

# Welcome to your CDP Water Security Questionnaire 2022

### **W0. Introduction**

### W0.1

#### (W0.1) Give a general description of and introduction to your organization.

First Solar is a leading American solar technology company and global provider of responsiblyproduced eco-efficient solar modules advancing the fight against climate change. We are unique among the world's ten largest solar manufacturers for being the only US-headquartered company and for not using a crystalline silicon (c-Si) semiconductor. Developed at R&D labs in California and Ohio, First Solar's advanced thin film photovoltaic (PV) modules represent the next generation of solar technologies, providing a competitive, high-performance, lower-carbon alternative to conventional c-Si PV panels. From raw material sourcing and manufacturing through end-of-life module recycling, First Solar's approach to technology embodies sustainability and a responsibility towards people and the planet. Our vision is to lead the world's sustainable energy future and our mission is to provide cost-advantaged solar technology through innovation, customer engagement, industry leadership, and operational excellence.

First Solar's proven solar solutions diversify the energy portfolio and reduce the risk of fuelprice volatility while delivering a levelized cost of electricity (LCOE) that is cost competitive with fossil fuels today. First Solar has set the benchmark for environmentally responsible product life cycle management by introducing the industry's first global and comprehensive recycling program for solar modules. We are committed to minimizing the environmental impacts and enhancing the social and economic benefits of our products and projects across their life cycle, from raw material sourcing through product end-of-life. For more information about First Solar, please visit www.firstsolar.com

First Solar was founded in 1999 and began commercial production in 2002. Since 2002 and through 2021, we have sold 40 gigawatts (GW) of PV solar modules. Assuming average worldwide irradiance and grid electricity emissions, our products are being used to displace 26 million metric tons of CO2e per year during their 30+ year product life. This is equivalent to powering more than 20 million average homes, planting over 430 million trees and saving over 75 billion liters of water (or 30,000 Olympic swimming pools) per year based on worldwide averages. Every year, First Solar products are displacing more than 10 times the amount of greenhouse gas emissions we emit through our global operations and supply chain.



### W0.2

#### (W0.2) State the start and end date of the year for which you are reporting data.

	Start date	End date	
Reporting year	January 1, 2021	December 31, 2021	

### W0.3

(W0.3) Select the countries/areas in which you operate.

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Germany
Malaysia
United States of America
Viet Nam
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### W0.4

(W0.4) Select the currency used for all financial information disclosed throughout

your response.

USD

### W0.5

(W0.5) Select the option that best describes the reporting boundary for companies, entities, or groups for which water impacts on your business are being reported.

Other, please specify Global manufacturing, recycling and R&D

### W0.6

(W0.6) Within this boundary, are there any geographies, facilities, water aspects, or other exclusions from your disclosure?

No

### W0.7

(W0.7) Does your organization have an ISIN code or another unique identifier (e.g., Ticker, CUSIP, etc.)?

Indicate whether you are able to provide a unique identifier for your organization.	Provide your unique identifier
Yes, a Ticker symbol	FSLR



### W1. Current state

### W1.1

# (W1.1) Rate the importance (current and future) of water quality and water quantity to the success of your business.

	Direct use importance rating	Indirect use importance rating	Please explain
Sufficient amounts of good quality freshwater available for use	Vital	Important	Water quality is vital for our operations (direct use) as our thin film solar photovoltaic manufacturing process relies on ultra-pure water production. As we expand our manufacturing footprint, dependency on freshwater availability will increase. The indirect use of water is important as our supply chain relies on sufficient amounts of water to be available for use. However, by switching to less water-intensive electricity generation, this dependence could be reduced. First Solar conducted a lifecycle water assessment of our thin film PV technology which concluded that the life cycle water withdrawal of cadmium telluride (CdTe) PV ranges from approximately 382– 425 L/MWh. (Source: Sinha, Meader and de Wild-Scholten, Life Cycle Water Usage in CdTe Photovoltaics, IEEE, Journal of Photovoltaics, 2012) Direct onsite water use represents only ~12% of CdTe PV's lifecycle water withdrawal. The remainder is related to indirect water withdrawal from the use of grid electricity and raw materials throughout the product life cycle. Primary contributors to life cycle water withdrawal in our supply chain include the use of grid electricity, glass, steel and copper production, chemical use, and transport during take-back and recycling.
Sufficient amounts of recycled, brackish and/or produced water available for use	Vital	Important	Although our direct and indirect operations do not currently depend on having sufficient amounts of brackish or produced water, we are currently constructing our first manufacturing facility in India which will rely entirely on Tertiary Treated Reverse Osmosis water supply from the city's sewage treatment plant in Chennai. Our operations in India will have zero wastewater discharge. Instead the wastewater will be recycled



and converted into freshwater for reuse in our
operations. We also recycle wastewater from our
routinely operated recycling facilities to reduce our
water withdrawals. As a result, First Solar's
routinely operated recycling facilities have zero
wastewater discharge. This will enable us to
operate mobile recycling plants in water scarce
regions in the future and in areas where water
utilities or wastewater treatment facilities are not
available. Our direct and indirect dependency on
brackish or produced water availability may
increase in the future if we manufacture in water-
scarce locations. Recycling water will remain vital
as our manufacturing footprint and water demand
increases. Our supply chain does not currently
rely on recycled, brackish or produced water
however this is expected to change as we begin
working with more suppliers in India which is why
the "important" rating was selected.

### W1.2

(W1.2) Across all your operations, what proportion of the following water aspects are
regularly measured and monitored?

	% of sites/facilities/operations	Please explain		
Water withdrawals – total volumes	100%	We regularly measure and monitor 100% of our total withdrawals from our manufacturing, recycling, and research and development facilities based on monthly water utility bills.		
Water withdrawals – volumes by source	100%	We regularly monitor and measure 100% of the total water withdrawals of our manufacturing, recycling, and research and development facilities based on monthly water utility bills. All withdrawals come from the local municipal supplier (third-party/ freshwater).		
Water withdrawals quality	100%	We regularly monitor and measure 100% of our water quality by standard parameters as well as for heavy metals. First Solar factories are equipped with state-of-the-art analytical capabilities for in-house wastewater testing.		
Water discharges – total volumes	100%	We regularly monitor and measure 100% of the water discharges of our manufacturing, recycling, and research and development facilities.		



Water discharges – volumes by destination	100%	We regularly monitor and measure 100% of the water discharges by destination of our manufacturing, recycling, and research and development facilities. In 2021, approximately 74% of our wastewater was sent to a third-party (municipal wastewater facility) and approximately 26% was discharged directly to fresh surface water (river).
Water discharges – volumes by treatment method	100%	We regularly monitor and measure 100% of our total water discharge volumes by treatment method. 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.
Water discharge quality – by standard effluent parameters	100%	We regularly monitor and measure 100% of our water discharge quality by standard effluent parameters as well as for heavy metals from our manufacturing sites which represent 99.9% of our total wastewater discharge in 2021. First Solar factories are equipped with state-of-the-art analytical capabilities for in-house wastewater testing.
Water discharge quality – temperature	Not relevant	We do not have any high temperature inducing processes in wastewater. This is not anticipated to change or be relevant in the future.
Water consumption – total volume	100%	Approximately 52% of our total water withdrawals (~3,392megaliters) was consumed during operation and used for irrigation, cooling towers, sanitary purposes, or recycled in 2021. We are able to estimate water consumption by subtracting total water discharges from total water withdrawals: 3,392 megaliters-1,629 megaliters= 1,763 megaliters consumed.
Water recycled/reused	100%	We measure the amount of water recycled at our manufacturing and recycling facilities in Malaysia, Ohio, Vietnam and Germany, which represented 99.9% of our water withdrawals in 2021. We recycled approximately 268 megaliters (or approximately 8% of our total water withdrawals) across our operations in 2021.
The provision of fully- functioning, safely managed WASH	100%	100% of our facilities provide fully functioning, safely managed WASH services to all workers. Our total water withdrawal data includes sanitary



services to all	water use at our manufacturing and recycling
workers	facilities.

### W1.2b

# (W1.2b) What are the total volumes of water withdrawn, discharged, and consumed across all your operations, and how do these volumes compare to the previous reporting year?

	Volume (megaliters/year)	Comparison with previous reporting year	Please explain
Total withdrawals	3,392	Lower	While our production increased by nearly 30% in 2021, our absolute water withdrawals decreased by approximately 7% due to the enhanced throughput and water efficiency of our Series 6 manufacturing process as well as water recycling initiatives. Our threshold for "lower" is defined as any decrease up to 20%. Total water withdrawals are expected to increase in 2022 due to increased production.
Total discharges	1,629	Higher	In 2021, our wastewater discharges increased by 20% due to the nearly 30% increase in production volume. Our threshold for "higher" is defined as any increase up to 20%. Total water discharges are expected to increase in 2022 due to increased production.
Total consumption	1,763	Much lower	Total water consumption decreased by 23% in 2021 from 2,302 megaliters to 1,763 megaliters. Our threshold for "much lower" is defined as any decrease of more than 20%. Total water consumption is expected to increase in 2022 due to increased production.

### W1.2d

(W1.2d) Indicate whether water is withdrawn from areas with water stress and provide the proportion.

	Withdrawals are from areas with water stress	% withdrawn from areas with water stress	Comparison with previous reporting year		Please explain
Row 1	Yes	Less than 1%	Much higher	WWF Water Risk Filter	In 2021, 0.01% of our water withdrawals came from water stressed areas, compared to



	0.	.005% in 2020. We used the
	W	/WF Risk Filter Tool and
	de	efined stressed areas as
	ha	aving baseline water stress
	th	nat is equal to/greater than
	'H	ligh': 40-80%. In 2021 and
	20	020, our Mesa, Arizona test
	si	te was the only one classed
	as	s water stressed and water
	w	ithdrawals there increased by
	58	8% compared to 2020. Our
	th	reshold for "much higher" is
	de	efined as any increase of
	m	nore than 20%. We evaluate
	th	ne percentage of sites
	ot	perating in water stressed
	ar	reas based on the baseline
	W	ater stress of our site
	lo	ocations.

