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Sustainability Report 2021

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Message from our CEO



Dr. Michel Willemin CEO, EM Microelectronic

As many observed, 2021 was the year of resilience. Navigating through the later stages of the COVID-19 pandemic came with important challenges for us to address, both from a business, and an organizational perspectives.

Thanks to the intense efforts from our talented people and partner network, we managed to transform these challenges into new opportunities, by re-imagining our way of doing things.

For sustainability, this meant leaping forward. While sustainability has been a core pillar for EM since its foundation, we are now taking the responsibility to share all our efforts and successes on the topic.

Our Sustainability Report 2020 served as a starting point for this effort, and the present second edition is aiming at pushing these foundations by following through on GRI standards, transparency on our operational data and deepening in our material topics.

There are still numerous challenges to address and overcome. The construction of our new buildings, a mobility plan for our commuting employees, ensuring energy security in a troubled market while being climate conscious, to mention but a few. All these represent great challenges for EM from a sustainability point of view in the coming years.

Similar to 2021 when we re-imagined the way we do things, the talent and resilience of our people will be the key factors to reach our goals.

2021 Highlights



67.7% of the waste generated was either recycled or reused for energy recovery.

Energy consumption was reduced by **2.7%**, compared to 2019.



100% of the electricity in our Marin manufacturing site came from renewable sources.



Scope 1 and 2 greenhouse gas emissions were reduced by **66.6%**, compared to 2019.



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APPENDICES

EM Microelectronic

A global semiconductor company on a human scale

At EM Microelectronic (EM), we design and manufacture ultra-low power Integrated Circuits for small portable devices and green IoT. We merge our extensive talents and resources under a single roof towards developing and manufacturing customized ICs and components.

We are fully dedicated to time-honored Swiss culture in our relentless pursuit to achieve cutting-edge products and long-term customer loyalty.

We enable green, high-performance, user-friendly devices with Swiss-quality microelectronics that make our customers unique via long-term, sustainable partnerships and proximity.

Main markets



Watches



Industrial



Communication

IoT



Consumer

Electronics

Traceability

& Logistics

Healthcare & Wellness



Automotive



- **1.** Marin-Epagnier, Switzerland:
- 2. Prague, Czech Republic :
- 3. Bangkok, Thailand :
- 4. Colorado Springs, USA:

Headquarters | Main sales and marketing R&D | Design | Front-end | Back-end Design Back-end manufacturing Sales and marketing | Design

EM Microelectronic is a fully-owned subsidiary of Swatch Group, an international group active in the manufacturing of high quality watches and jewelry.

Within Swatch Group, EM Microelectronic is part of the Electronic Systems Segment. Together with our sister companies, we provide complete solutions for various applications by merging individual expertise and the synergies within the Group.



- 4 design and manufacturing sites
 620 employees worldwide
 - Worldwide sales presence

Headquarters in Switzerland

Products and Responsible Sourcing



Low em aura-sense Frequency AUGMENTED RFID Animal Identification Capacitive sensing for green & access control IoT sensor networks em lino/ NFC AUTHENTICITY Scalable high-performance NFC Web authentification em aura-light em aura-temp AUGMENTED REIT AUGMENTED RFID Passive temperature Pick to light sensing em aura-C Crypto-Enhanced RAIN RFID Crypto Enhanced RFID em echo em aura-air RAINFC AUTHENTICITY RAIN REID RAIN RFID, NFC, Coil-on-chip technology combination for omn for smallest RFID Tags channel solutions & circular economy

"Our customers have very high sustainability standards. As a leading-edge Swiss company, these values play at the core of our market positioning and societal role, and we use them as a guideline for all our business strategy."

Stefan Barbu, VP Sales & Marketing

"As a leading high-tech organization, the sustainability of our activity is built on a great team providing best-in-class service to our customers."

