promoting a diverse and inclusive workforce and maintaining a safe workplace remains a priority. As the COVID-19 pandemic swept the globe, we took sweeping measures to help inhibit its spread across our global footprint, while also contributing to efforts to mitigate its impact on the communities we live and work in.

At this time, the vast majority of our office-based associates are working from home to minimize large concentrations of people at our sites and facilities. In line with guidance from the World Health Organization, local health authorities and government, we have implemented numerous preventative hygiene and safety measures at our global manufacturing, administrative, and other sites and facilities. We have also donated personal protective equipment (PPE) and other tools to first responders in the United States, Malaysia, Vietnam, and India.

Thank you for your interest in this Sustainability Report and our continued journey to lead the world's sustainable energy future.

Mark Widmar
Chief Executive Officer

2019 Highlights.



5.7 GW

Produced



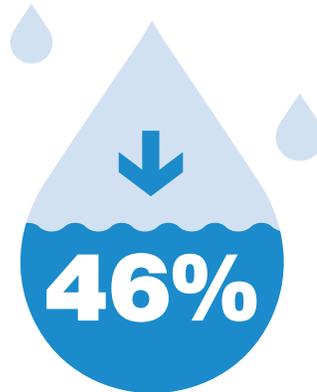
↓ 37%

Lower GHG Emissions Intensity



↓ 36%

Lower Manufacturing Energy Intensity



Lower Manufacturing Water Intensity



↓ 15%

Lower Manufacturing Waste Intensity

20%

Women On The Board



+ 90%

Module Recycling Material Recovery Rate



A-

CDP Climate Change Score



About First Solar

First Solar is a leading global provider of comprehensive photovoltaic (PV) solar energy solutions with more than 25GW sold worldwide. We are the world's largest thin film PV solar module manufacturer and are the only American company among the world's ten largest PV manufacturers. We design, manufacture, sell and sell PV solar modules with an advanced thin film semiconductor technology and we develop, design, construct, and sell PV power plants that primarily use the solar modules we manufacture. We provide operations and maintenance (O&M) services to system owners. In addressing the overall global demand for electricity, our advanced thin film modules, which leverage our Series 6TM ("Series 6") module technology, and power plant solutions compete favorably on an economic basis with traditional forms of energy generation and provide low-cost electricity to end users. From raw material sourcing through end-of-life module recycling, First Solar's PV modules and systems protect and enhance the environment.



First Solar is headquartered in Tempe, Arizona, with regional offices around the world and manufacturing facilities in Perrysburg, Ohio; Kulim, Malaysia; and Ho Chi Minh City, Vietnam. Our annual manufacturing capacity has grown from 25 megawatts (MW) in 2005 to 5.5 gigawatts (GW) of Series 6 capacity at the end of 2019. We recently expanded our production capacity in Ohio, making us the largest solar manufacturer in the U.S. and the Western Hemisphere. 25GW of First Solar modules are generating enough electricity to displace over 17 million metric tons of CO₂e per year, power more than 12 million average homes and save 45 billion liters of water (or 18,000 Olympic swimming pools) per year during their 25+ product life, based on worldwide averages.

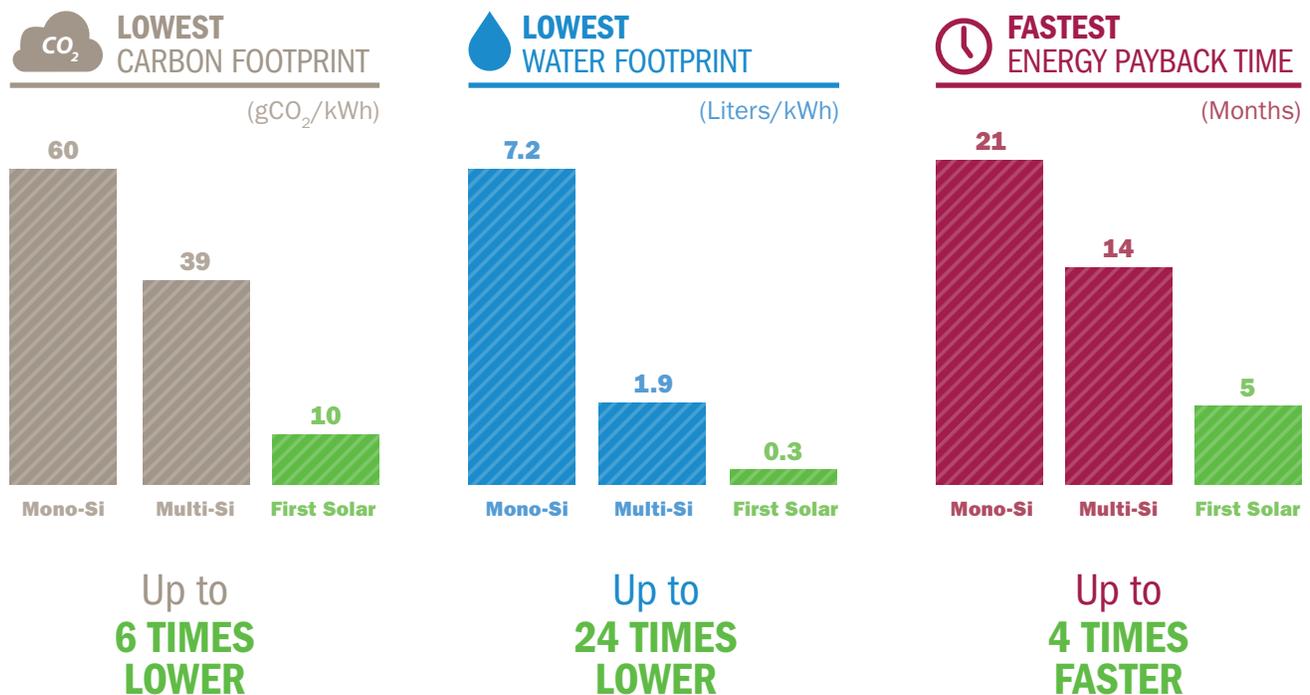


Series 6 Environmental, Health and Safety Profile

All PV technologies are not created equal. Where and how a PV module and its components are manufactured significantly impacts its environmental profile. First Solar’s advanced thin film modules are manufactured in a high-throughput, automated environment that integrates all manufacturing steps into a continuous flow operation, using less energy, water and semiconductor material than conventional crystalline silicon. In less than 4.5 hours, a sheet of glass is transformed into a complete PV module — flash tested, packaged and ready for shipment. All First Solar manufacturing sites are certified to globally recognized standards: [ISO 14001 for Environmental Management](#), [ISO 9001 for Quality Management](#), and [ISO 45001 for Occupational Health and Safety](#). We foster a culture where environmental, health and safety (EHS) is an integral part of our associates’ work and require our contractors and suppliers to adhere to our standards and commitments.

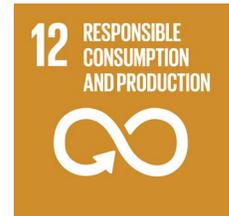


Due to our resource-efficient manufacturing process, First Solar modules have a carbon footprint that is up to 6 times lower, a water footprint that is up to 24 times lower and an energy payback time that is up to 4 times faster than conventional crystalline silicon solar panels on a life cycle basis ([de Wild-Scholten, 2013](#)) ([Stolz & Frischknecht, 2017](#)) ([Sinha, Meader, & de Wild-Scholten, 2012](#)). In less than six months under high irradiation conditions, First Solar PV modules produce more energy than was required to create them. This corresponds to a 50-fold energy return on investment (EROI) over a 25-year project lifetime, providing an abundant net energy gain to the electricity grid.



Powering a Circular Economy

First Solar has a long-standing leadership position in PV recycling with over a decade of experience in operating high-value PV recycling facilities on a global and industrial scale. Recognizing the importance of responsible product life cycle management, First Solar voluntarily established the industry's first global PV module recycling program in 2005 and we have been investing in PV recycling technology improvements ever since. To learn more about First Solar's recycling service, please see our [recycling brochure and datasheet](#).



Circular Material Flows

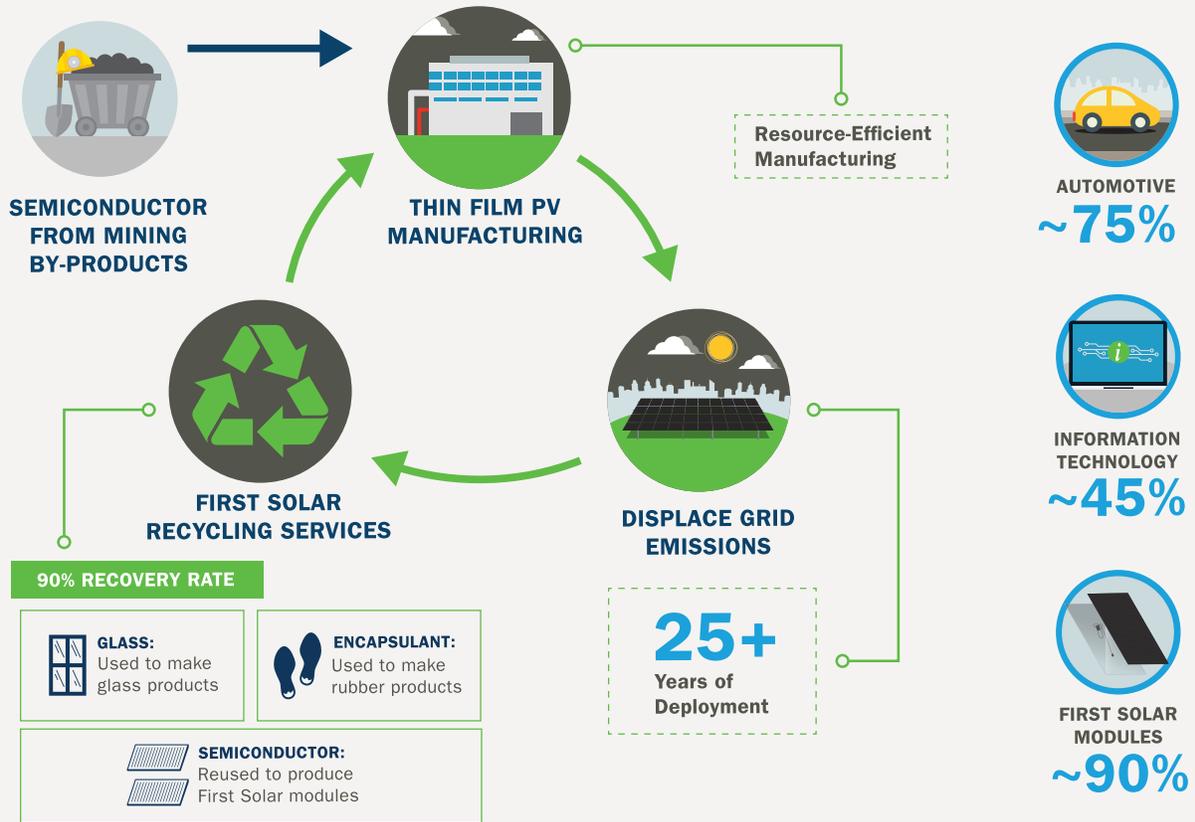
First Solar has embedded circular material flows for the key components of our thin film PV technology to transform waste into resource - from raw material sourcing, through end-of-life recycling.