### W1.2h

### (W1.2h) Provide total water withdrawal data by source.

	Relevance	Volume (megaliters/year)	Comparison with previous reporting year	Please explain
Fresh surface water, including rainwater, water from wetlands, rivers, and lakes	Not relevant			Not relevant. All withdrawals come from local municipal suppliers (third- party/freshwater). No change from last year. No changes are expected in the future.
Brackish surface water/Seawater	Not relevant			Not relevant. All withdrawals come from local municipal suppliers (third- party/freshwater). No change from last year. No changes are expected in the future.
Groundwater – renewable	Not relevant			Not relevant. All withdrawals come from local municipal suppliers (third- party/freshwater). No change



				from last year. No changes are expected in the future.
Groundwater – non- renewable	Not relevant			Not relevant. All withdrawals come from local municipal suppliers (third- party/freshwater). No change from last year. No changes are expected in the future.
Produced/Entrained water	Not relevant			Not relevant. All withdrawals come from local municipal suppliers (third- party/freshwater). No change from last year. No changes are expected in the future.
Third party sources	Relevant	3,392	Lower	All withdrawals for our manufacturing, recycling and research and development sites come from local municipal suppliers (third- party/freshwater). Our water withdrawals decreased by 7% from 3,655 megaliters in 2020 to 3,392 megaliters in 2021. While our production increased by nearly 30% in 2021, our absolute water withdrawals decreased by approximately 7% due to the enhanced throughput and water efficiency of our Series 6 manufacturing process as well as water recycling initiatives. Our threshold for "lower" is defined as any decrease up to 20%. Total water withdrawals are expected to increase in 2022 due to increased production. We expect to produce between 8.5 GWDC and 9 GWDC of Series 6 and Series 6 Plus modules during 2022. Our water withdrawals will continue to come from third-party sources in the



		future including Tertiary
		Treated water from the city
		sewage treatment plant in
		India and municipal suppliers
		(freshwater) for the rest of
		our sites.

### W1.2i

### (W1.2i) Provide total water discharge data by destination.

	Relevance	Volume (megaliters/year)	Comparison with previous reporting year	Please explain
Fresh surface water	Relevant	429	Much higher	Total water discharges to fresh surface water (river) amounted to approximately 429 megaliters in 2021, which is 33% higher than in 2020 (322 megaliters). This was due to increased production from the addition of our second Series 6 factory in Malaysia. Our threshold for "much higher" is defined as any increase of more than 20%. Total water discharges to fresh surface water are expected to be higher in 2022 due to the expansion in our production capacity. We expect to produce between 8.5 GWDC and 9 GWDC of Series 6 and Series 6 Plus modules during 2022.
Brackish surface water/seawater	Not relevant			On-site treated industrial wastewater is either indirectly discharged to sanitary sewer in the United States and Vietnam, or directly discharged to river in Malaysia. Our operations do not discharge wastewater to brackish surface water or seawater. No change from 2020 and no change is expected in the future.
Groundwater	Not relevant			On-site treated industrial wastewater is either indirectly discharged to sanitary sewer in



				the United States and Vietnam, or directly discharged to river in Malaysia. Our operations do not discharge wastewater to brackish surface water or seawater. No change from 2020 and no change is expected in the future.
Third-party destinations	Relevant	1,200	Higher	Total water discharges to third- party destinations (municipal wastewater facility) amounted to 1,200 megaliters in 2021, which was a 16% increase from 2020 (1,030 megaliters).The increase in 2021 was due to increased production at our facilities in Vietnam and Ohio. Our threshold for "higher" is defined as any increase of up to 20%. We expect wastewater discharges to third- party destinations to be higher in 2022 due to the expansion in our production capacity. We expect to produce between 8.5 GWDC and 9 GWDC of Series 6 and Series 6 Plus modules during 2022.

### W1.2j

(W1.2j) Within your direct operations, indicate the highest level(s) to which you treat your discharge.

	Relevanc e of treatment level to discharge	Volume (megaliters/year )	Compariso n of treated volume with previous reporting year	% of your sites/facilities/operation s this volume applies to	Please explain
Tertiary treatment	Relevant	1,628	Higher	100%	100% of our wastewater goes through tertiary treatment. We treat wastewater at our manufacturin



	g and
	recycling
	facilities using
	a batch
	discharge
	system. Once
	treated, the
	water is
	collected in
	holding tanks,
	which are
	sampled and
	tested to
	confirm 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.
	The amount
	of wastewater
	treated in



			2021 was
			approximately
			20% higher
			than in 2020
			due to the
			nearly 30%
			increase in
			production.
			Our threshold
			for "higher" is
			defined as
			any increase
			of up to 20%.
			We expect
			the amount of
			wastewater
			we treat to be
			higher in
			2022 and
			beyond as
			our
			wastewater
			generation
			increases due
			to our
			growing
			production
			capacity. We
			expect to
			produce
			between 8.5
			GWDC and 9
			GWDC of
			Series 6 and
			Series 6 Plus
			modules
			during 2022.
Secondary	Not		100% of our
treatment	relevant		wastewater
	. Sie rain		goes through
			tertiary
			treatment.
Primary	Not		100% of our
treatment	relevant		wastewater
only			goes through



			tertiary
			treatment.
	<b>N</b> 1 4		
Discharge	Not		100% of our
to the	relevant		wastewater
natural			goes through
environmen			tertiary
t without			treatment. No
treatment			industrial
			wastewater
			leaves our
			site unless
			we have
			tested and
			approved it
			for discharge.
Discharge	Not		100% of our
to a third	relevant		wastewater
party			goes through
without			tertiary
treatment			treatment.
			First Solar
			treats
			wastewater at
			our
			manufacturin
			g 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. We
			expect the
			amount of
			wastewater
			we treat to be
			higher in
			2022 and
			beyond as
			our
			wastewater
			generation
			increases due
			to our
			growing
			production
			capacity. We
			expect to
			produce
			between 8.5
			GWDC and 9
			GWDC of
			Series 6 and
			Series 6 Plus
			modules
			during 2022.
Other	Not		100% of our
	relevant		wastewater
			goes through
			tertiary
			treatment.



### W1.3

#### (W1.3) Provide a figure for your organization's total water withdrawal efficiency.

	Revenue	Total water withdrawal volume (megaliters)	Total water withdrawal efficiency	Anticipated forward trend
Row 1	2,923,377,000	3,392	861,844.634433962	Our total water withdrawal efficiency is expected to improve in 2022 with increased throughput and manufacturing efficiency improvements.

### W1.4

#### (W1.4) Do you engage with your value chain on water-related issues?

Yes, our suppliers

Yes, our customers or other value chain partners

### W1.4a

# (W1.4a) What proportion of suppliers do you request to report on their water use, risks and/or management information and what proportion of your procurement spend does this represent?

Row 1

#### % of suppliers by number

Less than 1%

#### % of total procurement spend

1-25

#### Rationale for this coverage

All new suppliers undergo a rigorous qualification process using a balanced scorecard which focuses on Quality, Cost, Flexibility, Service, Technology and Sustainability. We leverage third-party tools and indexes on environmental, social, governance (ESG) aspects to identify high-risk suppliers based on industry, geography and spend. In 2021, seven audits were conducted on new and high-risk suppliers. The suppliers we engaged represented 9% of our total procurement spend 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 on an annual basis for their adherence to quality, environmental, health and safety, among other areas. The audits assess our suppliers' conformance to the Responsible Business Alliance (RBA) code of conduct which includes environmental criteria such as water management, pollution reduction, and includes questions on water



use and water reduction targets. We prioritize engagement by focusing on our module component suppliers.

#### Impact of the engagement and measures of success

The impact of the engagement and measures of success included assessing our suppliers' conformance to the Responsible Business Alliance (RBA) code of conduct which includes environmental criteria such as air emissions, energy consumption and GHG, water management, pollution prevention and resource reduction among other topics. Measures of success included putting corrective actions in place when potential negative impacts were identified. There were zero priority non-conformances and only one (or 14%) of the suppliers were identified as having significant actual or potential negative environmental impacts. Two major environmental non-conformances were identified. Corrective action plans were put in place for the supplier in Malaysia to conduct scheduled waste vendor assessments and revise its environmental discharge management procedure.

#### Comment

#### W1.4b

(W1.4b) Provide details of any other water-related supplier engagement activity.

#### Type of engagement

Onboarding & compliance

#### **Details of engagement**

Requirement to adhere to our code of conduct regarding water stewardship and management

#### % of suppliers by number

Less than 1%

#### % of total procurement spend

1-25

#### Rationale for the coverage of your engagement

First Solar's supplier agreements require compliance with applicable laws and regulations in addition to First Solar requirements, which may exceed local legal requirements. Under the terms of First Solar's supplier agreements, suppliers must commit to comply with the Responsible Business Alliance (RBA) Code of Conduct and require their suppliers to do

the same. The RBA code of conduct includes climate-related criteria including air emissions management, energy and GHG emissions reduction, and water management among other topics.

#### Impact of the engagement and measures of success



The impact of the engagement is to drive awareness of First Solar's environmental, health and safety (EHS) requirements and conformance with the RBA code of conduct. Verification is conducted through onsite audits and self-assessments. Measures of success include overall low risk scores on audits and supplier improvements such as creating or improving recycling programs, EHS objectives and targets. First Solar works with suppliers to drive supplier improvement in Quality and EHS. in 2021, there were zero priority non-conformances and only one (or 14%) of the suppliers were identified as having significant actual or potential negative environmental impacts. Two major environmental non-conformances were identified. Corrective action plans were put in place for the supplier in Malaysia to conduct scheduled waste vendor assessments and revise its environmental discharge management procedure.