Paul Muller, VP Development

On compliance, we adhere to the latest legislation on semiconductors as well as substances and materials so our products are conformant to all these standards. REACH SVHC, RoHS and CMRT certificates are some of the key compliance topics we are constantly updating for our products to fulfill these requirements.

Combined with our Social and Environmental **Responsibility (SER) Principle of Conduct**, we ensure that our suppliers are compliant to the highest standards of labor, health and safety, environment, and ethics.

EM Expertise



Governance

Our company governance body is the EM Management Board, composed of 5 senior executive members representing all the company departments, along with our CEO. They are accountable for all aspects on the overall efficiency of EM, risk management and strategic decisions, including our impact on economy, environment and people.

Quality Policy Quality improvement, customer satisfaction Beat Sutter Head of HR Corporate information, customer information Yvan Gonin Paul Muller Business partners relationships VP IC VP Operations Michel Willemin **Social Policy** Human rights, labour, suppliers Stefan Barbu Rudi Schmid VP Sales & CFO Marketing **Environment Health &** Safety Policy

The Management Board is responsible for approving all of the policy commitments that guide our operations. It also establishes and overlooks the progress of our Sustainability Roadmap 2030, which was introduced in the previous edition of our Sustainability Report.

Sustainability goals and targets





About This Report



About This Report

We published our first sustainability report last year, which compiled the efforts from many different teams at EM through 2020.

Encouraged by the very positive reception, we are now publishing the second edition. Our Sustainability Report 2021 covers the operations in the calendar year 2021 (January 1^{st} – December 31^{st} , 2021) from our sites in Marin (EM Microelectronic-Marin SA) and Bangkok (EM-Bangkok), the latter being part of the facilities of ETA Thailand, a sister Swatch Group company.

From this edition onwards, we will report in reference to the GRI Standards, allowing us to better structure our annual sustainability reporting efforts.

For any questions on this report, please contact us at: sustainability@emmicroelectronic.com.

Moving forward from last year, the material topics for this year's report were selected with an initial stakeholder engagement. Our internal and external stakeholders influence us and our operations directly and indirectly. We find our Management Board, our employees and Swatch Group as part of our internal stakeholders. And we find our customers, our suppliers, government authorities and universities we collaborate with as part of our external stakeholders. For our materiality assessment, we selected key stakeholders to understand the relevance different topics have for them. Through internal engagement with members of the EM Management Board and with a benchmarking of the latest sustainability reports of our customers, suppliers and Swatch Group, we were able to create the materiality matrix for this report, shown below. Our material topics were selected on the basis of at least a medium relevance for both EM and our stakeholders, and current availability of data.



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Energy Consumption



Our energy consumption is mainly driven by electricity, representing **77.6**% of the overall energy consumption footprint in 2021.

With the operation of our new heat pump in the Marin manufacturing site, the consumption of natural gas **decreased by 34%** from 2020. On the other hand, electricity in this site **increased by 10%** in the same period, mainly due to the heat pump and to the increase in production activity to meet the rise in worldwide demand for semiconductors.

We are constantly implementing new energy efficiency projects. For example, the replacement of a series of industrial vacuum pumps in 2021 allowed us to avoid the consumption of around 90 MWh of electricity.

By transitioning to electrification and implementing electricity efficiency measures, we will be able to keep reducing our energy consumption. And by transitioning to electricity from renewable sources, we will be able to reduce our carbon footprint.











Energy Consumption



In 2021, with the purchase of Guarantees of Origin coming from hydropower in Europe, we were able to reach **100% of renewable electricity procurement** in our Marin site. We are assessing the best ways to maintain this momentum going, finding solutions to increase our renewable electricity procurement in the coming years while maintaining our electricity security. However, the uncertainty of the energy scenarios of the future represents an important challenge, such as maintaining 100% renewable electricity, not only for our footprint, but for our operations.

We participate in the voluntary program of the Energy Agency of the Swiss Private Sector (AEnEC in French), which helps us to further monitor our progress on energy efficiency and climate protection. 100% of the electricity we consumed in 2021 in our Marin site came from renewable sources.