Material Sourcing	Product Design	Manufacturing	Product Use	Collection & Recycling
				
Converting mining byproducts into a stable semiconductor	Designed for high-value recycling	Manufacturing with less energy, water, and GHG emissions	Faster CO ₂ reductions and greater return on energy invested	Recovering over 90% of materials at end-of-life for new PV modules

While most PV recycling processes focus only on recovering high-mass fraction materials such as glass and frames (i.e. bulk recycling), First Solar's high-value recycling process goes further by also recovering the semiconductor material for reuse.

First Solar PV Module Recycling Material Recovery Achievements	
Glass	= 90 mass-%
Metals (not including semiconductor materials)	≥ 90 mass-%
Semiconductor Materials	≥ 90 mass-%

The Value Loop



Our high-value recycling process recovers more than 90% of the semiconductor material for reuse in new First Solar modules and 90% of the glass for use in new glass container products. In Malaysia, the recovered laminate material is reused in rubber products. The remainder of the recycled module scrap (approximately 5-10%) which cannot be used in secondary raw materials is handled using other responsible waste treatment and disposal techniques. One kilogram of First Solar’s semiconductor material can be recycled 41 times over, which translates into a use time of more than 1,200 years. Since 2018, First Solar’s routinely operated recycling plants generate zero wastewater discharge. Instead, the wastewater is recycled and converted into freshwater for reuse in the recycling process.

In 2019, First Solar joined over 170 companies in signing the [America Recycles pledge](#), which aims to address the challenges facing the nation's recycling system and create a more resilient materials economy while protecting the environment.



Sustainability at First Solar

At First Solar we define sustainability as our “capacity to endure and scale.” Our sustainability approach enables us to achieve long-term growth while following environmentally and socially responsible practices. First Solar’s sustainability program drives the company’s commitment to the triple bottom line of “people, planet and profit” through our approach to responsible life cycle management, environmental footprint analysis, greenhouse gas emissions intensity reduction, waste management, global charitable giving, operational cost reduction, and industry best practices such as responsible land use and our global PV module recycling services. We are committed to minimizing the environmental impacts and enhancing the social and economic benefits of our products across their life cycle. First Solar’s [Corporate Sustainability Policy](#) is available on our website.

Environmental	Economic	Social
Minimize the environmental life cycle impacts of our products- from raw material sourcing through end-of-life recycling	Enable affordable access to clean electricity globally	Maintain a safe workplace and promote an inclusive and diverse workforce
Operate world-class manufacturing facilities that conserve natural resources and minimize waste	Create enduring economic value by implementing a long-term roadmap to achieve our technology and cost leadership goals	Be a responsible corporate citizen in the communities where we operate and deploy our products.
Contribute to a circular economy by operating an industry-leading module recycling program	Decouple our growth and the growth of our customers from negative environmental impacts	Partner with customers and suppliers on a responsible value chain

Sustainability Ambassadors Program

As part of our efforts to “think globally and act locally,” we launched a global internal Sustainability Ambassadors program in 2018. The program enables First Solar associates at various sites to identify and implement local sustainability initiatives. Notable achievements in 2019 included:



- Introducing a global “Reduce-Reuse-Recycle” campaign to enhance office recycling initiatives and reduce single-use plastic;
- Raising awareness across the company through Sustainability Town Halls, lunch n’ learns and environmental exhibitions;
- Participating global site and community clean ups;
- Achieving a Green Business Certification for our San Francisco office;
- Planting trees for low-income families in Tempe;
- Transforming food waste into organic fertilizer in Malaysia;
- Organizing a blood drive, bringing clean water to local schools, and volunteering at an orphanage to help the local community in Vietnam.

Check out our [2019 Sustainability Ambassador Highlights video](#).

Environmental Metrics

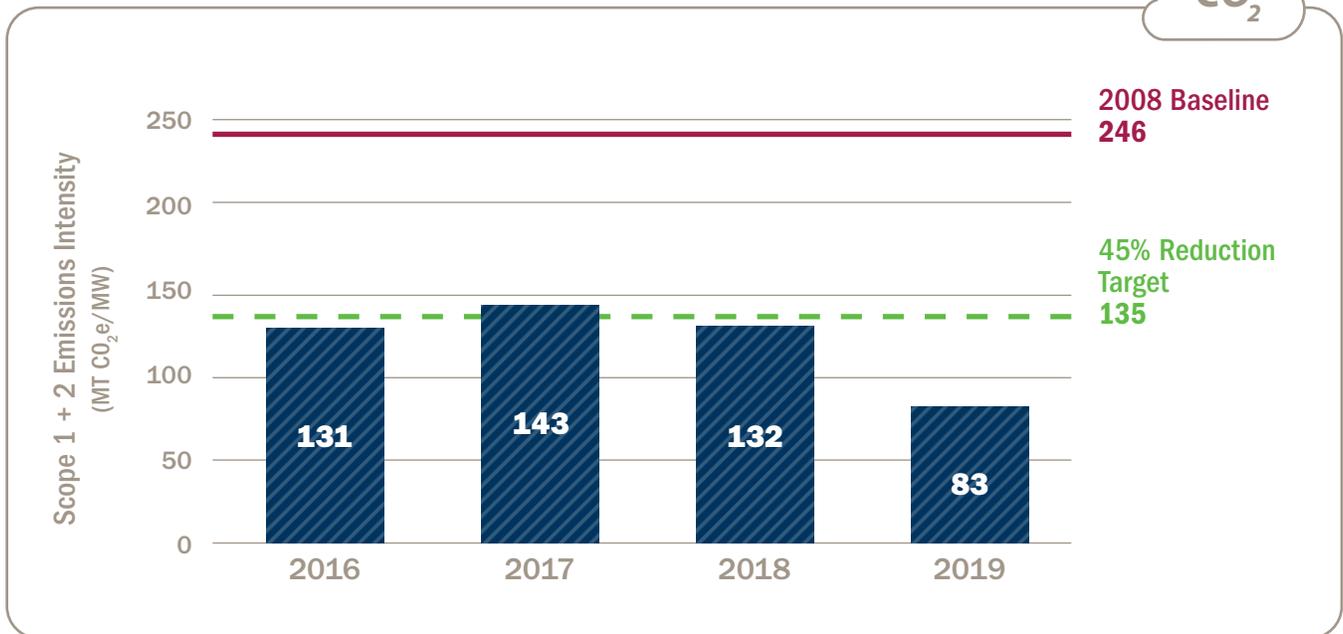
In addition to manufacturing PV modules with the lowest environmental impact in the industry, First Solar is committed to reducing the company's operational impact. Since 2009, we've successfully reduced our greenhouse gas (GHG) emissions, energy, water, waste, and carbon intensity per watt produced by implementing resource conservation and low carbon projects at our facilities and through improvements in module efficiency, manufacturing throughput and capacity utilization.

Since announcing our vision for Series 6 in late 2016, we have achieved significant progress in our manufacturing and technology roadmaps. During 2019, we commenced commercial production of Series 6 at expanded manufacturing facilities in both the U.S. and Vietnam. The addition of these factories increased our global Series 6 production capacity to 5.5GW at the end of 2019. We produced 5.7 GWDC of Series 4 and Series 6 modules in 2019, which represented a 111% increase from 2018. The increase in our production capacity and throughput, along with the incorporation of resource efficiency measures into new buildings and Series 6 tool designs and processes, helped significantly reduce our GHG emissions-, energy-, water- and waste intensity in 2019.

We have received global recognition for our state-of-the-art environmental controls, performance and manufacturing excellence. Both of our facilities in Perrysburg have received the Ohio EPA's Encouraging Environmental Excellence Gold Level Award. In March 2020, First Solar Malaysia received the prestigious State Environmental Excellence Award from the Kedah Department of Environment in recognition of our leadership and continuous efforts to demonstrate full environmental compliance in our manufacturing operations. First Solar's Santa Clara and San Francisco offices received the Green Business Program certification for efforts to ensure that our business operates in an environmentally friendly manner. First Solar had no environmental non-compliance cases in 2019.



GREENHOUSE GAS EMISSIONS INTENSITY GOAL



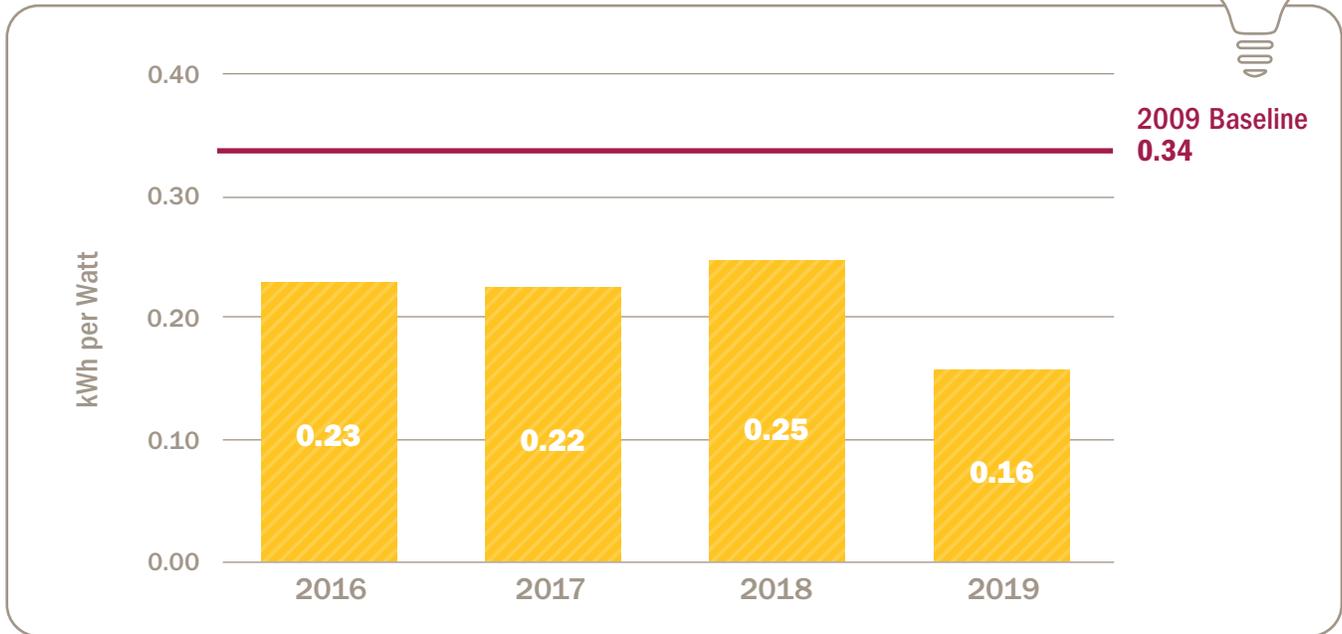
After surpassing our greenhouse gas (GHG) emissions reduction goal in 2016, we set a new five-year goal for 2021 to reduce our GHG emissions intensity per watt produced by 45% compared to our 2008 baseline. Since 2008, our company-wide carbon intensity decreased by approximately 66% as a result of increased module efficiency, manufacturing throughput, and capacity utilization, decreased emissions intensity of purchased grid electricity, along with energy conservation and low carbon initiatives. We have installed onsite PV installations at our production sites in Ohio and Malaysia and at our recycling facility in Frankfurt Oder, Germany.