#### Comment

### W1.4c

# (W1.4c) What is your organization's rationale and strategy for prioritizing engagements with customers or other partners in its value chain?

First Solar engages customers through thought leadership, by generating awareness of the energy-water nexus and the sustainability advantage of our products. Unlike thermal electric power plants and concentrated solar power, solar PV does not require any water to generate electricity during operation and is ideally suited to meet the growing energy and water needs of arid, water-limited regions. Energy security, water security and climate change are all important drivers for renewable energy adoption. Due to our resource-efficient manufacturing process, First Solar modules have a water footprint that is up to three times lower than conventional crystalline silicon solar panels on a life cycle basis. Customers with their own sustainability goals are particularly interested in understanding how much carbon a First Solar PV plant displaces as well as how much water is saved by avoiding the use of grid electricity. Success is measured in terms of customer interest in the environmental attributes of our technology, the inclusion of water or carbon footprint questions in RFPs, and megawatts (MW) sold. We also raise awareness about the energy-water-carbon nexus through our social media platforms to highlight the important role solar PV can play in helping companies decouple their growth from environmental impacts associated with traditional sources of electricity generation. Over the past few years, we participated in a multi-stakeholder process led by the Green Electronics Council and NSF international to develop the industry's first sustainability leadership standard for PV modules and inverters (NSF/ANSI 457- 2019) which includes criteria on energy and water efficiency, GHG emissions, and corporate sustainability reporting. PV modules and inverters conforming to NSF 457 are added to the EPEAT registry for sustainable electronics. The EPEAT registry enables public and private purchasers to identify environmentally preferable PV products.



### **W2. Business impacts**

### W2.1

(W2.1) Has your organization experienced any detrimental water-related impacts? No

### W2.2

(W2.2) In the reporting year, was your organization subject to any fines, enforcement orders, and/or other penalties for water-related regulatory violations?

No

### **W3. Procedures**

### W3.3

(W3.3) Does your organization undertake a water-related risk assessment? Yes, water-related risks are assessed

### W3.3a

(W3.3a) Select the options that best describe your procedures for identifying and assessing water-related risks.

#### Value chain stage

Direct operations Supply chain

#### Coverage

Full

#### **Risk assessment procedure**

Water risks are assessed as part of an established enterprise risk management framework

#### Frequency of assessment

More than once a year

#### How far into the future are risks considered?

3 to 6 years

#### Type of tools and methods used

Tools on the market Enterprise risk management First Solar Inc CDP Water Security Questionnaire 2022 Monday, August 1, 2022



#### Tools and methods used

RBA Country Risk Assessment Tool WWF Water Risk Filter Enterprise Risk Management Other, please specify Life cycle assessment

#### **Contextual issues considered**

Water availability at a basin/catchment level Implications of water on your key commodities/raw materials

#### Stakeholders considered

Customers Employees Investors Local communities NGOs Regulators Suppliers Water utilities at a local level

#### Comment

### W3.3b

# (W3.3b) Describe your organization's process for identifying, assessing, and responding to water-related risks within your direct operations and other stages of your value chain.

As part of its Enterprise Risk Management (ERM) approach, First Solar has identified various risk areas across the company with specific risk owners and risk domains. The risk owners review risk scorecards for each risk area on a semi-annual basis with certain members of the executive leadership team including the Chief Executive Officer (CEO). The risk scorecards capture the company leadership's view of enterprise risks and risk trends over an up to 3-5 years horizon. Medium-term and long- term risks may be identified where relevant.

Enterprise-impacting, emerging, transient and cross-functional risks are assessed on their trend and risk priority, which considers mitigation efforts. Key risk domains include but are not limited to regulatory, operational, financial, reputational, market, technology, supply chain, organizational adaptability, and environmental, social governance (ESG) risks. Enterprise risks are grouped by Perceived Organizational Priority (Priority 1, 2 and 3). Priority 1 risks are defined as having potential for significant negative consequences to the business, e.g. disruptions to production which result in loss of sales, loss of market share and/or reputational damage.

A risk balancing assessment has also been implemented to evaluate the impact of risks in the company's operating and monetization model, and to determine which risks to mitigate, transfer, accept or control, and how. The results are reviewed and analyzed by the executive



leadership team and the Board's Audit Committee to guide the company's risk mitigation efforts. Updates are provided to the Board's Audit Committee on a semi-annual basis. Impacts, risks, and opportunities related to climate change may be included in these updates if they could have a significant potential impact on the company's business and operations.

First Solar's ERM process leverages existing functional operating systems and embedded risk management activities to manage risks within each domain. A cross-functional ESG taskforce, consisting of ESG focus leaders and other internal experts, is responsible for identifying strategic ESG risks and opportunities (including water-related risks and opportunities), gaps and challenges, anticipating ESG trends that could impact the company, and proposing new ESG policies, practices, targets, metrics and disclosures. First Solar's ESG focus leaders help advance the company's approach to Responsible Solar by driving progress on key strategic ESG areas including: Energy, Emissions & Resource Efficiency; Circular Economy; Inclusion, Diversity & Belonging; Innovative Products; Public Policy and Public Sentiment; Reliable Products; Responsible Sourcing and Human Rights. The Energy, Emissions & Resource Efficiency working group review water consumption patterns down to the unit-operation level in our manufacturing process, implement water reduction and recycling projects and set water targets. The ESG Steering Committee, consisting of the Executive Leadership Team, meets on a quarterly basis to review ESG progress and capitalize on water-related and other ESG opportunities.

Our facility risk scorecards assess water risks to our manufacturing facilities in the context of operational and/or business continuity on an annual or more frequent basis. Potential assetlevel water risks include natural disasters, utility supply and supply chain disruption, as well as the inability to operate wastewater treatment plant or ultra pure water production. The level of coverage selected is prioritized according to a facility or supplier's ability to impact operations and business continuity. The WWF Water Risk Filter Tool is used to assess the baseline water stress levels of countries where our manufacturing, recycling and Research and Development facilities are located and potential future manufacturing locations.

### W4. Risks and opportunities

### W4.1

(W4.1) Have you identified any inherent water-related risks with the potential to have a substantive financial or strategic impact on your business?

Yes, both in direct operations and the rest of our value chain

### W4.1a

# (W4.1a) How does your organization define substantive financial or strategic impact on your business?

Our definition for a substantive financial impact is a major impact on business, strategy, reputation, operational milestones, talent loss, or financial loss e.g. direct loss or opportunity cost of more than \$50 million (medium-high impact) to more than \$100 million (high impact). Our definition of substantive risk applies to both direct operations and our supply chain.



Natural disasters or disruption to utility water supply that affect a plant's ability to produce and perform process development activities are physical water risks that could generate substantive change to our business. These risks would likely result in us losing some production for a while, until we are able to bring the affected buildings back to production. In this case, substantive risk is defined in terms of its impact on our overall production. Our annual manufacturing capacity has grown from 25 megawatts (MW) in 2005 to 7.9 gigawatts (GW) as of December 31, 2021.

### W4.1b

(W4.1b) What is the total number of facilities exposed to water risks with the potential to have a substantive financial or strategic impact on your business, and what proportion of your company-wide facilities does this represent?

	Total number of facilities exposed to water risk	% company- wide facilities this represents	Comment
Row 1	3	26-50	First Solar's PV modules are currently produced at our facilities in Ohio, Malaysia, and Vietnam. These three locations are exposed to water risks with the potential to have a substantive financial impact on our business. First Solar has an additional recycling facility in Germany and two research and development facilities in the U.S. However, water risks at these facilities would not pose a substantive financial impact. Damage to or disruption of our manufacturing facilities could interrupt our business and adversely affect our ability to generate net sales. These three facilities make up a substantial portion of our net sales. Our 2021 nameplate capacity was 2.4 GW DC in Ohio, 2.7 GW DC in Malaysia, and 2.8 GW DC in Vietnam.

### W4.1c

(W4.1c) By river basin, what is the number and proportion of facilities exposed to water risks that could have a substantive financial or strategic impact on your business, and what is the potential business impact associated with those facilities?

Country/Area & River basin United States of America St. Lawrence Number of facilities exposed to water risk 1

% company-wide facilities this represents



#### 1-25

#### % company's total global revenue that could be affected

21-30

#### Comment

Our facilities in Ohio represented approximately 30% of our 2021 manufacturing capacity. Although we have two manufacturing facilities in Ohio (Perrysburg and Lake Township), they have been aggregated and are referred to as one facility in this response since they share the same river basin.

#### Country/Area & River basin

Malaysia Other, please specify Muda River

#### Number of facilities exposed to water risk

1

#### % company-wide facilities this represents

1-25

### % company's total global revenue that could be affected

31-40

#### Comment

Our manufacturing operations in Malaysia represented approximately 34% of our 2021 manufacturing capacity.

#### Country/Area & River basin

Viet Nam Saigon

#### Number of facilities exposed to water risk

1

#### % company-wide facilities this represents

1-25

#### % company's total global revenue that could be affected

31-40

#### Comment

Our manufacturing operations in Vietnam represented approximately 35% of our 2021 manufacturing capacity.



### W4.2

(W4.2) Provide details of identified risks in your direct operations with the potential to have a substantive financial or strategic impact on your business, and your response to those risks.

#### Country/Area & River basin

United States of America St. Lawrence

#### Type of risk & Primary risk driver

Acute physical Flood (coastal, fluvial, pluvial, groundwater)

#### **Primary potential impact**

Reduction or disruption in production capacity

#### **Company-specific description**

Our manufacturing risk scorecard for Ohio identified natural disasters, such as earthquake, tornado, hurricane, building collapse, and flood, that affects our manufacturing facility's ability to produce as a potential high risk. Any damage to or disruption of our facilities would result in an inability to maintain maximum production levels. Our facilities in Ohio represented approximately 30% of our 2021 manufacturing capacity.

