



SOLAR'S MOST TRUSTED



REC GROUP  
ESG REPORT 2024  
POWERING PROGRESS, SUSTAINABLY

# INTRODUCTION

## Empowering Sustainability: REC's Commitment to a Greener Future

Despite the record growth in solar energy, the urgency of climate change mitigation and emission reduction has never been more critical. The solar industry's rise in prominence must be paralleled by a commitment to greater sustainability. REC's COP 21 study, spotlighted immediately after the Paris Agreement<sup>1</sup>, underscored how solar energy can contribute to these goals but requires significant capacity additions. In order to be on track for the 1.5°C path, we need to add more than one billion of solar panels per year for a decade.

As the industry continues to expand, installing around 500 GW of new solar capacity annually, the demand for product efficiency, resource conservation, and fair business practices grows. While high efficiency remains the top criterion for selecting solar panels, we urge homeowners and businesses to consider sustainability and responsible practices as equally important. A true commitment to positive environmental and social impact goes beyond power and price.

Governments worldwide have begun implementing stricter ESG regulations, commencing in 2023. This includes 35 nations and regions, accounting for 56% of the global GDP, rolling out mandatory ESG reporting like CSRD in the EU or SEC climate disclosures in the US.<sup>2</sup> In parallel, consumers become more socially and environmentally conscious. Driven by this, we see sustainability increasingly as a transformative force reshaping the business landscape, including the solar industry.

While investing into solar energy is in general a straightforward approach to reduce own emissions, it becomes critical to pay attention to the details for a greater and quicker positive impact. Choosing REC Group means investing in products from a company that prioritizes both, performance and sustainability.

**“We believe that Sustainability is not a short-term trend but a transformative force reshaping the business landscape.”**



Jan Enno Bicker, CEO at REC Group

<sup>1</sup>Source: [https://www.recgroup.com/sites/default/files/documents/rec\\_cop21\\_study\\_final\\_web.pdf?t=1718114833](https://www.recgroup.com/sites/default/files/documents/rec_cop21_study_final_web.pdf?t=1718114833)

<sup>2</sup>Source: <https://carboncloud.com/blog/esg-reporting/>

For nearly 30 years, REC has strived to combine high-efficiency technology with sustainable business practices, and we remain committed to this mission. By choosing REC, our customers can be confident they are making a positive contribution to the planet and its people.

While promoting the use of solar energy remains a priority for REC, we aim to educate customers on the significance of considering factors beyond power and price. It is crucial to select solar panels manufactured with greater responsibility, adhering to ESG practices within the solar industry.

Driven by this mission, REC led an omnichannel ESG campaign on 'Waste, Energy and Water in manufacturing solar panels'. As the solar energy industry keeps growing, it is essential to ensure that solar panels do not become a problem in the future. As such, homeowners, businesses and installers need to better understand how to choose solar panels more responsibly by paying attention to the details, e.g., resource consumption such as energy and water, as well as minimized and safe disposal of end-of-life products.

While going solar is doing good, how much good can vary greatly. At REC, we want to help you to choose solar panels more responsibly!

**Go for solar panels that are designed with:**

- ✓ Longevity to save resources
- ✓ High-power density for less emissions
- ✓ Reliable high-power output for the long-term
- ✓ Strong Due Diligence for an ethical supply chain
- ✓ Committed Energy, Water & Waste Savings Programs
- ✓ Engaged teams to empower communities in need
- ✓ Transparent ESG reporting

**HIGH QUALITY AND ROBUSTNESS**  
25 YEARS PROTRUST WARRANTY

**UP TO 470 WP**  
226  $\frac{W}{M^2}$

**MIN. 92% POWER AT 25 YEARS**

REC Solar Panel



REC has projected itself as a responsible supplier by engaging with customers, consumers and other stakeholders through multiple channels worldwide, such as newsletters, flyers, press, social media and promoted greater sustainability in the solar industry during customer events and trade fairs.

Founded and headquartered in Norway in 1996, with cell and module production sites in Singapore, REC is a pioneer in the solar energy industry and has a responsibility to the people and planet we serve. REC is committed to further accelerate its ESG efforts by focusing on the entire value chain and continuously reduce resource consumption from production to the end of a product's life.

### ESG Steering Committee

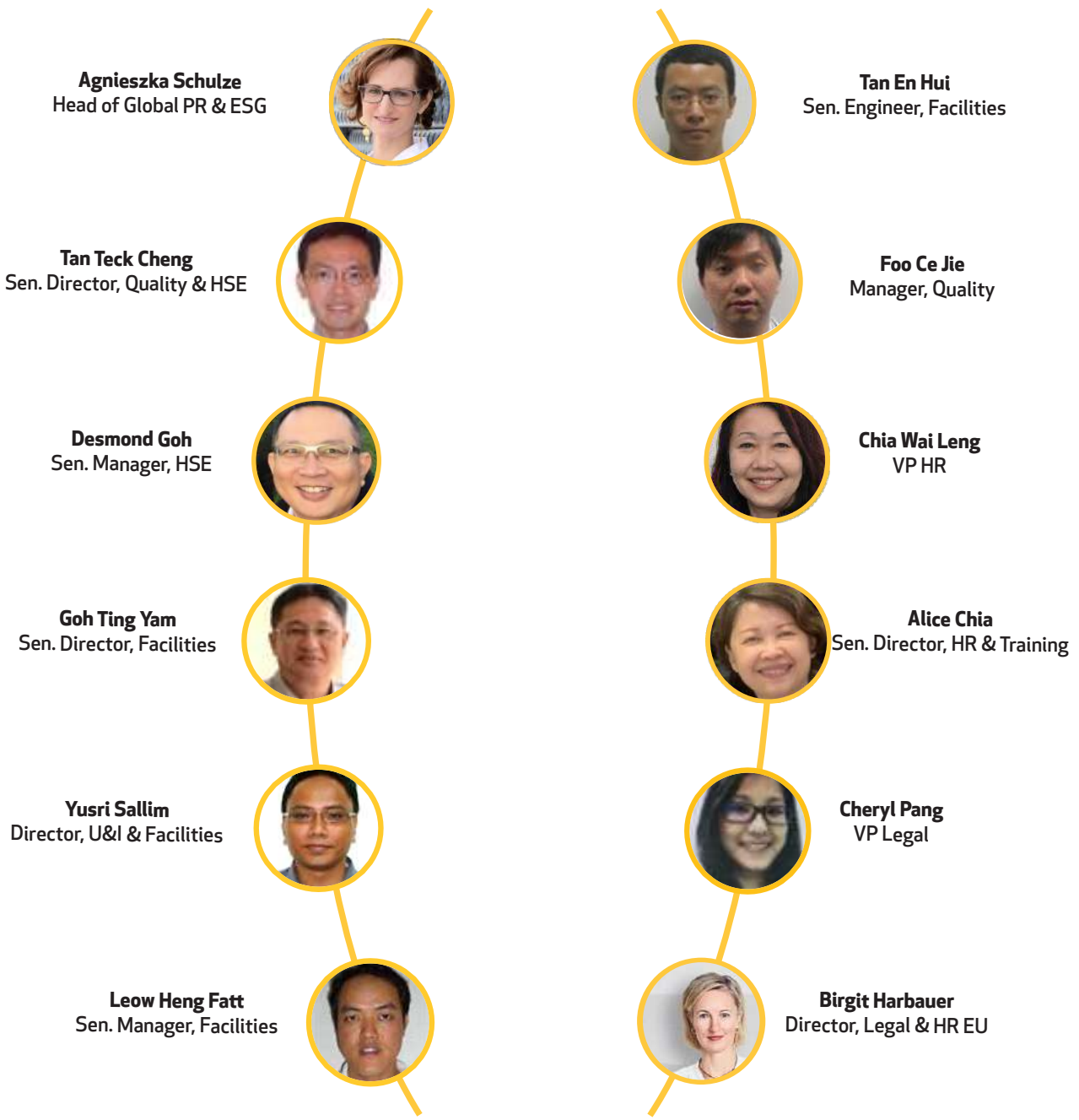
Our dedicated ESG Steering Committee is made up of a diverse group from our corporate departments, who drive how we act and report against our strategy. We are committed to providing transparent and holistic communication that inform on our environmental, social and governance initiatives and to educate consumers and installers about how to choose solar panels more responsibly. The ESG Steering Committee reports to the CEO directly.