We achieved our 2021 goal three years early and plan to set a new GHG emissions intensity goal. In 2019 alone, our GHG emissions intensity decreased by nearly 40% as a result of the efficiency of our Series 6 manufacturing process and the incorporation of energy efficiency measures into new buildings, tool designs and processes. Although our production more than doubled in 2019, our absolute scope 1 and 2 GHG emissions increased by only 30% compared to 2018. First Solar received an A- from the Carbon Disclosure Project (CDP) in recognition of the company’s disclosure and management of its climate change risks and greenhouse gas emissions in 2019.

In 2020, we joined RE100 and committed to powering our global operations with 100% renewable energy by 2028. By relying on long-term, fixed-price renewable energy, we are not only investing in reducing our exposure to energy price volatility, but we’re also investing in a sustainable energy future.

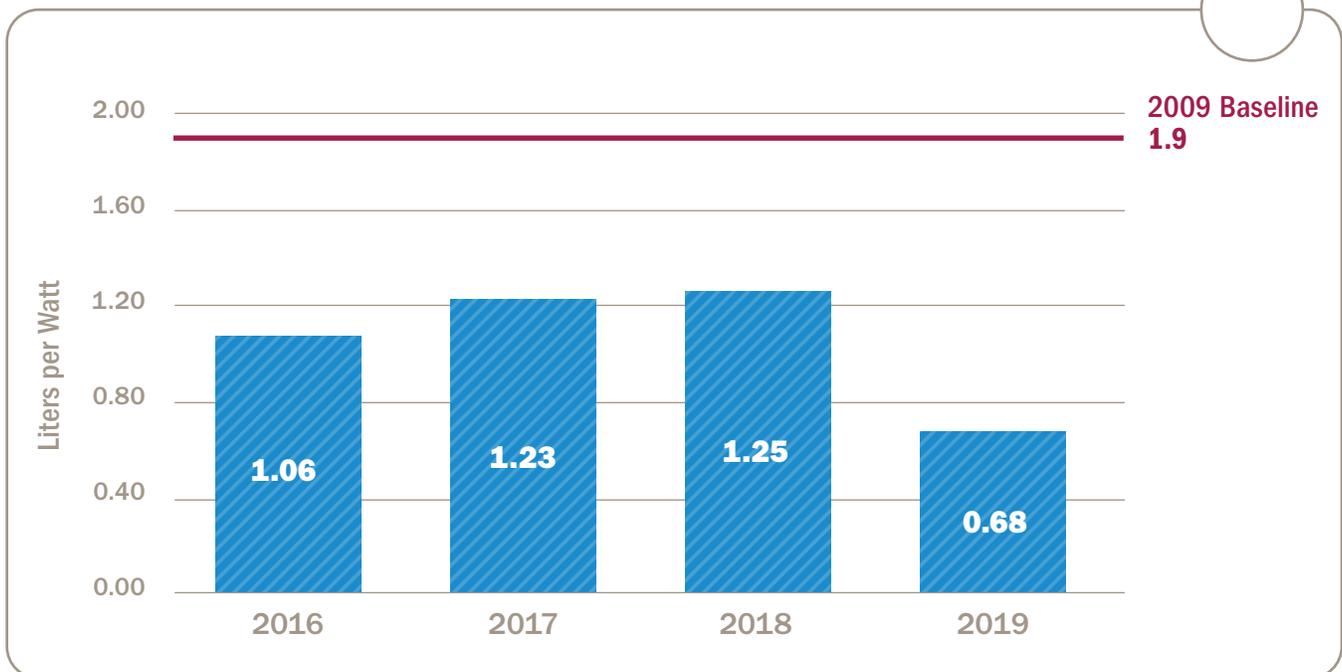
The chart depicts direct (scope 1) and indirect (scope 2) emissions of all manufacturing and recycling plants, R&D and testing facilities, EPC-owned construction equipment, company-owned operational solar projects, and company-owned vehicle fleet on a carbon intensity basis measured per MW produced.

MANUFACTURING ENERGY INTENSITY



In 2019, our manufacturing energy intensity (energy consumption per watt produced) decreased by 36% compared to 2018 primarily due to the increased throughput and efficiency of our Series 6 manufacturing process. First Solar's manufacturing energy intensity includes all processes, from the beginning of our manufacturing process to finished module. Increased manufacturing throughput combined with module efficiency improvements and energy conservation initiatives enabled us to cut our manufacturing energy intensity in half over the last decade.

MANUFACTURING WATER INTENSITY

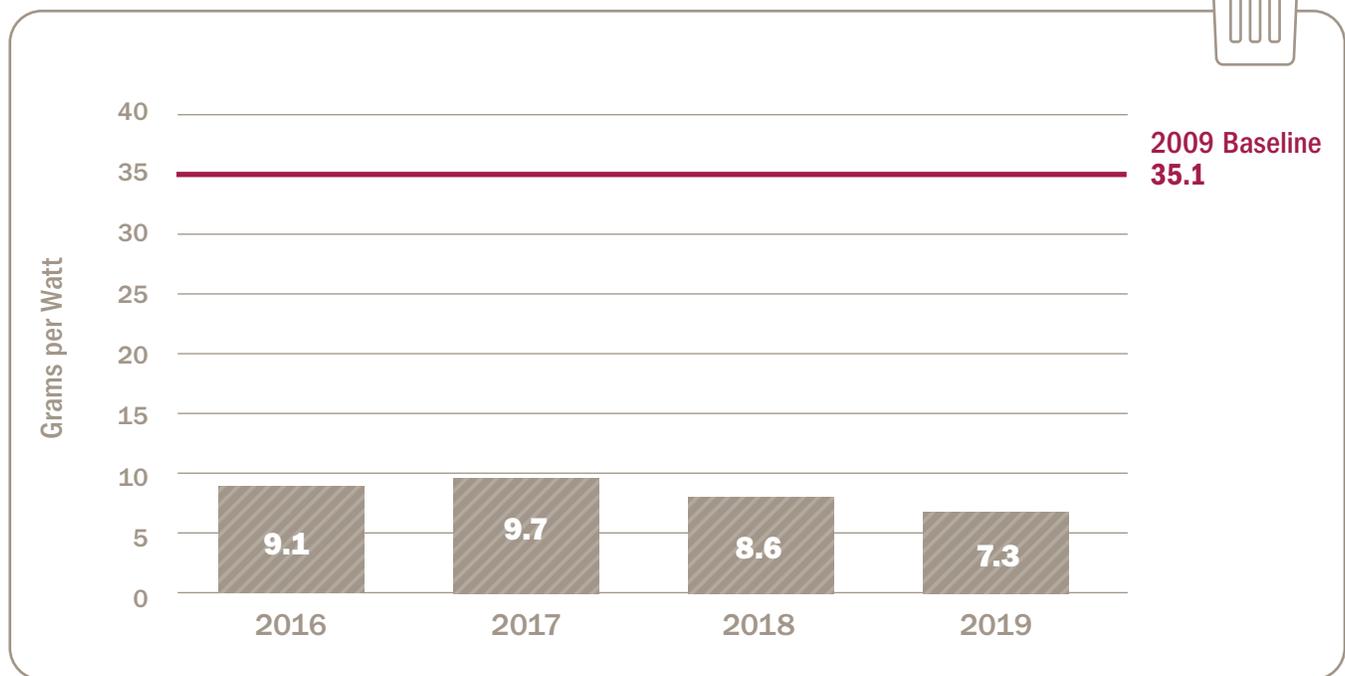


Since 2009, First Solar’s manufacturing water intensity (water consumption per watt produced) decreased by 64% due to significant improvements in module efficiency, manufacturing throughput, and the implementation of water conservation and recycling projects in our manufacturing and recycling operations. Since 2018, all routinely operated First Solar recycling facilities in the U.S., Germany, Malaysia and Vietnam generate zero wastewater discharge under normal operations. Instead, the wastewater is recycled and converted into freshwater, which can then be reused in the recycling process.

In 2019, First Solar’s manufacturing water intensity decreased by approximately 46% due to the increased throughput and efficiency of our Series 6 manufacturing process as well as water recycling initiatives. While our production more than doubled in 2019, our absolute water withdrawals only increased by approximately 13%. In total, we saved approximately 300 million liters of water in 2019, equivalent to approximately 8% of our absolute water use.