#### Timeframe

Current up to one year

#### Magnitude of potential impact

High

#### Likelihood

Unlikely

Are you able to provide a potential financial impact figure? Yes, an estimated range

#### Potential financial impact figure (currency)

#### Potential financial impact figure - minimum (currency)

0

## Potential financial impact figure - maximum (currency) 54,000,000

#### **Explanation of financial impact**

Assuming a contracted module backlog of 21.9 GW for an aggregate transaction price of \$5.9 billion as of December 31, 2021, and a nameplate capacity in Ohio of 2.4 GW,



the maximum potential revenue impact if our production in Ohio was down for an entire month would be approximately \$54 million. Such a worst-case scenario however is unlikely. We would likely lose some production for a while in the event of a natural disaster such as floods until we are able to bring the affected buildings back into production.

#### Primary response to risk

Increase geographic diversity of facilities

#### **Description of response**

To mitigate the impacts of a natural disaster on our operations in Ohio, we separate our manufacturing capability across several buildings and purchase insurance to cover such losses. We have implemented our management method to reduce and minimize this risk.

#### Cost of response

2,000,000

#### Explanation of cost of response

The cost of the response is based on our approximate annual insurance costs in Ohio.

#### Country/Area & River basin

Viet Nam Saigon

#### Type of risk & Primary risk driver

Chronic physical Rationing of municipal water supply

#### Primary potential impact

Reduction or disruption in production capacity

#### **Company-specific description**

A water outage at our utility supplier would disrupt the supply of water to our manufacturing plant in Vietnam, as identified by our manufacturing facility risk scorecard. Disruption to our utility water supply would result in an inability to maintain maximum production levels. Our manufacturing operations in Vietnam represented approximately 35% of our 2021 manufacturing capacity.

#### Timeframe

Current up to one year

#### Magnitude of potential impact

High

Likelihood

Unlikely

#### Are you able to provide a potential financial impact figure?



Yes, an estimated range

#### Potential financial impact figure (currency)

Potential financial impact figure - minimum (currency)

Potential financial impact figure - maximum (currency) 63,000,000

#### **Explanation of financial impact**

Assuming a contracted module backlog of 21.9 GW for an aggregate transaction price of \$5.9 billion as of December 31, 2021, and a nameplate capacity in Vietnam of 2.8 GW, the maximum potential revenue impact would be approximately \$63 million assuming the water outage lasted for one month. While we would likely experience some supply disruption in the event of a water outage, it is unlikely to last for more than a month.

#### Primary response to risk

Secure alternative water supply

#### **Description of response**

Our facility in Vietnam has a water storage tank that can supply 8 hours of production. We also identified a secondary source which can supply water in the event of a water outage to help eliminate the risk of disruption to our production.

#### Cost of response

0

#### Explanation of cost of response

Cost of response are part of our normal plant operational expenditures and would be a one-off cost.

#### Country/Area & River basin

Malaysia Other, please specify Muda River

#### Type of risk & Primary risk driver

Chronic physical Rationing of municipal water supply

#### **Primary potential impact**

Closure of operations

#### **Company-specific description**

A water outage at our utility supplier would disrupt the supply of water to our manufacturing plant in Malaysia, as identified by our manufacturing facility risk



scorecard. Disruption to our utility water supply would result in an inability to maintain maximum production levels. Our manufacturing operations in Malaysia represented approximately 34% of our 2021 manufacturing capacity. Our 2021 nameplate capacity in Malaysia was 2.7 GW.

#### Timeframe

Current up to one year

#### Magnitude of potential impact

High

#### Likelihood

Unlikely

#### Are you able to provide a potential financial impact figure?

Yes, an estimated range

#### Potential financial impact figure (currency)

#### Potential financial impact figure - minimum (currency)

0

#### Potential financial impact figure - maximum (currency)

61,000,000

#### **Explanation of financial impact**

Assuming a contracted module backlog of 21.9 GW for an aggregate transaction price of \$5.9 billion as of December 31, 2021, and a nameplate capacity in Malaysia of 2.7 GW, the maximum potential revenue impact would be approximately \$61 million assuming the supply disruption lasted for one month. While we would likely experience some supply disruption in the event of a natural disaster, it is unlikely to last for more than a month. We have had no historical issues with water supply and the water utility's repair cycle times are typically short so our 3 day storage is enough to cover for it.

#### Primary response to risk

Secure alternative water supply

#### **Description of response**

Our facility in Malaysia has a water storage tank that holds 1 day of water supply. We also have a second storage source which can supply water for another 2 days in the event of a water outage. We have had no historical issues with water supply and the water utility's repair cycle times are typically short so our 3 day storage is enough to cover for it and help eliminate the risk.

#### Cost of response

0

#### Explanation of cost of response

Cost of response are part of our normal plant operational expenditures and would be a one-off cost.



### W4.2a

(W4.2a) Provide details of risks identified within your value chain (beyond direct operations) with the potential to have a substantive financial or strategic impact on your business, and your response to those risks.

#### Country/Area & River basin

Malaysia Other, please specify Muda River

Stage of value chain

Supply chain

#### Type of risk & Primary risk driver

Acute physical Cyclone, hurricane, typhoon

#### **Primary potential impact**

Supply chain disruption

#### **Company-specific description**

Our manufacturing risk scorecard for Malaysia identified extreme weather which could disrupt material supply to our manufacturing facility in Malaysia as as a potential high risk. Any disruption to our supply would result in an inability to maintain maximum production levels. Our manufacturing operations in Malaysia represented approximately 34% of our 2021 manufacturing capacity. Our 2021 nameplate capacity in Malaysia was 2.7 GW.

#### Timeframe

Current up to one year

#### Magnitude of potential impact

High

#### Likelihood

More likely than not

#### Are you able to provide a potential financial impact figure?

Yes, an estimated range

#### Potential financial impact figure (currency)

#### Potential financial impact figure - minimum (currency)

0

#### Potential financial impact figure - maximum (currency) 61,000,000



#### **Explanation of financial impact**

Assuming a contracted module backlog of 21.9 GW for an aggregate transaction price of \$5.9 billion as of December 31, 2021, and a nameplate capacity in Malaysia of 2.7 GW, the maximum potential revenue impact would be approximately \$61 million assuming the material supply disruption lasted for one month. While we would likely experience some supply disruption in the event of extreme weather impacting one or several of our suppliers, it is unlikely to last for more than a month.

#### Primary response to risk

Upstream Increase supplier diversification

#### **Description of response**

We have worked on increasing the geographic diversity of our key component suppliers to reduce and minimize this risk.

#### **Cost of response**

0

#### Explanation of cost of response

Cost of response are part of our normal plant operational expenditures and would be a one-off cost.

#### Country/Area & River basin

United States of America St. Lawrence

#### Stage of value chain

Supply chain

#### Type of risk & Primary risk driver

Acute physical Cyclone, hurricane, typhoon

#### **Primary potential impact**

Supply chain disruption

#### **Company-specific description**

Our manufacturing risk scorecard for Ohio identified extreme weather which could disrupt material supply to our manufacturing facility as a potential high risk. Any disruption to our supply would result in an inability to maintain maximum production levels. Our facilities in Ohio represented approximately 30% of our 2021 manufacturing capacity.

#### Timeframe

Current up to one year

#### Magnitude of potential impact

High

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#### Likelihood

More likely than not

Are you able to provide a potential financial impact figure? Yes, an estimated range

#### Potential financial impact figure (currency)

#### Potential financial impact figure - minimum (currency)

0

Potential financial impact figure - maximum (currency) 54,000,000

#### **Explanation of financial impact**

Assuming a contracted module backlog of 21.9 GW for an aggregate transaction price of \$5.9 billion as of December 31, 2021, and a nameplate capacity in Ohio of 2.4 GW, the maximum potential revenue impact if our production in Ohio was down for an entire year would be approximately \$54 million assuming the material supply disruption lasted for one month. While we would likely experience some supply disruption in the event of extreme weather impacting one or several of our suppliers, it is unlikely to last for more than a month.

#### Primary response to risk

Upstream Increase supplier diversification

#### **Description of response**

We have worked on increasing the geographic diversity of our key component suppliers to reduce and minimize this risk.

#### Cost of response

0

#### **Explanation of cost of response**

Cost of response are part of our normal plant operational expenditures and would be a one-off cost.

### W4.3

# (W4.3) Have you identified any water-related opportunities with the potential to have a substantive financial or strategic impact on your business?

Yes, we have identified opportunities, and some/all are being realized

### W4.3a

(W4.3a) Provide details of opportunities currently being realized that could have a substantive financial or strategic impact on your business.



#### Type of opportunity

Efficiency

#### Primary water-related opportunity

Cost savings

#### Company-specific description & strategy to realize opportunity

First Solar is reducing water consumption during manufacturing and recycling through the implementation of water conservation and recycling projects. In 2021, we saved approximately 268 million liters of water (equivalent to 8% of our absolute water use) by recycling rejected water from our purification system back into our raw water tank in Malaysia and recycling and reusing wastewater in our recycling process. Since 2018, routinely operated First Solar recycling facilities in the U.S., Germany, and Malaysia 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.

#### Estimated timeframe for realization

Current - up to 1 year

#### Magnitude of potential financial impact

Low

Are you able to provide a potential financial impact figure? Yes, a single figure estimate

Potential financial impact figure (currency) 634,000

Potential financial impact figure - minimum (currency)

#### Potential financial impact figure - maximum (currency)

#### **Explanation of financial impact**

By recycling and reusing 268 megaliters of water in 2021, we saved approximately \$634,000. As the price of water increases, we expect the financial benefits of water recycling and reduction efforts to increase.