### Scope of the ESG Steering Committee

The committee oversees and guides the organization's ESG initiatives and strategies, including:

- Developing and updating ESG policies and guidelines to align with the organization's values, goals, and regulatory requirements.
- Defining long-term ESG strategies and short-term objectives that integrate with the overall business strategy and contribute to sustainable growth.
- Target-setting, monitoring and evaluating the organization's ESG KPIs regularly to track progress and identify areas for improvement.
- Engaging with various stakeholders, including employees, customers, communities, and regulators, to understand why ESG matters also in the solar industry, educate on key aspects and new regulations, exchange on expectations and concerns, drive ESG initiatives.
- Ensuring accurate and transparent reporting of ESG data and performance internally and externally, in particular prepare and present the annual internal ESG Management Review and annual external ESG Report.
- Prepare and execute on ESG audits and certifications.

## REC's ESG Steering Committee consists of a diverse team, representing multiple departments and different management:



Since 2020, REC has consistently reported on our sustainability initiatives in our annual reports, aligning with the core subjects outlined in the ISO 26000 standard. Guided by the seven key principles of ISO 26000—accountability, transparency, ethical

behaviour, respect for stakeholder interests, adherence to the rule of law, compliance with international norms, and upholding human rights—REC operates with integrity and responsibility in all aspects of our business.

ESG	ISO 26000
Environment	• Environment
Social	• Community Involvement • Human Rights • Labor Practices • Consumer Issues
Governance	• Governance • Fair Operating Practices

With our high-efficiency products and environmentally conscious manufacturing practices, REC is not only guided by but also actively contributes to the United Nations’ Sustainable Development Goals (SDGs). We particularly focus on SDG 7 (Affordable and Clean Energy), SDG 9 (Industry, Innovation, and Infrastructure), and SDG 12 (Responsible Consumption and Production), aligning our efforts to promote sustainability and address global challenges.

This ESG report 2024 reports on our policies, procedures, initiatives and results for the calendar year 2023 with the reporting scope of REC’s production sites under REC Solar Pte. Ltd. in Singapore and REC’s regional Sales offices in the US, Europe and Asia-Pacific. We invite you to review our achievements in 2023 and join us on our journey as we strive for a more sustainable solar industry that benefits people, society and the environment.

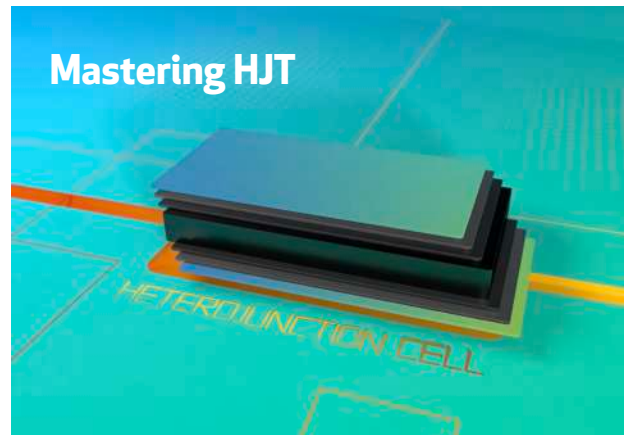
**“By choosing REC Group, customers can be confident that they are investing in products of a company that prioritizes both, performance and sustainability.”**



# WHO WE ARE

## Almost 30 years of driving innovation and manufacturing excellence

REC has been innovating to continuously increase the efficiency and performance of our solar panels. In parallel, we have also updated and implemented new measures to reduce the consumption of resources.



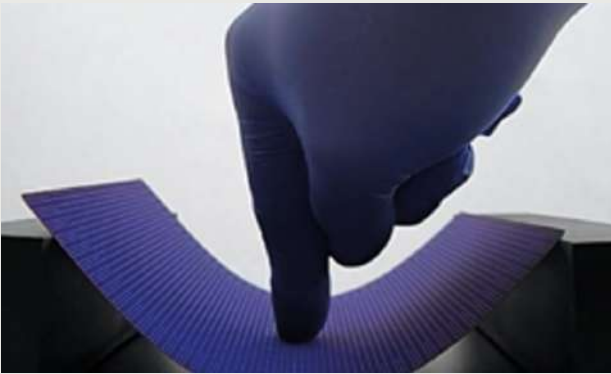
In 2023, REC launched its highest-power residential solar panel ever, based on its advanced heterojunction solar cell technology (HJT), the REC Alpha Pure-RX. HJT cells offer superior performance and reliability to end-users by increasing panel performance while minimizing its environmental footprint. Currently, REC is one of the pioneers in the solar panel manufacturing industry to offer HJT technology, which also uses less steps in the production process at lower temperatures to reduce energy consumption during manufacturing.

With over five years of HJT manufacturing expertise, bringing six innovative panels to the market based

on REC's advanced Alpha HJT technology, REC has continuously mastered the HJT technology. Our REC Alpha Series panels have won two Intersolar Awards, making REC the only active solar panel manufacturer with three Intersolar Awards in total and being a Top Performer in the PV Module Reliability Scorecard by PVEL DNV GL for eight consecutive years.

REC maintains consistently high standards for technology innovation and manufacturing for its products to ensure high long-lasting performance for our customers. This has been honored with multiple recognitions by third parties.





Our products are backed by our comprehensive REC ProTrust warranty, which offers 25-years of warranty coverage on product, performance and labor (subject to conditions).

For our premium Alpha solar panels, REC guarantees at least 92 per cent of the nameplate power in year 25, a testament to the high long-term performance of its products.

## Our recognitions

REC is the only solar panel manufacturer in the market with **3 prestigious Intersolar Awards**. We have also been honored with various recognitions over the years, such as:

- **SolarQuotes** award for 'Best Panel' and 'Best After-Sales Support' for the second consecutive year in 2024
- **PVEL Top Performer** for 8 consecutive years
- **PEP ecopassport and Declare** label for Alpha Pure-R
- **EcoVadis Silver Medal** for our advanced ESG efforts in 2024
- **Environmental Product Declarations (EPD)** from EPD Norway for the REC Alpha Pure, TwinPeak 4 and N-Peak 2 solar panels in 2022





### Sustainability

REC's focus on quality and sustainability goes hand-in-hand. Our investment in product technology along the entire value chain spans from sourcing and manufacturing to the disposal of solar panels at the end of life. For REC, sustainability means designing products with a minimum service lifespan of 25 years.

We take sustainability seriously and our senior management is committed to upholding these principles in all business activities. In line with our broader commitment towards social responsibility, REC aims

to minimize the environmental impact of our products throughout their entire service life.

Under the ownership of Reliance Industries Limited, a Fortune Global 500® company, REC continues to deliver innovative products and maintain responsible operational practices through its ISO 14001:2015 Environmental Management Systems and ISO 45001:2018 Occupational Health and Safety Management systems to uphold a more sustainable solar industry across the entire value chain.



In October 2023, REC joined the United Nations Global Compact, underlining REC's commitment to making a positive impact on the planet and to people through a robust ESG strategy. UN Global Compact is the world's largest corporate sustainability initiative. There are over 15,000 companies and 3,800 non-business signatories from more than 160 countries.

We are also proud to have been recently recognized by EcoVadis with the Silver Medal for our advanced ESG efforts. This rating places us among the top

15% of assessed companies in the electronic goods manufacturing industry globally. REC excelled in particular on the themes Environment and Labor & Human Rights and proved strong performance across six out of the seven EcoVadis indicators. EcoVadis is a trusted provider of business sustainability ratings and evaluates companies based on their performance on sustainability criteria across four core themes: Environment, Labor & Human Rights, Ethics, and Sustainable Procurement.