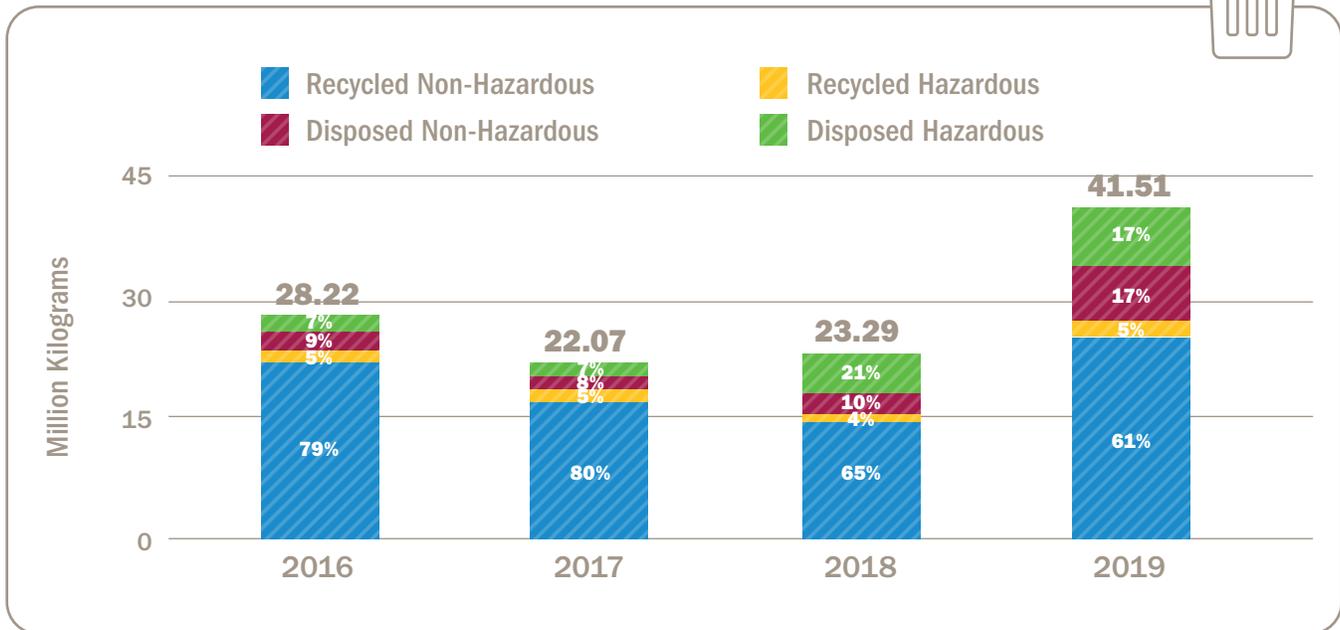
We monitor and measure 100% of the water discharges from our manufacturing, recycling, and research and development facilities. In 2019, approximately 49% (or 1,902 megaliters) of First Solar’s total water withdrawn from water utilities (3,846 megaliters) was discharged as wastewater from our industrial wastewater treatment systems. Approximately 44% of our wastewater was sent to a third-party (municipal wastewater facility) and approximately 56% was discharged directly to fresh surface water (river). First Solar treats wastewater at its manufacturing and recycling facilities using a batch discharge system. Once treated, the water is collected in holding tanks, which are sampled and tested to confirm compliance with regulatory limits before being discharged. No industrial wastewater leaves our site unless we have tested and approved it for discharge, even if it is being discharged to a municipal wastewater treatment plant. If the water contaminant levels are above the permitted discharge limit, it is sent for re-treatment internally.

MANUFACTURING WASTE INTENSITY



First Solar’s manufacturing waste generation intensity (grams per watt produced) has decreased by nearly 80% since 2009 as a result of increased module and manufacturing efficiency combined with recycling and waste minimization projects. In 2019, our manufacturing waste intensity decreased by approximately 15% primarily due to increased manufacturing throughput related to our Series 6 production lines.

WASTE BY TYPE AND DISPOSAL

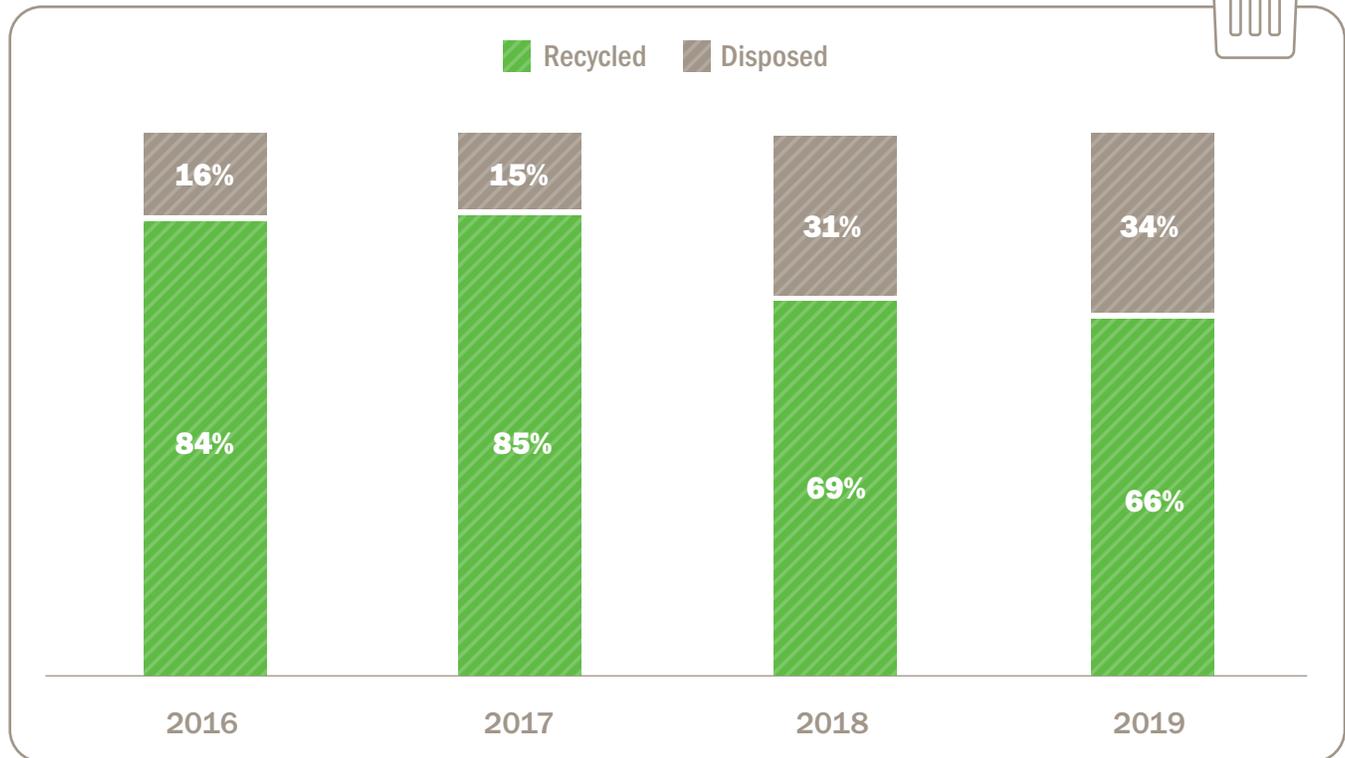


This graph depicts First Solar’s absolute manufacturing waste produced in kilograms (kg) with a percentage breakdown by type and destination. Overall waste generation increased in 2018 and 2019 with the addition of our manufacturing facilities in Vietnam and Ohio. Waste generation in 2019 increased by approximately 80% due to the 111% increase in production compared to 2018.

First Solar is committed to reducing and recycling hazardous waste in line with our environmental management system objectives of minimizing waste and preventing pollution. Since 2012, we have reduced our hazardous waste generation per watt produced by more than 50%.

Hazardous waste is classified according to the definition used by the countries in which we operate, e.g. under the Environmental Quality (Scheduled Wastes) Regulations in Malaysia, Law No. 55/2014/QH13 on Environmental Protection in Vietnam, and the Resource Conservation and Recovery Act in the U.S.

MANUFACTURING WASTE RECYCLED VS. DISPOSED



This graph depicts waste recycled and disposed by First Solar's manufacturing and recycling facilities in Perrysburg, Ohio; Kulim, Malaysia; and Ho Chi Minh City, Vietnam. The data includes modules that we recycle onsite; both manufacturing line scrap and modules returned from the field, along with many other manufacturing byproducts that are recycled. The data does not include modules that are being recycled at our recycling facility in Germany.

The amount of waste disposed increased in 2018 and 2019 due to the decommissioning of Series 4 manufacturing equipment and the ramp in production. Overall, of the total material First Solar sends off-site, more than 60% is sent for beneficial reuse and not to landfill. The percentage of waste recycled has steadily improved in 2020 since increasing our recycling capacity and moving to 24/7 recycling.

2019 RECYCLING AND RECOVERY ACHIEVEMENT

The material recovery rate of First Solar’s state-of-the-art module recycling process remains unchanged. We continue to recover more than 90% of the semiconductor material and 90% of the glass from a First Solar module. The glass cullet is reused in new glass products and the unrefined semiconductor material is sent for further processing to be reused in new First Solar modules. In Malaysia, our laminate material is being recycled for reuse in products such as rubber mats, bicycle handles, and shoe soles, thereby further closing the loop on our product’s life cycle. The following table includes data from our recycling facilities in Ohio, Malaysia, Vietnam and Germany.

Metric	Unit	Global
Total collected	Metric tons	30,146
Total recycled - metals (not including semiconductor materials)	%	0.2
Total recycled - semiconductor materials	%	0.4
Total recycled - glass	%	90
Total recycled - other materials	%	5
Total disposed - sent to a thermal with energy recovery facility	%	1
Total disposed - sent to a thermal or landfill facility for disposal	%	3
Recycling material recovery rate*	%	>90
Percentage products or components prepared for reuse**	%	0
*Recycling rate is the quotient of Total recycled and Total collected. Because 2019 was a transition year with the ramping of Series 6 technology, the recycling rate is reported as a range rather than a discrete value.		
**Refers to products or components that are used again for the same purpose for which they were conceived without any pre-processing, e.g. refurbishment.		

Social Responsibility.

Our Culture

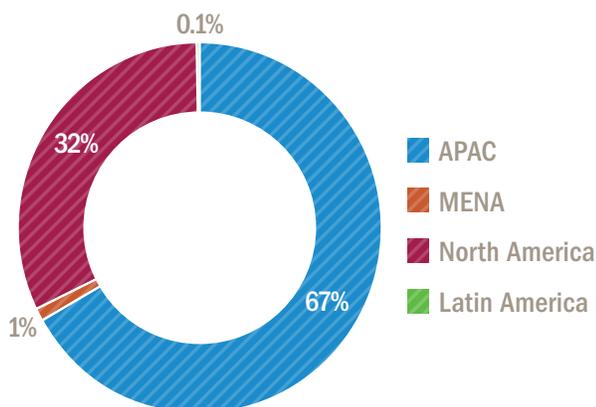
At First Solar, we believe that innovative and passionate people, working ethically and safely, form the foundation of our success. We generate results by fostering a culture based on agility, collaboration and accountability. Our formal internal Vision, Mission and Culture structure includes a collection of acceptable behaviors that support safety first, mutual respect for all associates, empowered collaboration between functions and individuals, and personal ownership of decisions, performance and results.

<h3>Agility</h3>  <p>We are creative and resilient.</p>	<h3>Collaboration</h3>  <p>We help each other succeed.</p>	<h3>Accountability</h3>  <p>We own the results of our actions.</p>
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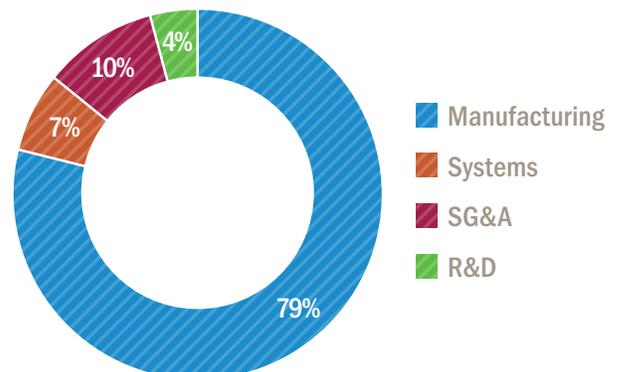
Working At First Solar

As of December 31, 2019, we had approximately 6,600 associates (our term for full and part-time employees) compared to approximately 6,400 in 2018. Approximately 80% of our associates work in manufacturing and approximately 7% work in our systems business (EPC, project development and O&M). The remainder of our associates are in research and development (R&D), sales and marketing, and general and administrative (SG&A) positions.