#### Type of opportunity

Products and services

#### Primary water-related opportunity

Increased sales of existing products/services

#### Company-specific description & strategy to realize opportunity



While energy security and climate change have been important drivers for renewable energy adoption, water security provides an additional driver. The energy-water nexus associated with traditional energy sources is a growing concern particularly in waterstressed regions. Unlike thermal electric power plants and CSP, solar PV does not require any water to generate electricity during operation and is therefore ideally suited to meet the growing energy and water needs of arid, water-limited regions. In addition, First Solar's fully integrated thin film solar module manufacturing process requires less energy, water and semiconductor material than conventional crystalline silicon PV's batch manufacturing process. On a life cycle basis, First Solar's thin film modules use up to 400 times less water per MWh than conventional energy and up to 3 times less water than other solar technologies such as mono-crystalline silicon PV. Customers with their own sustainability goals are particularly interested in understanding how much carbon a First Solar PV plant displaces as well as how much water is saved by avoiding the use of grid electricity. With a record 17.5 GW of net bookings in 2021, and an endof-year backlog of 21.9 GW, we had an excellent year from a commercial perspective. The bookings momentum has continued in 2022, with 18.9 GW of YTD bookings through June 30, 2022. Since 2019, the COVID-19 pandemic, natural disasters, rising coal prices, actions against forced labor and other factors have all served to exacerbate the issue prompting large developers to consider long-term supply agreements with trusted technology suppliers in an effort to mitigate pricing and supply risks. The wholesale commercial and industrial market continues to represent a promising opportunity for the widespread adoption of PV solar technology as corporations undertake certain sustainability commitments. The demand for corporate renewables continues to accelerate, with corporations worldwide committing to the RE100 campaign. We believe we also have a competitive advantage in the commercial and industrial market due to many customers' sensitivity to the sustainability, experience, and financial stability of their suppliers and geographically diverse operating locations. With our sustainability advantage, financial strength, and global footprint, we are well positioned to meet

these needs.

#### Estimated timeframe for realization

Current - up to 1 year

- Magnitude of potential financial impact High
- Are you able to provide a potential financial impact figure? Yes, a single figure estimate

#### Potential financial impact figure (currency)

2,900,000,000

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)



#### **Explanation of financial impact**

100% of our revenue comes from the sale of clean energy products. Net sales for 2021 amounted to approximately \$2.9 billion, an 8% increase compared to \$2.7 billion in 2020. As of December 31, 2021 we had 7.9 GWDC of total installed nameplate module production capacity across all our facilities. In 2021, we produced 7.9 GWDC of solar modules, which represented an approximate 29% increase compared to 2020. The increase in production was primarily driven by the incremental Series 6 production capacity added in Malaysia in early 2021 and higher throughput at our manufacturing facilities. We expect to produce between 8.5 GWDC and 9 GWDC of Series 6 and Series 6 Plus modules during 2022. In 2021, we announced plans to expand our manufacturing capacity by 6.6 GWDC by constructing our third manufacturing facility in the U.S. and our first manufacturing facility in India. These new facilities are expected to commence operations in the first half of 2023 and the second half of 2023, respectively.

#### Type of opportunity

Products and services

#### Primary water-related opportunity

Increased sales of existing products/services

#### Company-specific description & strategy to realize opportunity

Floatovoltaics or floating solar PV installations are gaining increasing popularity as a solution for installing solar in areas with limited land availability. First Solar modules are being used in a 476 kilowatt Floating Photovoltaic (FPV) project sits atop a pond that not only allows water from the Dau Tieng Reservoir in Tây Ninh Province to be treated before use in the industrial park but now also contributes to the production of clean electricity. With an expected generation of ~750 megawatt-hours (MWH) in the first year alone, the power plant will save 500 tons of emissions per year, the equivalent of displacing 180,000 liters of diesel per year. The project is expected to be expanded to 3.5 megawatts (MW) as part of future development plans. FPV plants like this one allow for closer proximity to the communities using clean electricity, a reduction of natural evaporation, less shading, easier maintenance with minimized dust, and higher performance of the PV modules due to the cooling effect from the water beneath.

#### Estimated timeframe for realization

1 to 3 years

#### Magnitude of potential financial impact

Low-medium

#### Are you able to provide a potential financial impact figure? Yes, an estimated range

#### Potential financial impact figure (currency)

#### Potential financial impact figure – minimum (currency)

136,000



#### Potential financial impact figure – maximum (currency)

135,000,000

#### **Explanation of financial impact**

With two-thirds of the Earth's surface covered with water, floatovoltaics have the potential to become more widespread. In addition, the cost of leasing water for solar installations is lower than that of land. However, since these installations are still in their early stages, the potential financial impact is estimated to be low-medium. The global floating solar panel market is expected to reach \$2.7 billion by 2025, according to a report by Grand View Research. The estimated financial impact is calculated assuming 5% market share of the estimated global FPV market in 2025 or \$135 million.

### W5. Facility-level water accounting

### W5.1

(W5.1) For each facility referenced in W4.1c, provide coordinates, water accounting data, and a comparison with the previous reporting year.

Facility reference number Facility 1

Facility name (optional) Perrysburg

#### Country/Area & River basin

United States of America St. Lawrence

#### Latitude

41.557058

#### Longitude

-83.552515

#### Located in area with water stress

No

## Total water withdrawals at this facility (megaliters/year) 806

Comparison of total withdrawals with previous reporting year Higher

Withdrawals from fresh surface water, including rainwater, water from wetlands, rivers and lakes

0



Withdrawals from brackish surface water/seawater 0 Withdrawals from groundwater - renewable 0 Withdrawals from groundwater - non-renewable 0 Withdrawals from produced/entrained water 0 Withdrawals from third party sources 806 Total water discharges at this facility (megaliters/year) 339 Comparison of total discharges with previous reporting year Higher Discharges to fresh surface water 0 Discharges to brackish surface water/seawater 0 **Discharges to groundwater** 0 Discharges to third party destinations 339 Total water consumption at this facility (megaliters/year) 466 Comparison of total consumption with previous reporting year Higher Please explain As a result of increase in production, our water withdrawals, discharges, and consumption were higher in 2021 compared to 2020. **Facility reference number** Facility 2

Facility name (optional) Kulim

#### Country/Area & River basin

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Malaysia Other, please specify Muda River Latitude

5.428624

#### Longitude

100.572598

#### Located in area with water stress

No

#### Total water withdrawals at this facility (megaliters/year)

1,494

#### Comparison of total withdrawals with previous reporting year Lower

Withdrawals from fresh surface water, including rainwater, water from wetlands, rivers and lakes

0

## Withdrawals from brackish surface water/seawater

Withdrawals from groundwater - renewable

Withdrawals from groundwater - non-renewable

## Withdrawals from produced/entrained water 0

drowolo

Withdrawals from third party sources 1,494

Total water discharges at this facility (megaliters/year) 429

#### Comparison of total discharges with previous reporting year Higher

Discharges to fresh surface water 429

Discharges to brackish surface water/seawater

Discharges to groundwater

0



#### Discharges to third party destinations

0

**Total water consumption at this facility (megaliters/year)** 1,065

### Comparison of total consumption with previous reporting year

Lower

#### Please explain

Total water discharge increased in 2021 relative to 2020 due to the ramping of a production line in our Malaysian manufacturing facility. While production increased in 2021 relative to 2020, total water withdrawals and consumption decreased due to the increased throughput and efficiency of our Series 6 manufacturing process as well as water recycling initiatives.

#### Facility reference number

Facility 3

#### Facility name (optional)

Dong Nam

#### Country/Area & River basin

Viet Nam Saigon

#### Latitude

10.77653

#### Longitude

106.70098

#### Located in area with water stress

No

#### Total water withdrawals at this facility (megaliters/year)

1,087

#### Comparison of total withdrawals with previous reporting year

About the same

# Withdrawals from fresh surface water, including rainwater, water from wetlands, rivers and lakes

0

#### Withdrawals from brackish surface water/seawater

0

#### Withdrawals from groundwater - renewable

0



Withdrawals from groundwater - non-renewable
Withdrawals from produced/entrained water
Withdrawals from third party sources 1,087
Total water discharges at this facility (megaliters/year) 860
Comparison of total discharges with previous reporting year Higher
Discharges to fresh surface water 0
Discharges to brackish surface water/seawater
Discharges to groundwater
Discharges to third party destinations 860
Total water consumption at this facility (megaliters/year)
Comparison of total consumption with previous reporting year

Lower

### **Please explain**

In 2021, production was similar (slightly higher) than 2020, with total withdrawals similar in both years, and discharge (slightly higher) and consumption (slightly lower) also similar in both years.

## W5.1a

## (W5.1a) For the facilities referenced in W5.1, what proportion of water accounting data has been third party verified?

### Water withdrawals - total volumes

% verified Not verified

### **Please explain**

We have not verified our water accounting data for cost reasons but may plan do so within the next two years.



### Water withdrawals - volume by source

### % verified

Not verified

### **Please explain**

We have not verified our water accounting data for cost reasons but may plan do so within the next two years.

### Water withdrawals - quality by standard water quality parameters

### % verified

Not verified

### **Please explain**

We have not verified our water accounting data for cost reasons but may plan do so within the next two years.

### Water discharges - total volumes

### % verified

Not verified

### **Please explain**

We have not verified our water accounting data for cost reasons but may plan do so within the next two years.

### Water discharges - volume by destination

### % verified

Not verified

### **Please explain**

We have not verified our water accounting data for cost reasons but may plan do so within the next two years.

### Water discharges - volume by final treatment level

### % verified

Not verified

### **Please explain**

We have not verified our water accounting data for cost reasons but may plan do so within the next two years.