**We care  
about people  
and the planet**

Learn more: [www.recgroup.com/sustainability](http://www.recgroup.com/sustainability)



# REC GROUP ESG FACTS

Key Results 2023

## ENVIRONMENT

### WATER



**142,540 m<sup>3</sup>**

of water saved  
(equivalent to  
consumption of  
2,472 people)

**607 m<sup>3</sup>/MW**

of process water  
consumption in  
Singapore  
(-3% vs 2022)

**-50%**

of process water  
consumption intensity  
in Singapore in 3 years

### ENERGY



**101 MWh/MW**

of energy  
consumption in  
Singapore  
(+12% vs 2022)

**941 t CO<sub>2</sub>**

saved through own  
clean solar power  
generation

**-30%**

energy consumption  
intensity in  
Singapore within 3 years

### EMISSIONS



**6.9 t GHG (CO<sub>2</sub>-eq)/MW**

Scope 1 emissions

**40 t GHG (CO<sub>2</sub>-eq)/MW**

Scope 2 emissions

### WASTE



**4.2 t /MW**

of waste generated  
in Singapore  
(-6% vs 2022)

**4,125 t**

of total waste  
generated in Singapore  
(-29% vs 2022)

**100%**

recycling rate of scrap  
modules in Singapore  
(23,562 modules)

## SOCIAL



**38%**  
of female employees  
(stable)

**0.28**  
Total Recordable  
Incident/m man hours  
(-53% vs 2022)

**1,029**  
new installers  
trained

**40**  
supplier audits  
(+11%)

**0**  
deviations for ESG and HSE  
identified at suppliers (stable)

**18.9 TWh**  
of clean solar power generated  
by installed REC panels

**22.4 m**  
people empowered with solar  
power by installed REC panels

**13.2m**  
of avoided CO2 by  
installed REC panels

**<100PPM**  
of claims rate since 2010  
with >80% of claims processed  
within 14 days

**3**  
ESG activities by  
REC employees

**7**  
social projects supported by  
education and donations

## GOVERNANCE



**100%**  
re-certification of  
employees on Code  
of Conduct and  
Anti-Corruption

**0**  
deviations identified  
from REC's Fair  
Advertising and  
Promotion guidelines

**0**  
deviations identified  
from REC's Trade  
Control Policy

# ENVIRONMENT

## WATER, ENERGY AND WASTE



For many years, REC has continuously driven energy, water and waste savings programs.

We regularly report on our energy and water consumption for our production sites in Singapore to Singapore's National Environmental Agency (NEA). We also report on our Scope 1 and Scope 2 emissions and have collaborated with the NEA to check improvement measures. Regular air pollution tests, as well as waste water quality tests are asserting that REC is following Singapore's strict rules.

### Water

Water Saving & Recycling Programs

- **142,540 m<sup>3</sup>** water saved/year - equivalent to annual water usage of ~2,472 people



### Energy

Energy Saving Initiatives  
Clean Solar Power Generation

- **3,664 tons** CO<sub>2</sub> emissions saved/year



### Waste

Non-hazardous Waste  
Hazardous Waste  
Modules Recycling

- **23,562 modules** sent for recycling



# WATER

## Water-saving and wastewater recycling programs

We have measures in place to use water responsibly during our production processes. In addition to looking at ways we can reduce water consumption, we treat as much water as possible to be reused at our manufacturing facility. REC Singapore converted also to a closed loop chilled water-cooling system in Year 2023. Thanks to all these efforts, REC was able to halve its water consumption in Singapore within three years only.

**In Singapore, specific process water consumption for 2023 was 607 m<sup>3</sup> per MW, down from 628 m<sup>3</sup> per MW in 2022 (-3.3%).**

Water recycling is important as water is considered a scarce resource in Singapore. Approximately 142,570 m<sup>3</sup> of water is saved each year at REC's production site and this is equivalent to the annual water usage of approximately 2,472 people in Singapore.

Year	Water consumption intensity in Singapore
2020	1,223 m <sup>3</sup> / MW
2021	761 m <sup>3</sup> / MW
2022	628 m <sup>3</sup> / MW
2023	607 m <sup>3</sup> / MW

## Treated Wastewater Recycling

REC is committed to the responsible use of water required for production (process water).

Having completed pilot testing for non-Hydrogen Fluoride (HF) wastewater recycling in 2020, we are working towards full implementation. Once fully implemented, wastewater treatment is projected to save 128,480 m<sup>3</sup> per year.

We successfully completed the trial test for HF waste water recycling between July - August 2022. Fluoride was successfully sequestered using the novel molecular sieve-based technology over multiple cycles.

The current plan is to complete the project by Q4 2025, expected to save 136,875 m<sup>3</sup> per year.

## Reverse Osmosis Reject Recycling

The Reverse Osmosis (RO) Reject Recycling at our production site in Singapore has resulted in water savings of 142,540 m<sup>3</sup> in 2023.



# ENERGY

## Energy savings

We continue to monitor our workflows and manufacturing processes at our Singapore plant to identify potential energy savings and to reduce consumption. Within three years only, REC succeeded in reducing its energy consumption by roughly a third.

Despite the fact that manufacturing solar panels with silicon as the base material is an energy intensive process, every year we further investigate measures to reduce our own energy consumption in the manufacturing process. REC has reduced our CO2 emissions by 3,664 tons in year 2023 and we have already proven our solar panels have an Energy Payback Time of less than one year.



We have reduced the amount of energy we use in our manufacturing facility in Singapore on an annual basis thanks to our continuous energy savings programs. Electricity consumption intensity at our Singapore production site was 101 MWh per MW in 2023, compared to 90 MWh in 2022 (+12%). The increase was primarily due to the commencement of production on a 400 MW production line.

REC's total onsite and purchased energy consumption in 2023 was at 128,242 MWh, which translates to 6.9 tons of GHG (CO2-eq) / MW Scope 1 and 40 tons of GHG (CO2-eq) / MW Scope 2 emissions.

Year	Energy consumption intensity in Singapore
2020	148 MWh / MW
2021	106 MWh / MW
2022	90 MWh / MW
2023	101 MWh / MW

In 2023, we have taken additional measures at our Singapore plant which have resulted in significant energy and emissions savings:

• **End-of-life N-mono & Module Line 1 & 5 (completed)**

Energy savings: 1,449 MWh per year  
CO2 emission reduction: 580 tons per year

• **Chilled Water System Optimization (completed)**

Energy savings: 1,511 MWh per year  
CO2 emission reduction: 604 tons per year

• **Turn off Compressor 2B (completed)**

Energy savings: 876 MWh per year  
CO2 emission reduction: 350 tons per year

• **Replacement of chillers under MEES by Singapore's NEA (completed)**

Energy savings: 438 MWh per year  
CO2 emission reduction: 175 tons per year

## REC in Singapore



To help to further reduce our carbon footprint, REC generates energy through our rooftop solar installations at our Singapore production site. The solar panels we've installed help us to save energy and to demonstrate to customers that solar can provide a reliable source of energy for manufacturing businesses. Around 3,000 kWp of solar panel systems have been installed, reducing CO<sub>2</sub> emissions by approximately 941 tons in 2023.



## Chiller optimization at REC in Singapore



# WASTE

## Waste Reduction Program

REC has an internal sorting and disposal of waste according to waste streams in place as well as actions for labeling, storing, handling and transporting hazardous substances. We separate our production and operations waste to recycle and reuse as much material as possible. In 2023, we sent 23,562 of our scrap solar modules for recycling.



## Non-hazardous waste

REC closely monitors and accounts for recyclable non-hazardous waste including glass, metal, aluminum, paper, wood and plastics throughout its entire production chain daily.

In 2023, our Singapore operations achieved an average

recycling rate of recyclable materials of ~54 per cent.

We have reduced the total amount of non-hazardous waste produced in 2023 at 3.13 tons per MW production output compared to 3.46 tons per MW in 2022 (-9.5%).



Year	Non-hazardous waste intensity in Singapore	Total non-hazardous waste in Singapore
2020	4.22 t / MW	4,282 t
2021	3.72 t / MW	4,164 t
2022	3.46 t / MW	4,553 t
2023	3.13 t / MW	3,987 t

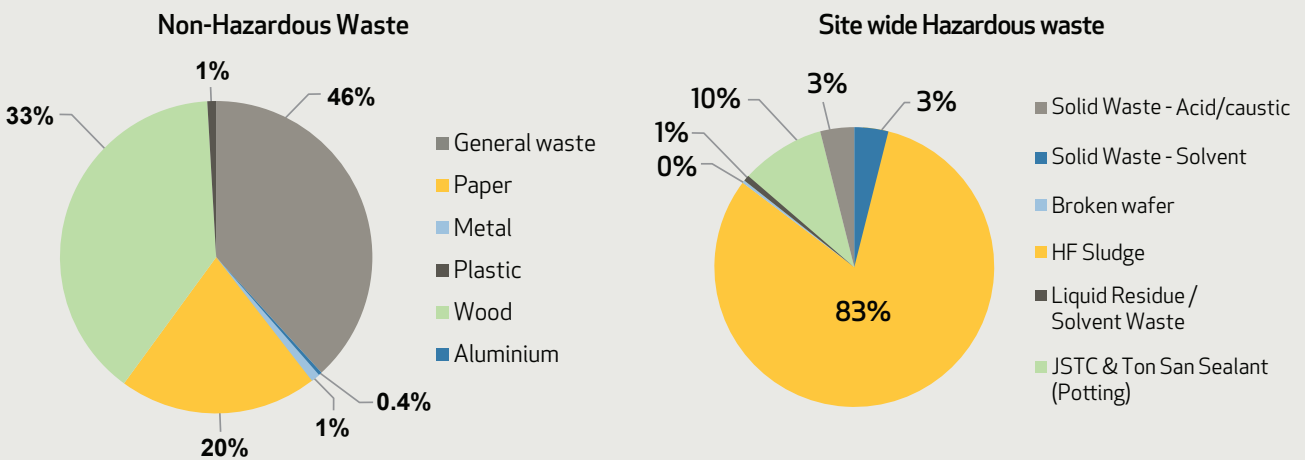
## Hazardous waste

Hydrogen Fluoride (HF) sludge forms the largest category of non-recyclable waste at our production site in Singapore (83 per cent), a by-product of cell production that is sent to landfill. Our focus for hazardous waste is to develop and implement innovative ways to reduce and recycle it.