Associates by Region in 2019



Associates by Function in 2019



Inclusion, Diversity & Belonging

At First Solar, we recognize that global diversity and inclusion is a driving force in the success of our company. We believe that our vision for diversity and inclusion must encompass and embrace the global reach and cultural differences inherent in doing business both in and among multiple countries. We recognize that we become increasingly more competitive and innovative throughout the world by fostering diversity and inclusion globally and locally. Here, at First Solar we are one global community serving a common purpose of leading the world's sustainable energy future. We continue to establish both global and local region networks and affinity groups consistent with First Solar's culture and philosophy. The Global Women's Network (GLOW), launched in 2019, aims to develop future leaders through mentoring and sponsorship, networking and



a collaborative learning culture. GLOW is the blueprint to launch more networks including the African American Network and Hispanic/Latino Network. First

Solar's women and minority networking and affinity groups in the United States, such as Tempe's Curie Club, the Perrysburg Women's Networking Group, and in Malaysia, Kulim's Women@FirstSolar, contribute to both formal and informal efforts to promote diversity and inclusion across the company.



First Solar's Global Women's Network kick-off brought women across the company together and featured an inspiring interview with Sharon Allen, former U.S. Chairwoman of Deloitte LLP and First Solar Board Member.



First Solar is an Equal Opportunity Employer (EOE), and we prohibit discrimination based on race, color, gender, sexual preference, age, religion, national origin, disability, military status, genetic information or any other protected classifications. At First Solar, we hire, pay and promote based on an individual's qualifications, skills, ability to do the required work, merit and overall potential. First Solar's entry-level wages are above the minimum wage in all jurisdictions where we operate. First Solar has an Affirmative Action Policy (AAP), which consistently looks at women and minorities in the organization as a whole, including leadership. First Solar makes good faith efforts to improve year over year its representation in those areas. First Solar's [EOE policy](#) is available online.

First Solar monitors ethnicity and gender diversification on an annual basis through our Affirmative Action Plan reports and takes action as appropriate. In addition, our Talent Acquisition team annually evaluates the breakdown of applicants and hires based on gender and ethnicity. First Solar ensures that all candidate pools include a diverse candidate by sending job postings to diversity and minority sites for targeted recruitment. We perform annual audits on our Performance Review process to ensure that the process does not negatively impact our female and diverse populations. First Solar continues to develop programs and policies such as alternative work schedules to enable women to work part-time while transitioning back into the workforce. First Solar also offers four weeks of paid parental leave to all U.S. associates who meet basic employment requirements to enable associates and their families to care for and bond with a newborn child, a newly adopted child, or a newly placed foster child.

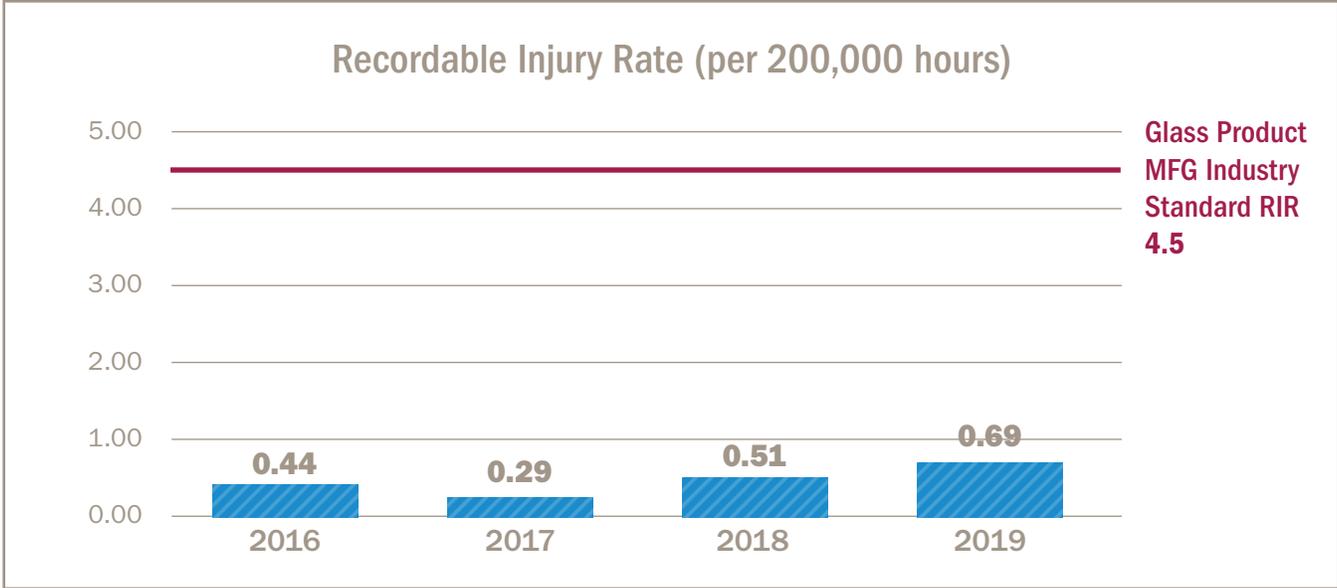
Occupational Health and Safety

At First Solar, our goal is to achieve an injury-free workplace. Since 2008, First Solar has reduced its recordable injury rate by approximately 73% (from 2.6) by establishing a strong safety culture throughout the company and ensuring an understanding of First Solar's Safety Policies and Procedures. [First Solar's Environmental, Health and Safety Policy is available on our website](#). The policy is communicated to all associates through internal communication channels, associate meetings and notice boards throughout the facilities. All First Solar associates receive legally required health and safety training as well as routine refreshers on health and safety topics pertinent to their job requirements. First Solar requires all contractors to work under our safety policies, programs and procedures.

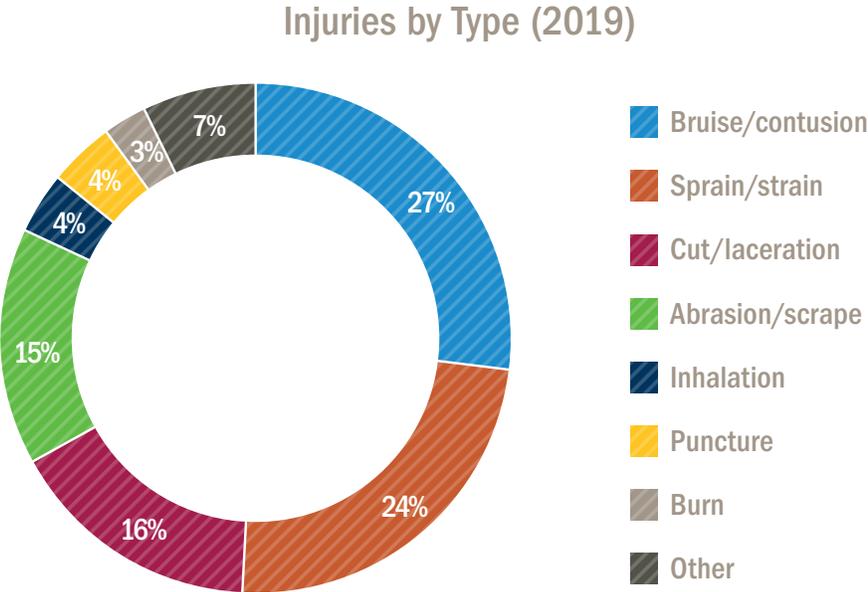
First Solar has established an environmental health and safety management system, in accordance with ISO 14001 and ISO 45001, which covers the activities and supporting processes associated with the design and manufacture of solar modules using advanced thin film technology. 100% of First Solar's workforce and management team are represented by formal joint management-worker health and safety committees. Associates from all levels and functions can participate in the cross-functional safety committees which meet on a regular basis to review incidents and implement corrective actions. The site safety committees report to the EHS Steering Committee on a quarterly or more frequent basis.

In line with guidance from the World Health Organization, local health authorities and governments, First Solar has taken sweeping measures to help inhibit the spread of COVID-19 across our global footprint. During a surprise audit in April 2020, First Solar's manufacturing site in Vietnam achieved the best safety score out of 15 large manufacturing facilities in the Ho Chi Minh City (HCMC) area. Five auditors from the HCMC Cu Chi Center for Disease Control (CDC) visited the site on April 17, spending two and a half hours reviewing the actions taken by First Solar to mitigate COVID-19 transmission risks. The auditors praised First Solar Vietnam's preventative actions to mitigate COVID-19 transmission risks, including its internal safety protocol communications, temperature scanning, sanitizers, cleaning, and social distancing practices for associates and visitors in the office, manufacturing floor and on the shuttle bus. The practices and programs implemented in HCMC are in lockstep with our global pandemic mitigation plan which has been implemented at all First Solar facilities.





First Solar’s company-wide recordable injury rate (RIR) is 6 times lower than the glass manufacturing industry average. First Solar’s RIR includes all manufacturing, R&D, and office personnel. As of 2018, First Solar’s global RIR was expanded to include Energy Services associates and the data has been adjusted accordingly. An injury is considered recordable if it requires medical attention beyond first aid. First Solar’s recordable injury rate rose slightly in 2019, however, the majority of these injuries were not serious.



Safety data includes all global manufacturing and offices.

First Solar’s EPC contractor and O&M site recordable injury rates in 2019 were 0.96 and 1.92, respectively. Three O&M recordable injuries were due to bug bites, which brought our RIR above 1.00.

Global Charitable Giving Overview

First Solar makes four kinds of donations under its Global Charitable Giving Program: corporate donations (i.e., donations made through the First Solar Corporate Charitable Fund), site donations (i.e., donations made through First Solar local offices and manufacturing sites), project-related donations (i.e., donations associated with a First Solar project), and business development donations (i.e., donations related to First Solar sales activities). First Solar donated more than \$421,000 in 2018 and more than \$510,000 in 2019 in total cash and in-kind contributions.

Global Charitable Giving Program	Type	2018	2019
Manufacturing and Office Site Donations	Community	\$241,250	\$186,538
Project-Related/Business Development Donations	Community	\$28,500	\$247,305
Corporate Charitable Fund Donations	Charitable	\$151,836	\$77,000
Total		\$421,586	\$510,843



As part of First Solar Arizona's Science, Technology, Engineering, Arts and Mathematics (STEAM) outreach efforts, we donated Series 4

modules to QESST Youth Scholars in 2019 to enable them to build a solar pavilion for the Alhambra School District in Phoenix. The students have since assembled a team of vendors, developed an engineering design and are [working to secure funding](#) for the installation.