### Water discharges – quality by standard water quality parameters

% verified

Not verified

### Please explain



We have not verified our water accounting data for cost reasons but may plan do so within the next two years.

### Water consumption – total volume

### % verified

Not verified

### **Please explain**

We have not verified our water accounting data for cost reasons but may plan do so within the next two years.

## W6. Governance

### W6.1

### (W6.1) Does your organization have a water policy?

Yes, we have a documented water policy that is publicly available

## W6.1a

## (W6.1a) Select the options that best describe the scope and content of your water policy.

	Scope	Content	Please explain
Row 1	Company- wide	Description of business dependency on water Description of business impact on water Description of water- related performance standards for direct operations Description of water- related standards for procurement Reference to international standards and widely-recognized water initiatives Company water targets and goals Commitment to align with public policy initiatives, such as the SDGs	First Solar's water policy is company-wide because providing an ecologically leading solution to climate change, water scarcity and the unsustainable growing consumption of natural resources is part of our vision to lead the world's sustainable energy future. The energy- water nexus associated with traditional energy sources is a growing concern particularly in water-stressed regions. By generating clean electricity with no emissions, water use, or waste generation, First Solar modules enable customers to decouple their own business growth from environmental impacts associated with conventional electricity generation and consumption. Water is also vital to our global manufacturing operations. Our water policy lays out our water goals, targets and priorities including: Improving the water efficiency of our operations by conserving, recycling and reusing water; Publishing water metrics as part of our commitment to transparency; Supporting community projects focused on delivering access to clean energy and water in alignment with UN Sustainable Development Goals 6 and 7; and Raising awareness of the energy-water nexus and partnering on



 	-
Commitments beyond regulatory complianceCommitment to water- related innovationCommitment to stakeholder awareness 	innovative solutions to water challenges. In our policy, First Solar recognizes that access to clean water is a fundamental human right, in line with Goal 6 of the United Nations' 2030 Agenda for Sustainable Development, and is committed to transparency on water usage, partnering on innovative solutions to water challenges and supporting community projects which deliver access to clean energy and water. Our water policy is publicly available at: https://www.firstsolar.com/-/media/First- Solar/Sustainability-Documents/First-Solar-Water- Policy_vf.ashx In accordance with our policy, we disclose our company water goals, targets and metrics in our annual sustainability report. In addition, as a member of the Responsible Business Alliance (RBA), we e implement the RBA Code of Conduct within our operations and our supply chain. Water-related requirements in the code of conduct include: Providing workers with ready access to clean toilet facilities and potable water, conserving water and other natural resources, implementing a water management program, monitoring and treating wastewater before discharge. The RBA code of conduct helps set water standards for our suppliers.

IFirst Solar Water Policy.pdf

## W6.2

(W6.2) Is there board level oversight of water-related issues within your organization?  $$\mathrm{Yes}$$ 

## W6.2a

(W6.2a) Identify the position(s) (do not include any names) of the individual(s) on the board with responsibility for water-related issues.

Position of individual	Please explain
Board-level committee	Pursuant to its charter, the Nominating and Governance Committee, one of the four committees of the Board of Directors, reviews the Company's environmental, social,
	and governance (ESG) strategy, policies and initiatives (other than initiatives delegated to other committees), which include climate-related and water-related issues. First Solar's ESG Steering Committee, led by our Chief Executive Officer and



	consisting of our Executive Leadership Team, reports into the Nominating and Governance Committee on a biannual or more frequent basis. Updates include reviewing progress on our manufacturing water efficiency target.
Board-level committee	The Audit Committee, one of the four committees of the Board of Directors, oversees financial risks, legal and compliance risks, information security risks (including cybersecurity), and other risk management functions. First Solar's annual enterprise risk assessment process includes identifying risks that would impact the company's achievement of strategic objectives which includes considering climate-related physical and transition risks and opportunities. The Audit committee of the Board receives enterprise risk management updates and reviews risks on a biannual or more frequent basis. Climate- and water-related risk include potential disruption of our manufacturing process or facilities, facility outages and infrastructure breakdown, ESG disclosure requirements and investor expectations, changes in market incentives and demand for our low carbon solar products, insurance coverage, and the carbon intensity of our operations and supply chain.

## W6.2b

	Frequency that water-related issues are a scheduled agenda item	Governance mechanisms into which water-related issues are integrated	Please explain
Row 1	Scheduled - some meetings	Monitoring implementation and performance Reviewing and guiding risk management policies Reviewing and guiding strategy Reviewing and guiding corporate responsibility strategy	The Board's Nominating and Governance Committee reviews and guides the company's climate change strategy, goals and targets. In 2021, First Solar set science-based targets to reduce our absolute scope 1 and scope 2 emissions by 2028 and achieve Net Zero by 2050. First Solar's ESG Steering Committee, led by our Chief Executive Officer and consisting of our Executive Leadership Team, reports into the Nominating and Governance Committee on a biannual or more frequent basis. Updates to the Nominating and Governance Committee include reviewing the ESG dashboard to monitor progress on targets and our energy, water and greenhouse gas emissions intensity. The ESG Steering Committee also provides updates on opportunities related to our approach Responsible Solar. Our commitment to 'Responsible Solar' is underpinned by the belief that solar should never come at the price of people or the planet and drives our company's environmental, social, governance

### (W6.2b) Provide further details on the board's oversight of water-related issues.



	(ESG) strategy and differentiation. Our approach to
	Responsible Solar is interwoven into every aspect of
	our business and product life cycle- from raw
	material sourcing to end-of-life recycling:
	<ul> <li>Operating a responsible supply chain with zero</li> </ul>
	tolerance for forced labor
	<ul> <li>Manufacturing using less energy, water and semiconductor</li> </ul>
	Enabling faster decarbonization through lower
	embodied carbon
	Maximizing resource recovery to enhance
	circularity
	The Board's Audit Committee oversees financial
	risks, legal and compliance risks, information
	security risks (including cybersecurity), and other
	risk management functions. The Audit committee of
	the Board receives enterprise risk management
	updates on a biannual or more frequent basis and
	reviews climate-related risks and key mitigation
	approaches for potential disruption of our
	manufacturing process or facilities, facility outages
	and infrastructure breakdown, ESG disclosure
	requirements and investor expectations, changes in
	market incentives and demand for our low carbon
	solar products, insurance coverage, and the carbon
	intensity of our operations and supply chain.

## W6.2d

(W6.2d) Does your organization have at least one board member with competence on water-related issues?

Board member(s) Criteria used to a have competence related issues on water-related issues		Criteria used to assess competence of board member(s) on water- related issues
Row 1	Yes	Criteria used to assess board members, including incumbent board members, include "relevant knowledge and diversity of perspective and experience in such areas as business, technology, finance and accounting, marketing, international business, government and other disciplines relevant to the Company's business." This includes experience in the renewable energy industry, low carbon energy technology, sustainability, climate finance and infrastructure and infrastructure, or with companies in the water sector. Based on these criteria, four Directors on our Board have competence on climate- related issues including our Chairman, Chief Executive Officer, and two independent Directors including the Chair of the Board's Technology



	Committee and a Director who is a member the Technology
	Committee.

## W6.3

(W6.3) Provide the highest management-level position(s) or committee(s) with responsibility for water-related issues (do not include the names of individuals).

### Name of the position(s) and/or committee(s)

Chief Executive Officer (CEO)

### Responsibility

Assessing future trends in water demand Assessing water-related risks and opportunities Managing water-related risks and opportunities

### Frequency of reporting to the board on water-related issues Half-yearly

### **Please explain**

First Solar has fully integrated environmental, social, governance (ESG) oversight, which includes water-related issues, at the executive and board level. First Solar's Chief Executive Officer (CEO) has overall responsibility for water-related issues within the company as the top owner of enterprise risk and head of the ESG Steering Committee which consists of the company's Executive Leadership Team. ESG updates are provided to the Board's Nominating and Governance Committee and enterprise risk updates (which can include water risks) are provided to the Audit Committee on a biannual or more frequent basis. Biannual ESG board updates include reviewing progress on company targets relating to manufacturing water intensity and opportunities relating to the company's approach to Responsible Solar. Members of the ESG Steering Committee hold operational responsibility for water management and other ESG priorities which are driven by a cross-functional taskforce of ESG focus leaders.

## W6.4

## (W6.4) Do you provide incentives to C-suite employees or board members for the management of water-related issues?

	Provide incentives for management of water-related issues	Comment
Row	Yes	Certain members of the ESG Steering Committee hold operational
1		responsibility for water and resource efficiency targets and other ESG
priorities which are driven by a cross-fun		priorities which are driven by a cross-functional taskforce of ESG focus
		leaders. Bonus payouts for all associates, including the executive



leadership team, are based on the achievement of their operational
goals and objectives.

## W6.4a

(W6.4a) What incentives are provided to C-suite employees or board members for the management of water-related issues (do not include the names of individuals)?

	Role(s) entitled to incentive	Performance indicator	Please explain
Monetary reward	Corporate executive team	Improvements in efficiency - direct operations Other, please specify reducing operational costs	Certain members of the ESG Steering Committee hold operational responsibility for manufacturing water and resource efficiency targets and other ESG priorities which are driven by a cross-functional taskforce of ESG focus leaders. Bonus payouts for all associates, including the executive leadership team, are based on the achievement of their operational goals and objectives.
Non- monetary reward	Corporate executive team	Improvements in efficiency - direct operations	Certain members of the ESG Steering Committee hold operational responsibility for manufacturing water and resource efficiency targets and other ESG priorities which are driven by a cross-functional taskforce of ESG focus leaders. Bonus payouts for all associates, including the executive leadership team, are based on the achievement of their operational goals and objectives.