Studies to recover HF have been ongoing, including exploring options to recover HF from HF wastewater and re-use it in production or sell it as raw material.

In 2023, 1.03 tons per MW of hazardous waste was generated from our Singapore plant, compared to 0.98 tons per MW in 2022 (+5%). The slight increase is due to implementing new production lines.

Year	Hazardous waste intensity in Singapore	Total hazardous waste in Singapore
2020	2.57 t / MW	2,615 t
2021	1.06 t / MW	1,181 t
2022	0.98 t / MW	1,278 t
2023	1.03 t / MW	1,316 t



# RECYCLING

## Longevity

As the solar industry continues to grow, the International Renewable Energy Agency (IRENA) expects that in the early 2030s we will be facing significant waste streams from the solar PV industry<sup>4</sup>. This poses a significant challenge as the complete recycling of solar PV panels has yet to be fully implemented globally.

While the industry looks to find a solution, REC's goal is to extend the lifespan of our solar panels by producing a high-quality product. This reduces the need for our panels to be replaced and saves on resources required

to manufacture solar panels. It is one of REC's key priorities to ensure the longevity and reliability of our products of 25 or more years, giving consumers and the environment a greater peace of mind.

The high quality of REC products is validated by nine external certifications of ISO, IEC and other standards. Additionally, REC solar panels are certified to withstand snow loads of up to 7,000 Pascal and wind loads of up to 4,000 Pascal.



## Module and Silicon Recycling

Since REC launched the scrap solar modules recycling program in 2014, we have achieved a recycling rate of 100 percent every year. Based on REC's manufacturing excellence, the scrap rate is low, averaging less than one per cent of production. In 2023, 23,562 solar modules were sent for recycling, out of more than 3 million panels produced.

REC sends its scrap solar modules to third party suppliers who recover aluminum from the frames,

silver from the cells and copper from cables, connections and ribbons through its module recycling initiatives.

With recycling requirements differing between countries in which REC operates in, we abide to local regulations set in these markets. In Europe, REC is a partner of the 'take-e-away' program and we comply with the Waste from Electrical and Electronic Equipment (WEEE) directive.



# SOCIAL

## Renewables empowering people

REC remains committed to empower people with clean solar energy and deliver positive outcomes for our employees, supplier employees and customers, as well as consumers and communities. We are driven by KPIs that allow us to compare our performance year-to-year to ensure we are improving against our areas of focus.



## HUMAN RIGHTS

REC Group is committed to maintaining and continuously improving systems and processes to avoid human rights violations related to our operations, our supply chain, and our products. This has been reflected in our Modern Slavery Act Statement.

At REC, we value our employees and the employees of our suppliers. We pay close attention to human rights and sustainable labor practices across our value chain. While efficiencies in production and sourcing are key to module prices, REC also considers the conditions under which our employees and upstream suppliers work.

To remain globally competitive and act as a strong corporate citizen, REC looks beyond costs and abstains from business activities that might exploit employees or compromise human rights, such as child, prison or forced labor. We acknowledge that the solar industry is still experiencing human rights violations. We are committed to upholding the strict human rights laws in the countries and regions we operate, Singapore, Europe, US and Asia-Pacific, and to growing our practices to prevent modern slavery in our operations and from our suppliers.



# LABOR PRACTICES

## Safety First!

REC is dedicated to providing safe and sustainable solar energy solutions that are affordable and accessible worldwide. We accomplish this through enhancing the value of our products while prioritizing safety and maintaining high environmental and governance standards.

We achieve positive operations through the integration of safety and health into all elements of business activities. Throughout the operation lifecycle, from design to decommission, preventive measures are taken proactively to eliminate hazards and reduce environmental, safety and health risks to protect our employees, contractors, neighbors and visitors.

Our Health, Safety and Environmental (HSE) Management System strives to comply with all pertinent workplace safety and health laws and regulations from local governing bodies. The performance of our management system is also monitored through specific Key Performance Indicators (KPIs) set across the company.

## Health & Safety measures

Our operational procedures ensure that staff are not exposed to hazardous substances or unsafe conditions during their course of work. Process Hazard Studies during design phase of projects are conducted to identify and control potential major process relevant hazards. Properties of hazardous materials are assessed for potential hazards through a documented approval process with relevant stakeholders before being introduced into our facilities. These process safety studies and controls prevent and mitigate major accidents from happening in the plant.

Machinery safety is another key focus in our operations, as industrial machinery is a source of hazards. Thorough commissioning and verification process are conducted with critical stakeholders to ensure risks are identified, assessed and effectively controlled to ALARP (As Low As Reasonably Practicable) before operation.

REC believes that everyone has a role to play in safety, and this culture of safety is built through our health and safety programs that has been curated for all staff, such as New hire safety line walk, eHOC (electronic Hazard Observation Card) and BBS (Behavioural Based Safety). Before work activities, all employees are required to

pass the HSE Induction Course and relevant specific training for their work areas, so that they take the required safety precautions on the associated risks.

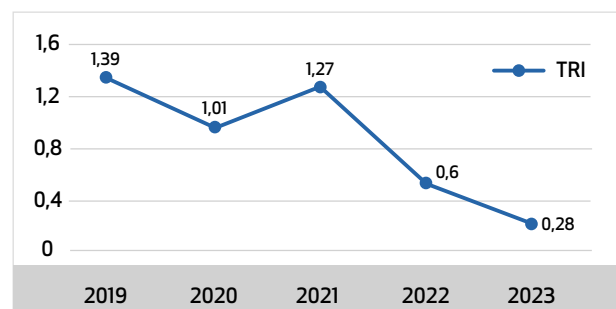
Pre-employment and subsequent periodical medical examinations are scheduled for employees working in environments where they may be exposed to occupational hazardous sources. Staff are also empowered with the right to say no to unsafe work practices and escalate dangerous conditions to their supervisors.

Workplace incidents (near miss, medical treatment case, loss time injuries, process safety incident) are required to be promptly reported as specified in our reporting and investigation procedure. Root cause analysis is conducted to ensure that effective corrective and preventive measures are put in place to target the right cause to prevent similar events from occurring.

The effectiveness of the HSE programs and results of KPI performance are monitored through the form of regular management reports, internal and external audits. REC further demonstrates commitment to providing a safe and healthy workplace, protection of the environment by aligning its HSE management system to the ISO 45001 and ISO 14001 standards. REC has been certified in both standards since 2011, and continues to work to improve our performance and compliance.

In 2023, our recordable injury rate stood at 0.28 cases per million manhours, which reflects a strong commitment by all the various stakeholders to practice safe operations and ensuring a safe and healthy workplace. In terms of Loss Time Injuries (LTI) rate, REC had a total of three LTIs in 2023, out of these two have been contractors/suppliers.

**Total Recordable Incident Rate (2019 - 2023)**  
[per million manhours]



## Emergency Management Training

REC practices emergency drills regularly, with and without SCDF (Singapore Civil Defense Forces). In 2023, 16 of these emergency drills were done onsite at REC's production site in Singapore. These included among others site-wide drills, fire drills, gas leak drills.

In addition, REC regularly practices and continuously improves its Emergency Management. This includes the participation of the Top Management, including the CEO, operational staff and the Crisis Communication Team.

Crisis management and crisis management planning can protect organizations against complete failure if/when a disruption happens. REC regularly conducts training and exercises for senior management for sudden onset and slow onset crises caused by internal and external issues as well as methods for determining risk to use as a basis for crisis management plans. Training takes reference to British Standard BS 11200:2014 Crisis management and we end the exercise with a simulation of a press conference.