First Solar Vietnam donated \$25,000 to the non-profit Vietnam Health, Education and Literature Projects (VNHelp) to support the Safe Drinking Water for Schools

project. The donation supported the installation of 10 water filtration systems to provide access to safe drinking water in the rural areas of the Thanh Hoa province. VNHelp estimates that 5,187 residents will benefit from the systems, including 4,971 students and 216 staff.





First Solar Vietnam and Rockwell Automation partnered to develop a Tailored Training Program which provides a hands-on learning opportunity for students of electricity, electronics and automation. The three-month training program enables students to develop skills in the Rockwell Automation Technology that is being used at First Solar and build a talent pipeline. A graduation ceremony was held for 14 graduates at the University of Education and Technology Ho Chi Minh City (HCMUTE) in November 2019.



In 2018 and 2019, First Solar provided funding to Arizona State University's Global Development Research Program (GDR) to support student-led sustainable development projects. These included enabling access to clean energy and water in underserved areas like Brazil, developing green education initiatives in South Africa, and furthering the development of innovative and sustainable technologies and healthcare education in Vietnam, Cambodia, and Thailand.



First Solar Malaysia showcases solar technology and promotes sustainable development education in the community by participating in public conferences and exhibitions such as the Penang International Science Fair, International Green Tech and Eco Products Exhibition and Conference Malaysia (IGEM) and the 18th International Conference on Sustainable Energy Technologies (SET). First Solar Malaysia also provides coaching and guidance on business and entrepreneurship to secondary students through our participation in the Young Enterprise (YE) Community Program organized by the American Chamber of Commerce.



We partner with NGOs to improve the quality of life in communities around the world to:

- Empower the next generation through education for sustainable development
- Ensure access to clean energy and water
- Reduce inequality through economic inclusion, diversity and equal opportunity
- Promote a circular economy through sustainable production and responsible consumption

Year	NGO/Partner	Charitable Giving Initiatives
2019	Ohio Foundation of Independent Colleges	\$10,000 endowment to support the First Solar Corporation Scholarship Program, benefitting 10 students majoring in subjects ranging from Finance to Environmental Studies to Mechanical Engineering. Since 2015, First Solar has helped provide 40 scholarships to 23 individuals.
2019	The Nature Conservancy	\$120,000 grant to restore wild bird habitats in the Amargosa Valley in South-Central Nevada. The habitat improvements play a critical role in maintaining and growing the populations of rare or special-status bird species in the region.
2019	National Park Trust	\$25,000 grant to support the 2019 National Kids to Parks Day School Contest which gives underserved schools an opportunity to learn about nature, park stewardship, outdoor recreation, STEM and history by experiencing their local, state and national parks and public lands.
2019	ProMedica Foundation	\$25,000 grant to support the ProMedica workforce training program in partnership with the Goodwill Job Connection Center.
2019	California Community Foundation	\$17,000 grant to support wildfire relief efforts in California.
2018	California Community Foundation	\$10,000 grant to support wildfire relief efforts in California.
2018	REACH Inc.	\$2,500 grant to REACH (Georgia) to provide scholarships and support for low-income students in Twiggs County.

Governance

Board of Directors

First Solar's business is conducted under the oversight of our Board of Directors. The primary responsibility of the Board is to oversee and review senior management's performance of First Solar's business operations. Our Board of Directors is composed of 10 directors, including eight independent directors and two non-independent directors, our Chair of the Board and our CEO. As a reflection of our commitment to diversity on our Board of Directors, we recently revised our Nominating and Governance Committee Charter to underline that we are "actively seeking highly qualified women and minority candidates as part of the search process for new Board members," and better defined diversity to include background, gender, race and ethnicity. [2020 Women on Boards](#) recognized First Solar as a "Winning 'W' Company" for having 20% of its Board of Director seats occupied by women.

For more information, please visit our website: <http://www.firstsolar.com/en/About-Us/Leadership>

Executive Management

First Solar's CEO and executive management team are responsible for managing the Company's day-to-day business operations, including the preparation of financial statements and short- and long-term strategic planning.

For more information, please visit our website: <http://www.firstsolar.com/en/About-Us/Leadership>

Ethical Business Conduct

First Solar holds ethical business conduct as a core principle and is committed to operating at the highest ethical standards in every area of our business, everywhere we do business. First Solar's [Code of Conduct, Relentless Integrity: How We Conduct Business Ethically](#), demonstrates our commitment to this principle and guides the company's business conduct. Our Code of Conduct applies to everyone, from members of the Board of Directors to our officers, associates and our valued partners. We have a long-standing commitment to conducting our business in compliance with applicable laws and regulations. This commitment, along with our culture of agility, collaboration and accountability, defines our accepted behaviors and enables us to advance our mission to provide cost-advantaged solar technology through rigorous safety practices, innovation, customer engagement, industry leadership and operational excellence. First Solar has an existing records retention process and grievance mechanism for reporting policy violations via our [Ethics Hotline](#).

Collective Bargaining and Freedom of Association

First Solar recognizes that in the locations where we operate, employees have the right to freely associate or not associate with third-party labor organizations, along with the right to bargain or not bargain collectively in accordance with local laws. First Solar respects those rights and is committed to creating an environment of open communication where employees can speak with their managers about their ideas, concerns or problems, and work together to address workplace issues.

Anti-Corruption

First Solar performs risk assessments that consider the possibility of fraud and related indicators. We currently operate in, and may expand into, many parts of the world that have experienced governmental corruption to some degree and, in certain circumstances, strict compliance with anti-bribery laws may conflict with local customs and practices. First Solar's Global Anti-Corruption Policy requires all associates to comply with the U.S. Foreign Corrupt Practices Act (FCPA) and all other applicable local anti-corruption laws. The Global Anti-Corruption Policy prohibits bribery, kickbacks, and the giving of other improper payments to obtain or retain business and covers any person engaged to perform work on behalf of First Solar including freelancers, independent contractors, temporary contractors, independent professionals, agents and consultants. We communicate our anti-corruption and anti-bribery policies in our technical service contracts. All First Solar associates are required to participate in periodic anti-corruption training. Advanced FCPA training is provided to associates in higher risk profile jobs and tailored according to the region. First Solar has implemented processes and procedures to help ensure compliance with all applicable anti-corruption laws. These processes and procedures are monitored and audited on an ongoing basis.

Responsible Supply Chain●

Our thin film module manufacturing process uses approximately 30 types of raw materials and components to produce a solar module. Critical raw materials and components in our manufacturing process include CdTe, front glass coated with transparent conductive oxide, other semiconductor materials, organics such as photo resist, tempered back glass, frames, packaging components such as interlayer, cord plate/cord plate cap, cables and solar connectors. First Solar has one-product architecture controlled by a single set of global specifications for Bill of Materials (BoM) components, which results in a tightly controlled and consistently manufactured quality product. In contrast, many traditional tier one crystalline silicone manufacturers have multiple products, processes and bill of materials with a sprawling supply chain, which includes multiple process steps (polysilicon/ingots/wafers/cells/modules) across multiple continents, resulting in increased variability and quality and reliability risks. Where possible, we attempt to use suppliers that can provide a raw material supply source that is near our manufacturing locations, thereby reducing the transportation cost and impact as well as the lead times for such materials.

Supplier Qualification and Assessment

Before we use these materials and components in our manufacturing process, a supplier must undergo a rigorous qualification process. First Solar evaluates new suppliers using a balanced scorecard which focuses on the areas of Quality, Cost, Flexibility, Service, Technology and Sustainability. First Solar audits new and high-risk direct suppliers for their adherence to quality, environmental, health and safety, among other areas. The EHS section of our supplier audit tool uses the Responsible Business Alliance (RBA) Code of Conduct as a framework and encompasses topics such as environmental management, health and safety, labor and human rights and ethics. We prioritize our engagement by focusing on our module component suppliers.

GRI Indicator	Title	2019 Disclosure	Social and Environmental impacts used for screening
414-1	New suppliers that were screened using social criteria	100%	Suppliers are screened on the following social criteria: <ul style="list-style-type: none"> • Clean and safe facilities • Minimum wages • Working hours (allowing at least one day off per week) • Health and safety practices • Non discrimination • Freedom of association and collective bargaining • Humane treatment and prevention of harassment or abuse • Prohibition of child labor • Prohibition of forced or compulsory labor • Collective bargaining • Business ethics (including corruption, extortion, embezzlement, conflict of interest, bribery, excessive gift giving, disclosure of information, intellectual property, fair business advertising and competition, privacy and non-retaliation.) • Conflict minerals
414-2	Negative impacts on social impacts in supply chain and actions taken	0	Of the 5 suppliers assessed for potential negative social impacts in 2019, no suppliers were identified as having potential negative impacts based on their EHS audit score. First Solar is working to drive supplier improvement in Quality and EHS with suppliers.
308-1	New suppliers that were screened using environmental criteria	100%	Suppliers are screened on the following environmental criteria: <ul style="list-style-type: none"> • Environmental management systems • Pollution prevention and resource reduction • Solid waste management • Hazardous substances management • Environmental permits • Air emissions monitoring and management • Water management • Energy consumption and GHG emissions
308-2	Negative environmental impacts in the supply chain and actions taken	0	Of the 5 suppliers assessed for potential negative environmental impacts in 2019, no suppliers were identified as having potential negative impacts based on their EHS audit score. First Solar is working to drive supplier improvement in Quality and EHS with suppliers.

Supply Chain Spend and Job Creation

In 2019, First Solar spent approximately \$3.3 billion on its global supply chain. Our data includes our manufacturing bill of materials, project spend, capital spend and indirect expenses. The data is based on where a purchase order is placed, not necessarily where the work is performed. Approximately 50% was spent on local suppliers in the U.S. to support our module manufacturing operations and solar project development. More than \$13 million was awarded to women-, minority-, and disabled veteran-business enterprises (WMDVBE) in 2019. In total, we estimate we are creating over 45,000 direct, indirect and induced jobs across the supply chain worldwide.*

* The estimated supply chain jobs are based on calculations provided by the University of Massachusetts Department of Economics and Political Economy Research Institute (PERI) in The Economic Benefits of Investing in Clean Energy. Direct jobs= 5.4 jobs/\$1M spend; Indirect Jobs= 4.4 jobs/\$1M spend; Induced jobs= .4 jobs (Direct + Indirect).

Human Rights Standards and Practices

First Solar is committed to protecting human rights, enforcing fair labor practices and addressing the potential risks of forced labor, child labor, human trafficking and slavery across our operations and supply chain. First Solar recognizes the principles set forth in the International Labour Organization (ILO) 1998 Declaration on Fundamental Principles and Rights at Work and is committed to complying with the laws established to protect human rights in each country in which we operate. To this end, First Solar requires direct suppliers to comply with all fair labor standard laws. Under the terms of First Solar's supplier agreements, suppliers must certify in writing that neither they nor any of their subcontractors will utilize child, slave, prisoner or any other form of forced or involuntary labor, or engage in abusive employment in the supply of goods or provisions of services.