## W6.5

## (W6.5) Do you engage in activities that could either directly or indirectly influence public policy on water through any of the following?

Yes, direct engagement with policy makers Yes, trade associations Yes, other

## W6.5a

# (W6.5a) What processes do you have in place to ensure that all of your direct and indirect activities seeking to influence policy are consistent with your water policy/water commitments?

First Solar's VP of Global Policy, Public Sentiment and Sustainability is part of the crossfunctional environmental, social, and governance (ESG) taskforce that is responsible for identifying strategic ESG risks, opportunities, gaps and challenges, anticipating ESG trends that could impact the company, and proposing new ESG policies, practices, targets, metrics and disclosures. First Solar's ESG focus leaders help advance the company's approach to Responsible Solar by driving progress on key strategic ESG areas including Resource



Efficiency and Public Policy and Public Sentiment among other topics. Our commitment to 'Responsible Solar' is interwoven into every aspect of our business and product life cycle- from raw material sourcing to end-of-life recycling. This includes manufacturing using less energy, water and semiconductor and providing solar modules with the lowest water footprint in the industry. Our direct and indirect activities to influence policy are aligned with our commitment to Responsible Solar and vision to lead the world's sustainable energy future. Our corporate policies, e.g. our water policy, EHS policy, and the RBA code of conduct, provide guidance on our commitment to reducing operational impacts to ensure alignment across the company. We foster a culture where EHS is an integral part of our associates' work and require our contractors and suppliers to adhere to our standards and commitments. Any inconsistency is addressed with a corrective action.

## W6.6

## (W6.6) Did your organization include information about its response to water-related risks in its most recent mainstream financial report?

- Yes (you may attach the report this is optional)
- First-Solar-Annual-Report-2021-Web-version-(final-from-Merrill).pdf
- 0 2022\_Sustainability\_Report\_21JUL22.pdf

## W7. Business strategy

## W7.1

(W7.1) Are water-related issues integrated into any aspects of your long-term
strategic business plan, and if so how?

	Are water- related issues integrated?	Long-term time horizon (years)	Please explain
Long-term business objectives	Yes, water- related issues are integrated	5-10	Water-related issues such as water availability and costs are integrated into our long-term business objectives of maintaining low manufacturing costs as well as the lowest environmental footprint in the industry. Access to sufficient water availability and quality is taken into account when siting new manufacturing facilities as our manufacturing process relies on ultra-pure water production and is key to scaling our manufacturing capacity over the next few years. We set the foundation to reach approximately 16 GW of capacity in 2024 with the announced plans for new factories in Ohio and India to produce our next generation of solar panels, which we are calling Series 7. The two Series 7 factories are expected to come online in 2023. Water management and conservation



			was taken into account in our decision to build a manufacturing plant in India.
Strategy for achieving long-term objectives	Yes, water- related issues are integrated	5-10	Resource conservation and water recycling projects are part of our strategy to manage manufacturing costs and maintain the lowest environmental footprint in the industry. We continue to review water consumption patterns down to the unit operation level in our manufacturing process and are challenging our process engineers to deliver additional water savings. After surpassing our 71% water intensity reduction target seven years early, we set a new water intensity target of 0.25 liters per watt by 2028 or an 87% reduction compared to our 2009 baseline.
Financial planning	Yes, water- related issues are integrated	5-10	Water-related issues are integrated into our long-term 5-year financial planning process since water indirectly impacts our manufacturing and recycling costs. Our facility and recycling teams include resource efficiency projects, as well as wastewater treatment plant and recycling upgrades into their budget plans.

### W7.2

(W7.2) What is the trend in your organization's water-related capital expenditure (CAPEX) and operating expenditure (OPEX) for the reporting year, and the anticipated trend for the next reporting year?

Row 1

Water-related CAPEX (+/- % change)

-58

Anticipated forward trend for CAPEX (+/- % change)

-74

Water-related OPEX (+/- % change)

24

Anticipated forward trend for OPEX (+/- % change)

15

### Please explain

Our water CAPEX was higher in 2020 compared to 2021 due to the installation of a wastewater treatment system at our Lake Township manufacturing facility in Ohio. Water OPEX in 2021 increased due the expansion in production capacity. Although production increased by nearly 30%, water OPEX only increased by 24% and our absolute water withdrawals decreased by approximately 7% due to the enhanced



throughput and water efficiency of our Series 6 manufacturing process as well as water recycling initiatives. Water OPEX is expected to be higher in 2022 due to the increase in production. We expect to produce between 8.5 GWDC and 9 GWDC of Series 6 and Series 6 Plus modules during 2022, compared to 7.9GW in 2021. Despite showing a decrease, CAPEX may increase in 2022 due to expenditures on our third manufacturing facility in Ohio. The estimated CAPEX change does not currently include those expenditures.

## W7.3

### (W7.3) Does your organization use scenario analysis to inform its business strategy?

	Use of scenario analysis	Comment
Row 1	Yes	We used forward-looking scenario analyses in considering potential climate- related and water-related risks and opportunities. For assessing physical climate-related risks, we used IPCC's assessment of 1.5°C global warming (consistent with RCP 2.6), as well as the U.S. National Climate Assessment evaluation of RCP 4.5 and RCP 8.5. To evaluate water risks, we used the WWF Water Risk Filter tool to identify water risks using optimistic (1.5 degrees C), current trend (2 degrees C), and pessimistic warming scenarios (3.5 degrees C or higher) for 2030 and 2050 where our manufacturing, recycling and research and development facilities are located, including our future manufacturing location in India.

## W7.3a

(W7.3a) Provide details of the scenario analysis, what water-related outcomes were identified, and how they have influenced your organization's business strategy.

	Type of scenario analysis used	Parameters, assumptions, analytical choices	Description of possible water-related outcomes	Influence on business strategy
Row	Water-	To evaluate physical	Possible water-related	As a result of the climate
1	related	climate-related risks, we	outcomes include very	scenario analysis, First
	Climate-	used IPCC's assessment	high to extreme flood risks	Solar updated its near-
	related	of a 1.5°C scenario	and low to moderately low	term and long- term
		(consistent with RCP 2.6),	water scarcity risks at all	science-based climate
		a 2°C scenario (consistent	three of our manufacturing	targets to reduce scope 1
		with RCP 4.5), and a 3°C	facility locations in Ohio,	and scope 2 emissions by
		or higher scenario	Vietnam and Malaysia by	34% by 2028 and achieve
		(consistent with RCP 8.5)	2030. Our manufacturing	Net Zero by 2050, in line
		to conduct a quantitative	facility in Vietnam faces	with a 1.5 degree C world.
		analysis of potential	high to extreme water	We are also exploring
		impacts on our	quality risks by 2050. Our	renewable energy
		manufacturing, recycling,	future manufacturing site	sourcing options in Ohio



	R&D and testing facilities	in India currently faces	and our future
	over a 2030-2050 time	high baseline water stress	manufacturing location in
	horizon. We leveraged the	and continues to in all	India to help meet our
	Shared Socioeconomic	three scenarios	science-based targets.
	Pathway scenarios	(optimistic, current trend	Water considerations have
	including SSP1-2.6 (low	and pessimistic) in 2030	influenced the strategy for
	emissions), SSP2-4.5	and 2050.	our future manufacturing
	(intermediate emissions),		operations in India. As a
	and SSP.5-8.5 (very high		result, we will source
	emissions) to cover a		water from the Tertiary
	broad range of emissions		Treated Reverse Osmosis
	pathways to assess		water supply line out of
	physical risks at our		the city sewage treatment
	facilities in the U.S.,		plant and will operate our
	Malaysia, Vietnam, and our		future manufacturing
	new manufacturing facility		facility with zero
	which is under construction		wastewater discharge.
	in India.		
	To evaluate water risks, we		
	used the WWF Water Risk		
	Filter tool to identify water		
	risks using optimistic (1.5		
	degrees C), current trend		
	(2 degrees C), and		
	pessimistic warming		
	scenarios (3.5 degrees C		
	or higher) for 2030 and		
	2050 where our		
	manufacturing, recycling		
	and research and		
	development facilities are		
	located, including our		
	future manufacturing		
	location in India. The		
	optimistic scenario		
	pathway represents a		
	world with sustainable		
	socio-economic		
	development (SSP1) and		
	moderate reduction of		
	GHG emissions (RCP2.6		
	/RCP4.5), and leads to an		
	increase of global mean		
	surface temperature of		
	approximately 1.5°C by		
	2100. It assumes moderate		



mitigation measures	
halving GHG emissions by	
2050, more stringent	
environmental regulations,	
rapid technological change	
and improved resource	
efficiency.	
The current trend pathway	
represents a world similar	
to current socio-economic	
development trends	
(SSP2) and intermediate	
GHG emission levels	
(RCP4.5 /RCP6.0), and	
leads to an increase of	
global mean surface	
temperature of	
approximately 2°C by	
2100. It assumes	
intermediate mitigation	
measures with GHG	
emissions peaking by	
2050, weak environmental	
regulation and enforcement	
trigger slow technological	
progress in water use	
efficiencies, growing	
population and intensity of	
resource aggravates	
degradation of water	
resources.	
The pessimistic scenario	
represents a world with	
unequal and unstable	
socio-economic	
development (SSP3) and	
high GHG emission levels	
(RCP6.0 /RCP8.5), and	
leads to an increase of	
global mean surface	
temperature of	
approximately 3.5/4°C by	
2100. It assumes GHG	
emissions continuing to	
rise, weak environmental	
regulation and enforcement	



hampers technological	
progress in water use	
efficiency, and growing	
population with limited	
access to safe water.	

## W7.4

### (W7.4) Does your company use an internal price on water?

### Row 1

### Does your company use an internal price on water?

No, and we do not anticipate doing so within the next two years

### Please explain

We do not anticipate setting an internal price on water within the next two years.