REC's Emergency Management Training in May 2023

## Employee Development and Well-being

At our company, we are deeply committed to the growth and well-being of our employees, believing in growing together with our workforce. We recognize their achievements through our annual CEO Excellence Awards, established in 2020, and our focus extends beyond recognition to encompass well-being, diversity, and equality across our global workforce.

Our objective is to enhance the quality of our employees'

working lives through comprehensive health, safety, and development programs. We implement consistent standards and policies that require long-term commitment. These include regular health checkups, flexible work arrangements as part of our REC@Home initiative, and comprehensive HR services that offer variable performance bonuses, overtime pay, health insurance, and medical benefits.

### Key employee focus areas in 2023

- Hosted 19 webinars to educate and inform employees about issues that matter to their well-being
- Conducted onsite eye and health check-ups
- Collaborated with schools for plant visits and sustainability event talk to students of NTU, Singapore, incl. 85 participants
- Launched Safety, Quality and Learning Week to engage more employees to improve their skills
- Sponsored National ITE Certification training for 9 employees in mechatronics and robotics
- Introduced e-learning resources with 94 active courses on Udemy business for effective and on-the-go learning. Employees spent almost 340 hrs upskilling
- Launched new Mobile Learning platform to build employees' capabilities in digital transformational initiatives
- Offered re-employment to four people who reached retirement age





We prioritize continuous learning and development for all employees and we support individual development and career growth by conducting regular assessments to help employees advance professionally. Every employee has access to the online training platform Udemy, and we provide compulsory courses for new hires to ensure they are well-equipped for their roles.

We are committed to recognizing excellence and innovation among our employees, celebrating their exceptional contributions through the CEO Excellence Awards in areas such as customer service, innovation, and teamwork.



To foster open communication and engagement, we have implemented several Social Dialogue initiatives, such as quarterly townhalls, regular CEO round tables, and an anonymous 'Ask the CEO' function on the company Intranet.

Irrespective of gender, age or ethnicity, REC is committed to diversity and equality. In 2023, our percentage of women in REC's workforce remained strong at 37.7 per cent. Percentage of women at top management level was at 20 per cent.

Employee satisfaction is of utmost importance to us. We conduct Employee Surveys every 2-3 years to measure satisfaction and identify areas for improvement.

All of these initiatives have been reflected in the high employee retention rate at 83.3 per cent and about 33 per cent of REC's employees have remained in the company for more than eight years.

By investing in our employees' development and well-being, we create a supportive and inclusive work environment that benefits both our people and our business.

In addition, we are committed to developing new talent for the solar industry and offer a pathway for new employees in partnership with universities and polytechnics in Singapore as work-study programs for degree and diploma students.



## A Shared ESG Commitment for Employees

In line with REC's role as a global advocate for sustainability, we consistently engage employees with ESG activities that reflect their commitment. We also encourage eco-friendly practices at our facilities and offices that go beyond standards mandated by local regulations.

From our employee survey in 2021, we know that 98 per cent of employees believe it is important for their organization to be socially responsible. This employee sentiment gives us the confidence that they are engaged in our ESG efforts and actions.

In 2022, REC implemented ESG employee engagement initiatives worldwide. In particular, we launched a dedicated ESG intranet portal for educational content and quizzes.

As for many years, in particular we engaged in a Beach Cleaning initiative in Singapore, where our production site is based. In 2023, 58 employees participated and collected 55 kg of garbage at the Changi Beach.



## Supplier audits

REC expects high standards in quality, environmental and social responsibility from our upstream suppliers. We abstain from business activities that might exploit employees or compromise human rights, such as child, prison or forced labor. In particular, REC pays attention to Non-XUAR declarations.

REC has a zero-tolerance policy towards non-compliant behaviors and undertakes regular audits to examine labor practices, working conditions and HSE management systems. We have also integrated social and environmental clauses into our supplier contracts and are assessing our suppliers' progress with regards to the REACH requirements.

We are targeting to do regular supplier audits on 100% of our direct suppliers. REC is proud to report that we recorded no deviations as a result of the 2023 audits.

REC is also committed to the goal of a conflict-free supply chain and does not import any of the so called 3TG minerals into Europe. REC has a strict supplier code of conduct that prohibits the use of conflict minerals and carries out regular audits of its suppliers to ensure no conflict minerals are used or supplied to REC.

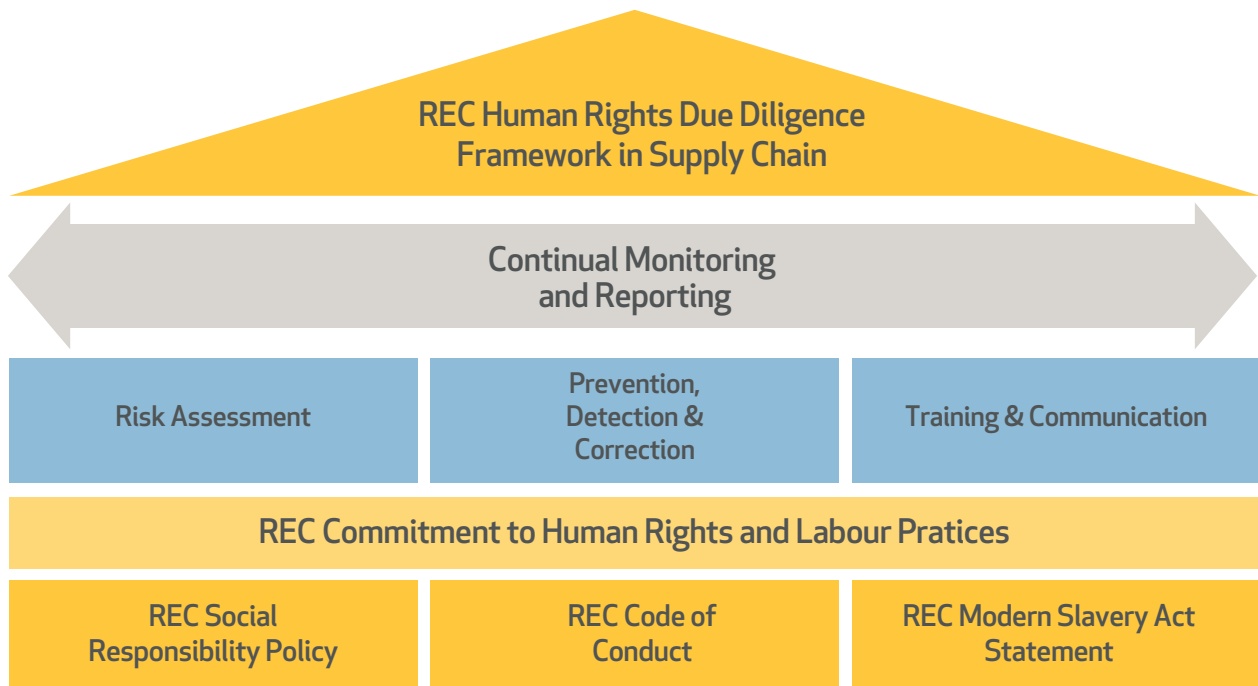
REC has a strong Due Diligence framework in place across our global operations to check for human rights compliance on identified supply chains of concern based on the following:

1. Risk assessment
2. Prevention
3. Training

To help trace these upstream supply chains, our Risk Assessment is based on the following three-step approach:

1. Self-declaration based on a comprehensive checklist
2. Document drill based on random PO number to provide relevant traceability documents within two weeks
3. Traceability audit based on results of the above two steps, resulting in a SWOT analysis of each audited supplier.

REC is committed to lead by example. As such, we use the SWOT analysis of our suppliers to support them and further improve on their ESG performance.



In parallel, we are continuously improving our traceability system in response to new regulations and new critical points. We monitor new policies and review our audit checklist to ensure the scope remains fully aligned with changes in regulatory frameworks globally and locally. At REC, we positively welcome stricter rules to ensure high standards can be achieved by all manufacturers.