First Solar's [Code of Conduct](#) and [Corporate Policies](#) establish minimum requirements for our associates and suppliers in the areas of environmental, health and safety (EHS), labor standards, human rights and business ethics. First Solar endeavors to ensure that its suppliers acknowledge these policies to ensure a safe working environment that respects and values each employee. In addition, First Solar supports the Solar Energy Industries Association (SEIA) [Solar Industry Commitment to Environmental & Social Responsibility](#) and [RBA Code of Conduct](#) as part of our commitment to continuous progress of environmental and social responsibility in the solar industry.

In compliance with the [California Transparency in Supply Chains Act \(SB 657\)](#), First Solar is committed to addressing the potential risks of human trafficking, forced labor and slavery in our supply chain by:

1. Verifying our suppliers' adherence to quality, sustainability and social responsibility through supplier contractual agreements, scheduled visits and audits of their facilities. Violation of any Labor Standards may result in the termination of First Solar's business relationship with the supplier.
2. Requiring direct suppliers to certify that materials supplied to First Solar and incorporated into First Solar's products (i) comply with all applicable laws, and (ii) are manufactured in full compliance with applicable laws, which includes laws enforcing fair labor standards and prohibiting slavery and human trafficking.
3. Ensuring internal accountability standards by requiring all First Solar directors, officers and employees to act ethically and in compliance with First Solar's Associate Handbook and Code of Business Conduct and Ethics.

First Solar's Global Compliance Organization manages the company's ethics and compliance program. The goal of this organization is to implement policies, processes, training, monitoring and general awareness programs to promote ethics and compliance with applicable legal and regulatory standards. Subject to the requirements of local law, and after due diligence and full and fair investigation, any employee found to have directly engaged in or knowingly engaged suppliers engaged in slave labor or human trafficking will be subject to immediate termination of employment. First Solar provides training on SB 657 and other Federal and International anti-human trafficking regulations to all First Solar employees that engage in procurement activities with third parties, including suppliers. First Solar's Avoiding Trafficked Labor training includes the following objectives: recognizing and communicating awareness of human trafficking risks relevant to First Solar's business; ensuring compliance with trafficking-related statutes and regulations; and formulating plans to identify and avoid trafficked labor in each specific business unit at First Solar.

Conflict Minerals

First Solar is committed to responsible sourcing and operating a supply chain free of conflict minerals. We comply with and support the goals established under Section 1502 of the Dodd-Frank Wall Street Reform and Consumer Protection Act (the “Dodd-Frank Act”) on conflict minerals and condemn human rights abuses associated with the extraction, transport or trade of minerals and any direct or indirect support to non-state armed groups or security forces that illegally control or tax mine sites, transport routes, trade points or any upstream actors in the supply chain. First Solar’s [Conflict Mineral Policy](#) is published on our website, communicated to our suppliers, and incorporated into supplier contracts. We require all our direct suppliers to agree to and follow these principles. We have an operating, cross-functional internal governance team with representatives from our supply chain, compliance and legal departments to ensure policy statements and control processes are followed.

As we do not source directly from smelter or refiner processing facilities, we rely on the Responsible Minerals Initiative’s Responsible Minerals Assurance Program (RMAP), previously known as Conflict-Free Smelter Program, to oversee and coordinate third-party audits of these facilities. The RMAP audit protocols and procedures require the smelters or refiners to engage specially trained third-party auditors to independently verify that these smelters and refiners can be considered conflict free. Our conflict minerals risk mitigation plan defines supplier-risk management strategies, including (i) continued procurement, (ii) assistance in identifying alternate sources of supply, and (iii) disengagement, the severity of which is at the discretion of our executive management. We aim to advance the effectiveness of our due diligence efforts and further enhance our compliance processes by, among other things, encouraging non-RMAP validated processing facilities to become validated either through the RMAP or a RMAP-recognized third-party audit program. First Solar’s [Specialized Disclosure and Conflict Minerals reports](#) are available on our public website (see “Specialized Disclosure” tab in SEC Filings).

External Sustainability Initiatives

- **Carbon Disclosure Project (CDP):** First Solar has participated in and publicly reported to CDP since 2011.
- **Product Environmental Footprint (PEF):** First Solar is a leading member of the Technical Secretariat to develop Life Cycle Assessment-based Product Environmental Footprint Category Rules (PEFCR) for PV electricity generation under the European Commission's Single Market for Green Products Initiative Pilot process. The PEFCR for PV electricity generation were successfully finalized in 2018.
- **NSF 457 Photovoltaic Module Sustainability Leadership Standard (NSF/ANSI 457- 2019):** First Solar is part of the Joint Committee which developed NSF 457, the industry's first Sustainability Leadership Standard for PV modules and inverters. PV modules and inverters conforming to NSF 457 will be added to the EPEAT registry for sustainable electronics.
- **EPEAT:** First Solar is a member of the EPEAT Advisory Council, a non-fiduciary body formed to provide input and advice to EPEAT management. EPEAT is a globally recognized Type 1 Ecolabel which enables public and private purchasers to identify environmentally preferable electronics. The EPEAT category for PV modules and inverters will be launched in Q3 2020.
- **Climate Leadership Council:** As a founding member, First Solar supports the Climate Leadership Council's mission and carbon dividends plan as a cost-effective, equitable and politically-viable climate solution. The plan calls for a substantial, gradually rising, revenue-neutral carbon tax with the revenue distributed to citizens.
- **International Energy Agency (IEA) Photovoltaic Power Systems Program Task Committees 12:** As a member of Task 12, First Solar promotes international collaboration on PV safety and sustainability.
- **International Renewable Energy Agency (IRENA):** First Solar is a founding member of IRENA's multi-stakeholder Coalition for Action which works to dispel common misperceptions and factual inaccuracies about renewable energy.
- **Solar Energy Industries Association (SEIA) Commitment:** First Solar and its solar affiliates participate in SEIA's Commitment to Environmental and Social Responsibility, a voluntary commitment which details a set of solar industry guidelines to promote environmental and social responsibility.
- **SEIA National PV Recycling Program:** First Solar is partnering with the Solar Energy Industries Association to help make affordable PV recycling solutions more accessible to consumers by establishing a network of cost-effective recyclers that can responsibly manage PV waste.

Key Performance Indicators

Key Performance Indicators	2018	2019	Boundary	GRI	SASB	NSF 457
Net Sales (\$ Billion)	2.224	3.063	Global	102-7		
Total Modules Produced (Millions)	18.8	25.04	Manufacturing	102-7		11.2.1
Total Gigawatts Produced (GW)	2.7	5.7	Manufacturing	102-7	RR-ST-000.A	11.2.1
Total Scope 1 and 2 GHG Emissions (Metric Tons CO ₂ eq)	356,288	468,212	Global (Equity Share)	305-1 & 2		
Scope 1 GHG Emissions (Metric Tons CO ₂ eq)	22,200	26,520	Global (Equity Share)	305-1		11.2.1
Scope 2 GHG Emissions (Metric Tons CO ₂ eq)	334,088	441,692	Global (Equity Share)	305-2		11.2.1
Scope 3 GHG Emissions (Metric Tons CO ₂ eq)	1,013,310	1,677,684	Global	305-3		
GHG Intensity (Scope 1 and Scope 2 Metric Tons CO ₂ per Megawatt Produced)	132	83	Global (Equity Share)	305-4		11.2.2
Total Electricity Consumption (MWh)	684,763	959,400	Global (Equity Share)	302-1		
Consumption of Purchased Non-Renewable Electricity (MWh)	677,591	952,228	Global (Equity Share)	302-1		
Consumption of Self-Generated Renewable Electricity- Solar (MWh)	7,172	7,172	Manufacturing	302-1	RR-ST-130a.1	
Total Fuel Consumption From Non-Renewable Sources (MWh)	76,812	86,531	Global (Equity Share)	302-1		
Natural Gas	15,437	21,973	Global (Equity Share)	302-1		
Diesel/Gas oil	32,444	63,942	Global (Equity Share)	302-1		
Motor Gasoline	28,931	616	Global (Equity Share)	302-1		
Total Energy Consumption (MWh)	761,575	1,045,931	Global (Equity Share)	302-1		
Manufacturing Energy Consumption (MWh)	675,786	926,947	Manufacturing	--	RR-ST-130a.1	11.2.1
Manufacturing Energy Intensity (kWh per Watt Produced)	0.25	0.16	Manufacturing	302-3		11.2.1
Total Waste Generation (Metric Tons)	23,293	41,506	Manufacturing	306-2		11.2.1
Recycled Non-Hazardous (Metric Tons)	15,077	25,342	Manufacturing	306-2		11.2.1
Recycled Hazardous (Metric Tons)	964	2,165	Manufacturing	306-2	RR-ST-150a.1	11.2.1
Disposed Non-Hazardous (Metric Tons)	2,406	6,889	Manufacturing	306-2		11.2.1
Disposed Hazardous (Metric Tons)	4,846	7,110	Manufacturing	306-2	RR-ST-150a.1	11.2.1
Manufacturing Waste Intensity (Grams per Watt Produced)	8.6	7.3	Manufacturing	--		
Total Water Withdrawals (Megaliters)	3,390	3,846	Manufacturing, Recycling and R&D	303-1	RR-ST-140a.1	11.2.1

Manufacturing Water Intensity (Liters per Watt Produced)	1.25	0.68	Manufacturing	--		
Total Water Recycled or Reused (Megaliters)	129	300	Manufacturing, Recycling and R&D	303-3		11.2.2
Water withdrawn in water stressed areas (%)	0.10%	0.01%	Manufacturing, Recycling and R&D	--	RR-ST-140a.1	11.2.2
Total Wastewater Discharge (Megaliters)	1,494	1,902	Manufacturing, Recycling and R&D	306-1		
Wastewater Generation Intensity (Liters per Watt produced)	0.55	0.34	Manufacturing, Recycling and R&D	--		
Recycled input materials used (%)	4.2-8%	2.5-20%	Semiconductor material	301-2	RR0102-10	11.2.1
Total Number of Associates	6,433	6,602	Global	102-7		
New Hires by Gender (% Male)	83%	79%	Global	401-1		
New Hires by Gender (% Female)	17%	20%	Global	401-1		
New Hires by Gender (% Unknown)	0%	1%	Global	401-1		
First Solar Recordable Injury Rate (per 200,000 hours)	0.51	0.69	Global	403-9		11.2.1
First Solar Manufacturing Recordable Injury Rate (per 200,000 hours)	0.47	0.67	Global			
EPC Site Recordable Injury Rate (per 200,000 hours)	0.45	0.96	Global	403-9		
O&M Site Recordable Injury Rate (per 200,000 hours)	1.56	1.92	Global	403-9		
First Solar Global Lost Time Injury Rate (per 200,000 hours)	0.28	0.26	Global	403-9		
Number of Work-Related Fatalities	0	0	Global	403-9		11.2.1
Rate of high-consequence work-related injuries	0.034	0.027	Global	403-9		
Number of Hours Worked	11,799,984	14,520,755	Global	403-9		
Total Training Hours	189,699	104,366	Global	404-1		
Average Training Hours by Gender (Male)	30	15	Global	404-1		
Average Training Hours by Gender (Female)	26	16	Global	404-1		
% Male Workforce	83%	82%	Global	405-1		
% Female Workforce	17%	18%	Global	405-1		
% Male Management*	82%	82%	Global	405-1		
% Female Management*	18%	18%	Global	405-1		
ISO 14001 Certification of Mfg. %	75%	100%	Global	--		
ISO 45001 Certification of Mfg. %	75%	100%	Global	--		
PV panel recycling program in place	Yes	Yes	Global	--		11.2.2

* Defined as manager-level and above.