## W7.5

## (W7.5) Do you classify any of your current products and/or services as low water impact?

	Products and/or services classified as low water impact	Definition used to classify low water impact	Please explain
Row 1	Yes	Unlike thermal electric power plants and concentrated solar power, solar PV does not require any water to generate electricity during operation and is ideally suited to meet the growing energy and water needs of arid, water-limited regions. The definition used to classify low water impact is based on the life cycle water use compared to conventional energy sources and other solar technologies. First Solar modules have a water footprint that is up to three times lower than conventional crystalline silicon solar panels on a life cycle basis.	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 under one roof, using less energy, water and semiconductor material than conventional crystalline silicon PV manufacturing. In less than 4.5 hours, a sheet of glass is transformed into a complete PV module — flash tested, packaged and ready for shipment. Due to our resource-efficient manufacturing process, First Solar modules have a water footprint that is up to three times lower than conventional crystalline silicon solar panels on a life cycle basis.



## W8. Targets

## **W8.1**

(W8.1) Describe your approach to setting and monitoring water-related targets and/or goals.

	Levels for targets and/or goals	Monitoring at corporate level	Approach to setting and monitoring targets and/or goals
Row 1	Company-wide targets and goals Business level specific targets and/or goals Site/facility specific targets and/or goals	monitored at the corporate level	As part of our efforts to move towards more dynamic materiality assessments, First Solar's ESG focus leaders and other internal experts review and refresh the company's materiality map on a biannual basis. This cross-functional ESG taskforce is also responsible for identifying strategic ESG risks, opportunities, gaps and challenges, anticipating ESG trends that could impact the company, and proposing new ESG policies, practices, targets, metrics and disclosures. First Solar's Energy, Emissions, and Resource Efficiency working group is responsible for measuring and monitoring progress of First Solar's resource efficiency strategy which includes setting water targets. These targets align with water-related risks and opportunities. We continue to review water consumption patterns down to the unit operation level in our manufacturing process and are challenging our process engineers to deliver additional water savings. After surpassing our 71% water intensity reduction target seven years early, we set a new water intensity target of 0.25 liters per watt by 2028 or an 87% reduction compared to our 2009 baseline. Aggressive zero wastewater discharge targets are prioritized in regions facing water shortages e.g. India where we are currently constructing a manufacturing facility that will be operational in 2023. Instead of being discharged, our wastewater in India will be recycled and converted into freshwater so it can be reused in our operations. Our water goals and targets are driven by our corporate sustainability strategy and local compliance requirements.

## W8.1a

(W8.1a) Provide details of your water targets that are monitored at the corporate level, and the progress made.

Target reference number

First Solar Inc CDP Water Security Questionnaire 2022 Monday, August 1, 2022



### Target 1

### Category of target

Product water intensity

### Level

Company-wide

### **Primary motivation**

Corporate social responsibility

### **Description of target**

In conformance with sustainability leadership standard NSF 457 and EPEAT ecolabel for PV modules and inverters, First Solar is committed to achieving an average 1% reduction in total water withdrawal per unit of production (Watt produced) per year from inventory baseline (2009) at each of its global manufacturing facilities in Ohio, Malaysia and Vietnam through 2028.

### **Quantitative metric**

% reduction per unit of production

Baseline year

2009

Start year 2017

Target year 2028

% of target achieved 36

### **Please explain**

In 2021, First Solar's manufacturing water intensity decreased by approximately 32% due to the increased throughput and efficiency of our Series 6 manufacturing process as well as water recycling initiatives. Our threshold for success is achieving an average 1% year on year reduction in total water withdrawal per unit of production (Watt produced) through 2028, in conformance with sustainability leadership standard NSF 457 and EPEAT ecolabel for PV modules and inverters. Since our target year is 2028, in 2021 we achieved 36% of our target relative to our starting year of 2017 (based on meeting the annual reduction requirement in 4 years out of the 11 year commitment period (4/11=36%). Since 2017 alone, we reduced manufacturing water intensity per watt produced by 66%.

Target reference number Target 2

**Category of target** 



### Product water intensity

### Level

Company-wide

### **Primary motivation**

Corporate social responsibility

### **Description of target**

After surpassing our 71% water intensity reduction target seven years early, we set a new water intensity target of 0.25 liters per watt by 2028 or an 87% reduction compared to our 2009 baseline.

### **Quantitative metric**

% reduction per unit of production

### **Baseline year**

2009

Start year 2021

Target year 2028

% of target achieved

89

### **Please explain**

After surpassing our 71% water intensity reduction target seven years early, we set a new water intensity target of 0.25 liters per watt by 2028 or an 87% reduction compared to our 2009 baseline. Since 2009, First Solar's manufacturing water intensity (water consumption per watt produced) decreased by 78% (or 0.41 liters per watt from a 2009 baseline of 1.9 liters per watt) due to significant improvements in module efficiency, manufacturing throughput, and the implementation of water conservation and recycling projects in our manufacturing and recycling operations. As a result, we have already achieved 89% of our 2028 target (based on  $78\% \div 87\% = 89\%$ ).

### W8.1b

(W8.1b) Provide details of your water goal(s) that are monitored at the corporate level and the progress made.

Goal

Other, please specify Increased resource efficiency

Level

Company-wide

First Solar Inc CDP Water Security Questionnaire 2022 Monday, August 1, 2022



### Motivation

Cost savings

### **Description of goal**

In addition to manufacturing PV modules with the lowest environmental impact in the industry, we are committed to reducing our operational impact. As part of our company-wide EHS policy, First Solar strives to conserve natural resources (including water), minimize waste, and prevent pollution from the manufacturing and recycling of our PV products and installations.

### **Baseline year**

2009

### Start year

2018

### End year

2028

### Progress

Since 2009, First Solar's manufacturing water intensity (water consumption per watt produced) decreased by 78% due to significant improvements in module efficiency, manufacturing throughput, and the implementation of water conservation and recycling projects in our manufacturing and recycling operations. In 2021, First Solar's manufacturing water intensity decreased by approximately 32% due to the increased throughput and efficiency of our Series 6 manufacturing process as well as water recycling initiatives. In total, we saved more than 268 million liters of water in 2021, equivalent to approximately 8% of our absolute water use. While our production increased by nearly 30% in 2021, our absolute water withdrawals decreased by approximately 7% due to the enhanced throughput and water efficiency of our Series 6 manufacturing process as well as water recycling initiatives. We continue to review water consumption patterns down to the unit-operation level in our manufacturing process and are challenging our process engineers to deliver additional water savings. After surpassing our 71% water intensity reduction target seven years early, we set a new water intensity target of 0.25 liters per watt by 2028 or an 87% reduction compared to our 2009 baseline.

### Goal

Other, please specify Zero wastewater discharge recycling

### Level

**Business activity** 

### Motivation

Reduced environmental impact

### **Description of goal**



First Solar's recycling team are committed to finding new ways to make our recycling process more efficient and sustainable. In 2017, the team set a goal for First Solar's routinely-operated global recycling facilities to have zero wastewater discharge by retrofitting our wastewater treatment plants and installing evaporators. The evaporators not only reduce wastewater treatment costs but also minimize our recycling process' dependence on freshwater. This will enable the roll-out of mobile PV recycling solutions in areas where water utilities or wastewater treatment facilities are not available. The wastewater is recycled and converted into freshwater, which can then be reused in the recycling process. These learning are also being applied to future manufacturing operations. Aggressive zero wastewater discharge targets for our manufacturing operations are prioritized in regions facing water shortages e.g. India where we are currently constructing a manufacturing facility that will be operational in 2023. Instead of being discharged, our wastewater in India will be recycled and converted into freshwater so it can be reused in our operations.

### **Baseline year**

2017

### Start year

2018

### End year

2021

### Progress

Since 2018, routinely operated First Solar recycling facilities in the U.S., Germany, and Malaysia 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. Since the retrofit in 2018, we've recycled more than 60 megaliters of water at our global recycling facilities. Our threshold for success is maintaining zero water discharge among our routinely operated recycling facilities.

### Goal

Promotion of water data transparency

#### Level

Company-wide

### Motivation

Corporate social responsibility

### **Description of goal**

In line with our corporate water policy, we are committed to publishing metrics on water usage and conservation initiatives as part of our commitment to transparency.

### **Baseline year**

2009

First Solar Inc CDP Water Security Questionnaire 2022 Monday, August 1, 2022



### Start year

2012

### End year

2021

### Progress

We have consistently increased the number of water metrics we report. In our 2021 sustainability report, First Solar discloses manufacturing water intensity per watt produced, total water withdrawals, total water recycled and reused, wastewater generation intensity, total water discharged, % water withdrawn from water stressed regions.

## **W9. Verification**

## W9.1

(W9.1) Do you verify any other water information reported in your CDP disclosure (not already covered by W5.1a)?

No, we do not currently verify any other water information reported in our CDP disclosure

## W10. Sign off

## W-FI

(W-FI) Use this field to provide any additional information or context that you feel is relevant to your organization's response. Please note that this field is optional and is not scored.

## W10.1

(W10.1) Provide details for the person that has signed off (approved) your CDP water response.

	Job title	Corresponding job category	
Row 1	Chief Quality and Reliability Officer	Other C-Suite Officer	

## W10.2

(W10.2) Please indicate whether your organization agrees for CDP to transfer your publicly disclosed data on your impact and risk response strategies to the CEO Water Mandate's Water Action Hub [applies only to W2.1a (response to impacts), W4.2 and W4.2a (response to risks)].

Yes



## Submit your response

### In which language are you submitting your response?

English

### Please confirm how your response should be handled by CDP

	I understand that my response will be shared with all requesting stakeholders	Response permission
Please select your submission options	Yes	Public

### Please confirm below

I have read and accept the applicable Terms