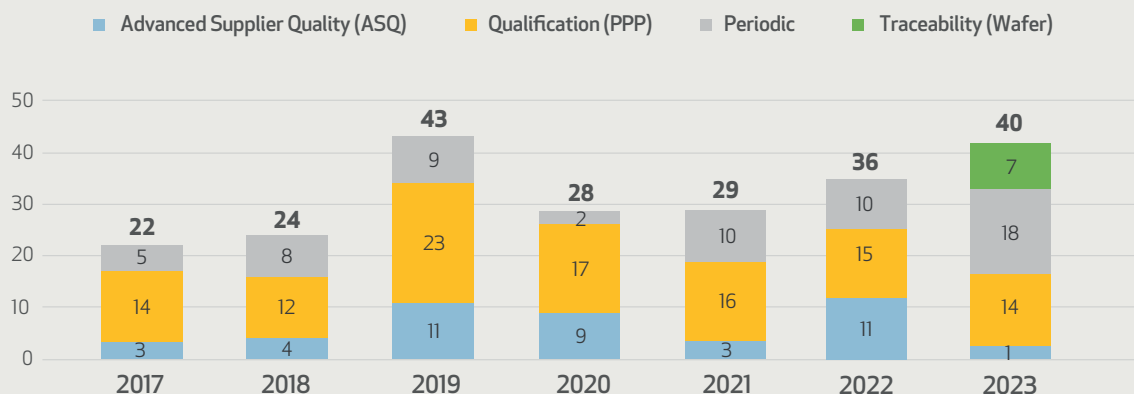
Today, we are able to track every main component of our solar panels and identify manufacturer, production location, production date badge and more. Moving forward, REC is conducting Traceability Audits to

ensure full document traceability for direct suppliers in line with the US Customs Border Protection.

In 2023, REC conducted 40 supplier audits (36 audits in 2022). These audits included a forced labor check and observation to demonstrate due diligence to prevent forced labor in their supply chains.

In Q3 2023, REC improved our Tier 2 supplier audits, specifically for wafer suppliers. Audit results showed, all wafer suppliers demonstrated capability to support the traceability requirements within 7 to 10 working days upon request.

### No. of Supplier Audits



# CONSUMER ISSUES

## Growing Together with our Customers

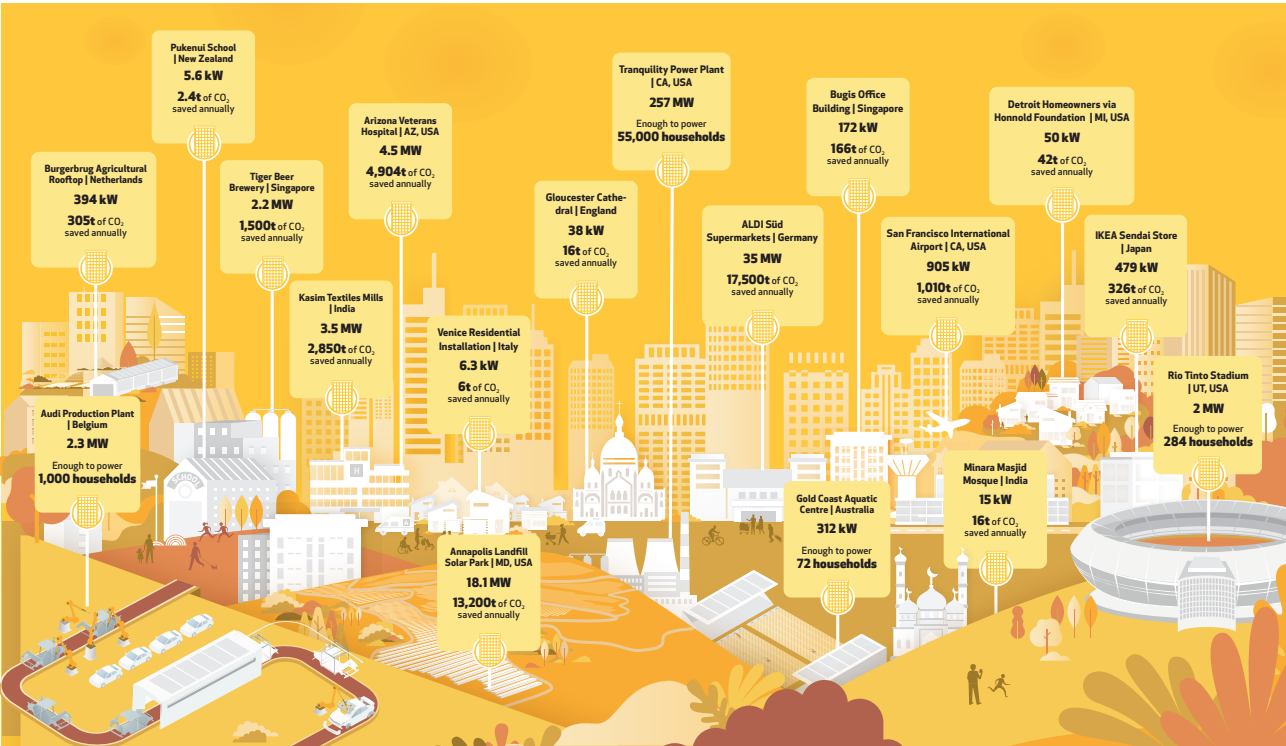
Our business relations with our partners and installers are based on 'Growing Together' approach. Education through the REC Certified Solar Professional Program

is key to ensuring we are contributing to the industry in a socially and environmentally responsible manner. In 2023, we trained 1,029 installers (vs 719 in 2022).

### Continuous strengthening of REC's Channel Network

REC Partners: 89 (80 in 2022)

Installers trained cum.: 6,813 (5,795 in 2022)



**14.5 GW**  
REC solar panels installed

Generating **18.9 TWh** of clean solar energy

Empowering **22.4 million** people

Saving **13.2 millions tons of CO<sub>2</sub> emissions** every year

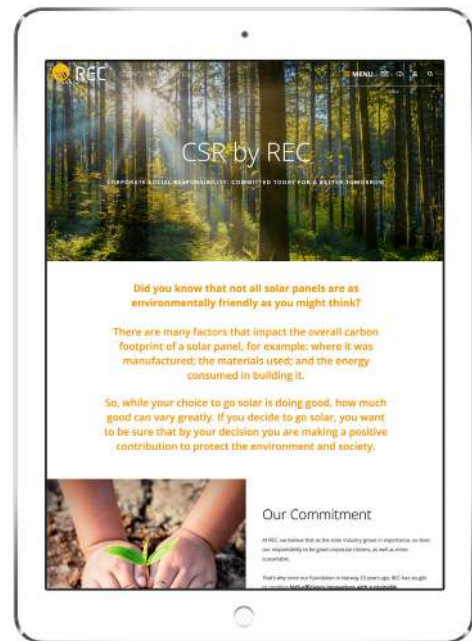
We continuously expand our channel network and solar footprint in line with REC's mission to empower consumers with clean solar energy and drive the global energy transition. By 2023, 14.5 GW of cumulative REC solar panels were installed globally, empowering 22.4 million people in communities worldwide, translating to 18.9 TWh of clean solar energy, saving 13.2 million tons of CO2 emissions per year.

Besides the Safety of our employees, customer's Health & Safety has a top priority at REC and is incorporated into our Sustainability Policy. Our Certified Solar Professional Program and its trainings ensure that all



REC certified installers fully understand how to best and safely install solar panels, also in the interest of end-consumers. Furthermore, REC is regularly providing detailed installation manuals and quick guides on various specific subjects, such as Connections & Connectors.

REC's dedicated sustainability website provides insights into our various initiatives and results. Information is updated regularly to create greater transparency for our consumers and industry customers to make informed decisions. In addition, this ESG report provides an overview of our initiatives, performance and KPIs to provide an overview and record of our performance year on year.























## Customer Satisfaction

REC achieved a high Net Promoter Score (NPS) of 51 in 2023 and showed continued confidence in our products and services among our customers worldwide. Our NPS scores ranks REC highly in particular for product quality.

We continue to demonstrate a high level of satisfaction from not having any product recalls and a cumulative return authorization rate of under 100ppm since 2010. In the exceptional case that solar panels need to be returned, we are committed to keeping claims

process cycle times short to minimize the impact on our customers and consumers. In 2023, 90 per cent of our claims were resolved within 14 days of receipt as per our target cycle times for processing claims.

Through external verification by third party certifiers, REC has achieved certifications for international standards set for a range of indicators that demonstrate the industry's satisfaction with the quality of our products.