About this Report.

First Solar's Sustainability Report was developed in accordance with the Global Reporting Initiative's (GRI) Core Sustainability Reporting Standard. This report covers significant economic, social and environmental impacts associated with our global operations. After announcing our transition to a third-party engineering, procurement and construction (EPC) execution model in 2019, we adjusted our sustainability reporting scope to focus on our manufacturing, R&D and recycling operation impacts. Unless otherwise specified, this report includes environmental performance data from all of First Solar's manufacturing plants and its major R&D facility. The reporting period spans 1 January 2019 up to and including 31 December 2019. We have not sought third-party verification for this report; however, our greenhouse gas emissions inventories of Scope 1 and Scope 2 sources were externally verified in 2018 with limited assurance. First Solar's GHG emissions inventory is externally verified on a triennial basis with the International Standard ISO 14064 Part 31 (ISO 14064-3) as well as the WRI/WBCSD GHG Protocol.

To provide feedback on our Sustainability Report, please contact: Sustainability@firstsolar.com

Sustainability Materiality Assessment

As part of our stakeholder mapping and materiality assessment process, First Solar conducted a survey with our external-facing departments including business development, government affairs, public affairs and investor relations, to identify key aspects that significantly impact the company and our stakeholders, both within and outside our organization. First Solar's stakeholders were prioritized according to their ability to significantly influence or be significantly impacted by the company. In addition to the survey results, we leveraged the PV industry's first sustainability leadership standard (NSF/ANSI 457 – 2019) which identified relevant corporate reporting criteria for the PV industry through a multi-stakeholder process led by NSF International and the Green Electronics Council.

The table below lists all material aspects that we believe to be important to our stakeholders based on the survey results and the NSF 457 sustainability leadership standard. Each aspect was grouped according to product and company viability, environmental impacts and social impacts.

Product and Company Viability	Environmental Impacts	Social Impacts
<ul style="list-style-type: none">• Product cost & efficiency• Quality & Reliability• Economic Performance	<ul style="list-style-type: none">• Environmental Compliance• Waste & Recycling• Hazardous Materials• Energy Use and Management• Emissions/ Carbon Footprint• Water Use and Wastewater• Recycled content	<ul style="list-style-type: none">• Occupational Health & Safety• Procurement Practices• Supplier Assessments (Social and Environmental)

Stakeholder Engagement

First Solar engages with various stakeholder groups including employees, customers, industry associations, NGOs, local communities, scientific organizations, media, investors and shareholders. The following chart depicts First Solar's approach to stakeholder engagement; including frequency of engagement by type and stakeholder group, along with key topics and concerns raised:

Stakeholder Groups	How we Engage	Engagement Frequency	Key Topics and Concerns
Employees	Training Sessions, Meetings, Newsletters, Surveys, Sustainability Ambassador program	Daily, ongoing basis	<ul style="list-style-type: none"> • Company & Product viability • Environmental impacts • Social responsibility
Customers/ Technical Advisors	Meetings, Seminars & Conferences, Technical Workshops, Product Presentations	Ongoing basis	<ul style="list-style-type: none"> • Company & Product viability • Environmental impacts • Social responsibility • Supplier assessments
Investors/ Shareholders	Meetings, Earnings Calls, Analyst Days, NSF 457 standard development	Quarterly, annually, ongoing basis	<ul style="list-style-type: none"> • Company & Product viability • Carbon footprint & energy payback time • Governance • Labor & human rights
Suppliers	Meetings, Newsletters, Surveys, Audits	Ongoing basis	<ul style="list-style-type: none"> • Company & Product viability • Procurement practices
Local Communities	Meetings & Town Councils, Presentations to Community Organizations, School Visits, Local Tours, Training Programs	Ongoing basis	<ul style="list-style-type: none"> • Environmental impacts & compliance • Occupational health & safety • Job creation • Quality & Reliability
Government/ Regulators	Meetings & Hearings, Conference Presentations, Seminars & Workshops, Committees, Tax Audits	Ongoing basis	<ul style="list-style-type: none"> • Environmental impacts & compliance • Company & product viability • Job creation • Occupational health & safety
NGOs	External Surveys, Partnerships, Group Meetings, Workshops, standards development	Ongoing basis, annually	<ul style="list-style-type: none"> • Environmental impacts & compliance • Company and product viability • Job creation • Social responsibility
Scientific Community	Conferences, Workshops, Meetings, Working Groups, Technical Seminars, Collaboration, Peer Reviews, standards development	Ongoing basis, annually	<ul style="list-style-type: none"> • Environmental, health & safety impacts • Social responsibility • Job creation • Labor and human rights • Supplier assessment

GRI Content Index

Disclosure Number	General Disclosures	Cross-Reference
102-01	Name of the organization	First Solar Inc.
102-02	Products and services and activities	Annual Report and 10-K
102-03	Location of headquarters	350 W Washington St #600, Tempe, AZ 85281, United States
102-04	Location of operations	About First Solar
102-05	Ownership and legal form	Annual Report and 10-K
102-06	Markets served	Annual Report and 10-K
102-07	Scale of the organization	Working at First Solar
102-08	Information on employees and workers	Working at First Solar
102-09	Description of supply chain	Responsible Supply Chain
102-10	Significant changes to organization and its supply chain	Annual Report and 10-K
102-11	Precautionary principle or approach	Change Management System and EHS Peer Reviews
102-12	External initiatives	External Initiatives and Charters
102-13	Membership of Associations	CDP Climate Change Response
102-14	Statement from senior decision-maker	Message from the CEO
102-15	Key impacts, risks and opportunities	Annual Report and 10-K
102-16	Values, principles, standards and norms of behavior	Our Culture and Ethical Business Conduct
102-17	Mechanisms for advice and concerns about ethics	Ethics Hotline
102-18	Governance structure	Board of Directors and Executive Management
102-40	List of stakeholder groups	Stakeholder Engagement
102-41	Collective bargaining agreements	Collective Bargaining and Freedom of Association
102-42	Identifying and selecting stakeholders	Stakeholder Engagement
102-43	Approach to stakeholder engagement	Stakeholder Engagement
102-44	Key topics and concerns raised	Stakeholder Engagement
102-45	Entities included in the organization's consolidated financial statements	Annual Report and 10K
102-46	Defining report content and topic boundaries	About this report
102-47	List of material topics	Sustainability Materiality Assessment
102-48	Restatements of information	First Solar's global recordable injury rate in 2018 and 2019 was expanded to include Energy Services associates. Our 2018 O&M site recordable injury rate was corrected to 1.56. Our 2018 waste metrics were updated to include glass cullet which was recycled at our Vietnam facility and previously left out because it is classed a product rather than a waste.

102-49	Changes in reporting	About this report
102-50	Reporting period	January 1, 2019- December 31, 2019
102-51	Date of most recent report (if any)	April 18, 2019
102-52	Reporting cycle	biennial
102-53	Contact	sustainability@firstsolar.com
102-54	“In accordance” option	Core
102-55	GRI Content Index	GRI Content Index
102-56	External assurance	About this report

Material Topic	GRI Standards	Description	Cross-reference	NSF 457 Standard
Economic Performance	201-01	Direct economic value generated and distributed	Annual report and 10K	
Economic Performance	201-02	Risks and opportunities due to climate change	CDP Climate Change Response	
Procurement Practices	204-01	Proportion of spending on local suppliers	Supply Chain Spend and Job Creation	
Materials	301-02	Recycled input materials used	KPI Chart	Required
Energy	302-01	Energy consumption within the organization	KPI Chart	Required
Energy	302-03	Energy intensity	KPI Chart	Required
Energy	302-04	Reduction of energy consumption	CDP Climate Change Response	Optional
Water	303-01	Total water withdrawal	KPI Chart	Required
Water	303-03	Percentage of water recycled and reused	KPI Chart	Optional
Effluents	303-04	Total water discharge by quality and destination	CDP Water response	Optional
Emissions	305-01	Direct greenhouse gas (GHG) emissions (Scope 1)	KPI Chart	Required
Emissions	305-02	Indirect GHG emissions (Scope 2)	KPI Chart	Required
Emissions	305-04	GHG emissions intensity	Environmental Metrics	Optional
Effluents and Waste	306-03	Breakdown of waste generated	KPI Chart	Required
Environmental Compliance	307-01	Non-compliance with environmental laws and regulations	Environmental Metrics	Optional
Supplier Environmental Assessment	308-01	New suppliers that were screened using environmental criteria	Supplier Qualification and Assessment	Optional
Supplier Environmental Assessment	308-02	Negative environmental impacts in the supply chain and actions taken	Supplier Qualification and Assessment	Optional
Occupational Health and Safety	403-01	Workers representation in formal joint management-worker health and safety committees	Occupational Health and Safety	
Occupational Health and Safety	403-09	Work-related injuries	Occupational Health and Safety	Required
Supplier Social Assessment	414-01	New suppliers that were screened using social criteria	Supplier Qualification and Assessment	Optional
Supplier Social Assessment	414-02	Negative social impacts in the supply chain and actions taken	Supplier Qualification and Assessment	Optional

References

- de Wild-Scholten, M. (2013). Energy Payback Time and Carbon Footprint of Commercial Photovoltaic Systems. *Solar Energy Materials & Solar Cells* 119, 296-305. Literature values were updated based on relative PV efficiency gains: mono-Si (20%), multi-Si (18%), First Solar (18%).
- Sinha, P., Meader, A., & de Wild-Scholten, M. (2012). Life Cycle Water Usage in CdTe Photovoltaics. *IEEE Journal of Photovoltaics*, 2012. Updated to reflect S6 water footprint based on Sinha and Wade, Addressing Hot Spots in the Product Environmental Footprint of CdTe Photovoltaics, IEEE PVSC, 2017.
- Stolz, P., & Frischknecht, R. (2017). Water Footprint of Photovoltaic Electricity based on Regionalised Life Cycle Inventories. *33rd EU PVSEC*. Amsterdam.