CERTIFICATION	INTERNATIONAL STANDARD	TEST INSTITUTE
 Ammonia Corrosion Resistance	IEC 62716	
 Salt Mist Corrosion Resistance	IEC 61701 Severity Level 6	
 Potential Induced Degradation	IEC 62804	
 Non-uniform Snow Load	2PFG 2310/11.12.	
 Dynamic Mechanical Load	IEC 62782	
 Hail Impact	IEC61215 (35mm)	
 Cyclic Strength Wind Loads	BCA 2012 LH	
 Ignitability/Fire Resistance	ISO 11925-2; UL 1703	 
 Quality, Environmental & Safety	ISO 9001; ISO 14001; IEC 45001, IEC 62941	 

REC's products are backed by our comprehensive ProTrust warranty, which offers up to 25 years warranty on product, labor and performance, subject to conditions. With this, REC provides our customers with the peace of mind knowing their solar systems are performing at its optimal capacity when they are installed by REC Certified Solar Professionals.

Our REC Alpha and Alpha Pure Series panels have won two Intersolar Awards, making REC the only active solar panel manufacturer with three Intersolar Awards in total and being a PVEL Top Performer for eight consecutive years.



REC

EXPERIENCE  
**α**  
PERFORMANCE



8 consecutive years

## COMMUNITY INVOLVEMENT & DEVELOPMENT

Looking beyond our own production and customers, REC remains committed to empowering people worldwide with clean solar energy and education, in particular, people and communities in need. We have guidelines for

community involvement and a community involvement checklist in our ESG framework.

We are proud to support a range of projects and initiatives that benefit the communities we work in and serve.

### Germany: Daycare Centre Rappelkiste

REC donated solar panels for the climate-friendly reconstruction of the **day-care center Rappelkiste** after flood disaster in Bad Neuenahr-Ahrweiler (Germany)

- Bad Neuenahr-Ahrweiler was among the municipalities affected most severely by the flood disaster that hit the Ahr valley in July of 2021.
- The 9.8 kW solar system comprises 26 REC Alpha Pure modules donated by the REC Group. They were installed by long-standing REC Certified Solar Professional Jürgen Hilft, who donated their time, as well as the inverters and mounting system.



## USA: Honnold Foundation Support

The **Honnold Foundation** envisions a world where marginalized communities lead the transition to renewable energy, with the resources they need to adapt and thrive. The Foundation believes in solar as a proven, environmentally sound solution to global energy poverty, and they award grants to community organizations whose projects are innovative, equity-focused, and have the potential to shift the narrative on what's possible for energy access worldwide.

- REC supported HonnoldFoundation with a \$50,000 donation.
- REC donated 132 REC NP3 Black 400Wp modules to one of Honnold Foundation's grant recipients, SAGE Development authority, for installation on District Community Buildings in North Dakota, USA.
- SAGE Development Authority is a federally chartered Section 17 Corporation created by the Standing Rock Sioux Tribe as a public power authority.



## Australia: Women's shelter House of Hope completed

**House of Hope**, is a live-in facility for women seeking support for drug and alcohol rehabilitation in the state of Victoria, Australia. Completed in September 2023, this not-for-profit facility is providing eight rooms including two family rooms where women can stay with their children for six months or longer.

- REC donated 85 TP4 370Wp modules.
- With the initiative led by Australian Women in Solar Energy (AWISE), the 84 panels solar system will save around \$1,000 a month on electricity bills and provide most of the daytime electricity needed to power the all-electric House of Hope throughout the year.



# GOVERNANCE

## ORGANIZATIONAL GOVERNANCE AT REC

### REC has defined a three-level governance framework:

The overarching Social Responsibility policy sets objectives and practices for REC's activities. This defines the mandate for the ESG Steering Committee, whose members represent various REC departments and work out specific policies and action plans, such as guidelines for community projects and our Code of Conduct. REC continuously reviews this framework and updates as it is required.

Apart from the Code of Conduct, REC has further global policies and guidelines in place providing guidance on Governance and Operating Practices. These include: Policies on Sustainability, Modern Slavery Act Statement, ISO 14001:2015.



**Level 1:**  
Social  
Responsibility  
Policy

**Level 2:**  
Mandate for  
CSR Steering  
Committee

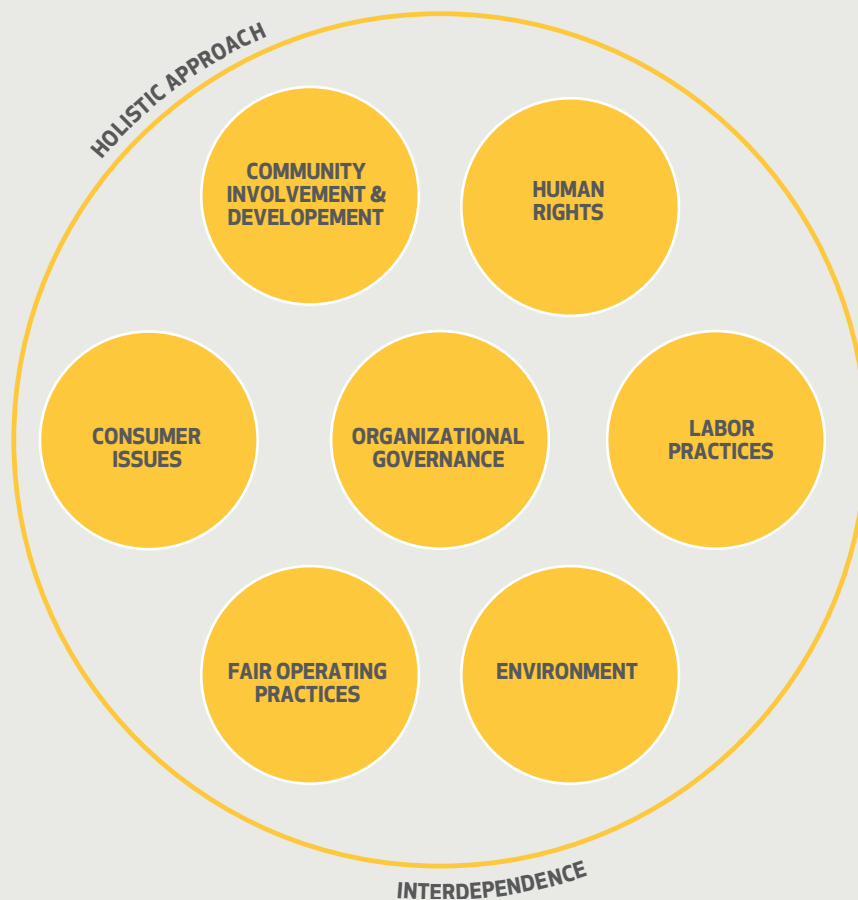
**Level 3:**  
Related policies, manuals, guidelines  
and standard operating procedures

## ISO 26000

**REC's organizational governance ensures that policies and procedures under the ISO 26000 core topics are implemented effectively.**

Adhering to the ISO 26000 standard, organizational governance should ensure that decision-making and management practices are transparent and ethical.

We take the interests of multiple stakeholders into consideration and not just our shareholders. Most of all, attention is paid to sustainable development.



# FAIR OPERATING PRACTICES

## Our Operating Practices

At REC, we place a strong emphasis on maintaining fair operating practices across all facets of our business. Our commitment is reflected in the comprehensive policies and procedures we have established to address critical areas such as Conflict of Interest, Anti-competitive practices, Corruption, Fraud, Information Security. The policies and procedures are detailed in particular in REC's Code of Conduct and all employees are regularly trained accordingly.

Key measures include:

- Whistleblower procedure for stakeholders to report incidents confidentially and securely
- Specific approval procedure for sensitive transactions (e.g. gifts, travel)

For 2023, there were no incidents on Conflict of Interest, Anti-competitive practices, Corruption, Fraud, reported.



## Trade Control Policy

We do not conduct business with countries, organizations or persons subject to sanctions or selective sanctions.

We examine possible transactions or partnerships concerning sanctions published by the US (OFAC), the United Nations and the European Union, and others such as the United Kingdom. We operate a Trade Controls Policy, which is strictly followed and reviewed on a regular basis with regard to sanctioned countries. Sanctioned countries are listed, updated and communicated within REC through our policy.

We refrain without any exception from dealings with 'red category countries' according to our Trade Control Policy. We have installed an Approval Committee, headed by the Chief Executive Officer, Chief Financial Officer and Chief Legal Officer, which must approve deals in such countries only after clearance by a third-party screening (e.g. Designated Person Lists). Such approvals are granted only in exceptional cases.

In 2023, there have been no deviations from our Policy.



## Employee training

To ensure our employees understand and follow REC's fair operating practices, REC management undertakes regular mandatory training such as Re-certification on the Code of Conduct and Anti-Corruption or the California Sexual Harassment and Abusive law. In 2023, the Code of Conduct and Anti-Corruption Policy training was completed for all new employees and re-certification (conducted every two years) achieved

a 100 per cent completion rate. All Sales & Sourcing employees successfully completed new mandatory legal training as well.

REC respects and takes confidentiality obligations and intellectual property rights seriously, both internal and external. In 2023, the Confidentiality Policy got updated for publication and training in 2024.

## Fair advertising & promotion

As part of our sales, our advertising and promotional policies serve as guidelines to prevent unfair competition and unfair sales promotion. In 2023, there

were no deviations from our Marketing Do & Don't guidelines.

# CONCLUSIONS AND OUTLOOK

REC's journey as a premium solar panel manufacturer is driven by a profound commitment to combining performance and reliability with sustainability and ethical practices for almost three decades. While our core product inherently supports environmental conservation by harnessing renewable energy, we recognize that our industry, like any other, must continuously evolve to meet the highest standards

of environmental, social, and governance (ESG) performance.

REC takes pride in its 2023 efforts across the globe to improve its ESG responsibilities. The EcoVadis Silver Medal, received in April 2024, is a clear testament to our advanced ESG efforts. We demonstrated substantial progress in several critical areas:

## 1. Technological Advancements

By adopting the most advanced technologies, we have improved the efficiency of our solar panels, ensuring that each unit generates more power with less material, mitigating more emissions.

## 2. Product Longevity

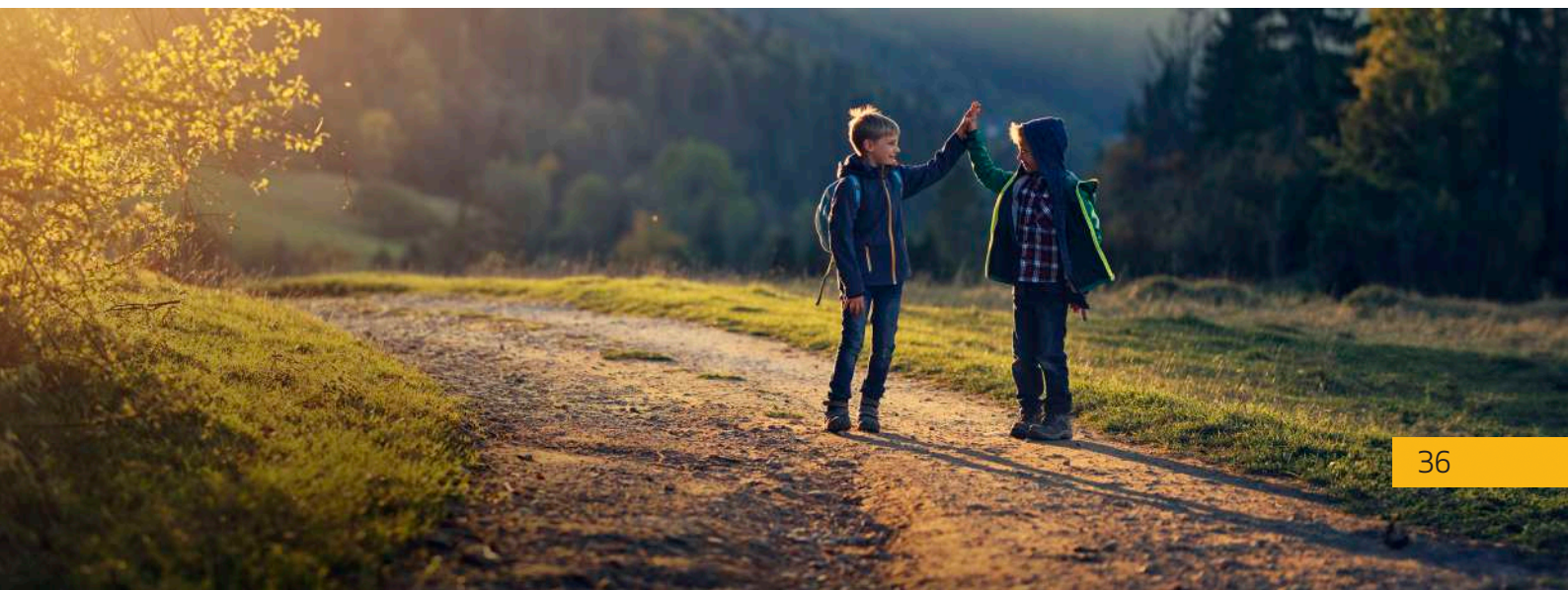
Enhancing the durability and longevity of our solar panels remains a key focus. By extending the lifespan of our products, we help mitigate waste and provide greater value to our customers and consumers, contributing to a more sustainable lifecycle for solar energy solutions.

## 3. Ethical Sourcing

We are dedicated to ensuring that our supply chain is responsible and ethical. By working closely with our suppliers to source materials in a way that delivers positive outcomes for all stakeholders, we strive to uphold the highest standards of human rights and environmental stewardship.

## 4. Resource Consumption

Reducing our own resource consumption is a critical component of our sustainability strategy. We continuously seek ways to minimize water usage, energy consumption, and waste production within our operations, setting ambitious targets and rigorously measuring our progress.



## REC 2025 TARGETS VS 2020

### ENVIRONMENT



#### WATER

**-50%**

Specific Process Water Consumption

#### ENERGY

**-30%\***

Specific Energy Consumption

**-30%\***

Specific Scope 1 Emissions

**-30%\***

Specific Scope 2 Emissions

#### WASTE

**-30%\***

Specific Waste Generation

**-50%\***

Specific HF Sludge Generation

**<1%**

Share of Recycled Scrap Modules comp. to Total Production

**100%**

Recycling Rate of Scrap Modules

### SOCIAL



#### EMPLOYEES

**40%**

Share of Female Employees

**<0.3**

TRI

#### SUPPLIERS

**0**

Deviations for ESG & HSE at Suppliers

#### CUSTOMERS

**<700**

New Installers Trained p.a.

**<100**

Cum. Claims Rate since 2010

**>80%**

Share of Claims Processed within 14 Days

**>50**

NPS Score

#### COMMUNITIES

**3**

ESG Activities by REC p.a.

**3**

Social Projects Supported p.a. (Education and Donations)

### GOVERNANCE



**100%**

Re-certification of Employees on Code of Conduct and Anti-Corruption

**0**

Deviations from REC's Fair Advertising and Promotion Guidelines

**0**

Deviations from REC's Trade Control Policy

\*Subject to full capacity production output.



But we know there's more to do. Looking forward, we are committed to building on the successes of our 2023

ESG initiatives. Our focus will remain steadfast on the following objectives:

#### 1. Continuous Improvement:

We will continue to push the boundaries of solar technology, striving for ever-greater efficiencies and innovations that will set new benchmarks for the industry.

#### 2. Educational Outreach:

We will expand our efforts to educate installers, homeowners, and businesses on responsible solar panel choices. By promoting awareness and providing comprehensive information, we aim to empower consumers to make informed decisions that better support sustainability by looking beyond power and price criteria only.

#### 3. Employee Well-being and Development:

Our employees are the most critical foundation for all our successes. Continuously building on their capabilities ensures REC to stay resilient and innovative.

#### 4. Collaborative Partnerships:

We will strengthen collaborations with industry partners, policymakers, and communities to drive broader environmental and social impacts. Through collective action, we can amplify our efforts and achieve more significant results.

#### 5. Transparency and Accountability:

Our commitment to transparency and accountability will guide all our ESG initiatives. We will continue to report our progress openly, setting clear goals and holding ourselves accountable to the highest standards. We will continuously monitor new developments such as the CSRD in the EU and improve our own reporting to lead by example.

We are committed to a holistic sustainability approach and we welcome the stricter ESG regulations by governments around the globe. Starting in 2023, governments worldwide have begun implementing stricter ESG regulations. Simultaneously, with consumers becoming more socially and environmentally conscious, REC perceives

sustainability as a transformative force reshaping the business landscape. Companies that integrate sustainability into their core strategies often benefit from innovation, operational efficiency and supply chain resilience.





Join us on our movement and let us power progress, sustainably, together.

[www.recgroup.com/sustainability](http://www.recgroup.com/sustainability)





REC

SOLAR'S MOST TRUSTED

COMMITTED TODAY  
FOR A BETTER TOMORROW

[www.recgroup.com/sustainability](http://www.recgroup.com/sustainability)