Like the rest of the world, EM faces new risks in ensuring constant energy supply. Production dependency on gas is very limited thanks to the described measures. Electricity outage risks are permanently assessed and preparation of risk mitigation plans are in the initial phase.



"Producing wafers in a highly cost competitive market since 1975, EM has a long track record in optimizing energy consumption. The increasing interest of the community for this discipline values our long-term efforts."

Rudi Schmid, CFO

Electricity mix of EM Marin



Emissions

Estimating our carbon emissions has been a very insightful learning experience. We are trying to move forward in this task by adopting a comprehensive approach for our emissions sources and by polishing our estimation methods, based on the GHG Protocol.

For our 2021 report, we are including the impact of electricity from our production site in Bangkok. We are also initiating, along with Swatch Group, our estimations on scope 3 categories that are of high relevance for us. In this report, we are including our scope 3 emissions from fuel and energy-related activities, business travel, employee commuting, and downstream transportation and distribution, with the goal of including more categories in the next edition of our sustainability report.

"Having a core competence in ultra-low power and being motivated by strong customers and partners, EM is optimizing constantly its energy consumption, resources availability and post-processing treatments."

Yvan Gonin, VP IC Operations

Energy-related emissions represented the highest share of our scope 1 and 2 emissions in 2021, with 66%. The second highest share in these scopes comes from emissions from production, with 32%.



GHG emissions at EM



Share of scope 1 and 2 emission sources in 2021

With the installation

of our heat pump

and the adoption

electricity, we were

of renewable

able to reduce

our scope 1 & 2

emissions in our

Marin site by 71%

from our 2019

baseline.

Water



The use of water in our facilities is another major aspect of our environmental impact. As such, we follow strict protocols for the conservation of this life-sustaining resource.

In Marin, our water use is directly shared with two other subsidiaries of Swatch Group present on site. For both our Marin and Bangkok manufacturing sites, our water withdrawal comes directly from the local water supply and our discharges go directly to the local sewage system. The water we use is treated through our wastewater treatment systems, in order to comply with regulations on water discharge, thus avoiding contamination of our rivers and lakes. Also, there is a share of water that evaporates in our cooling towers and as steam in our cleanrooms.

Through our water recycling system in Marin, we are able to keep decreasing our water consumption. In 2021, the rate of water recycling was **10.5%**.

Water use in Marin



Sustainibility Report 2021

Waste

Our waste generation comes greatly in part from our manufacturing processes. Due to the variety of substances we use in our facilities, hazardous waste is generated. We work with our waste management suppliers to implement innovative solutions on recycling our hazardous waste or reusing it for energy recovery. For example, recycling a part of our used sulfuric acid, which is then turned into recycled sulfuric acid, and our used solvents serving as fuel for the cement industry.

Non-hazardous waste also is generated in our manufacturing processes, as well as in our offices and logistics operations. For our offices in Marin, we are planning on implementing a pilot program to maximize recycling in this part of our operations.

We keep assessing different solutions to maximize our waste valorization and minimize our waste disposal, reaching 67% and **86%** in our two manufacturing sites in 2021.











Waste management in Bangkok, 15 metric tons

Non-hazardous valorized

Hazardous valorized

Non-hazardous disposed



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4 EDUCATION

Employment and Training

We owe our success to our people. Through our recruitment process, we strive to collaborate with the best professionals in their field. Our two manufacturing sites employ 513 people, representing 83% of our coworkers worldwide, exchanging ideas, experiences, and cultures that lead to our highly skilled and dynamic teams.

And just as we strive to collaborate with the best professionals, we also want our people to keep developing themselves. We highly encourage all of our employees to follow training programs that keep improving their skills, which also allows our company to keep on growing.



Average training hours per employee

CATEGORY	MARIN	BANGKOK
All employees	8.2	2.57

With 24 nationalities from all over the world in our Marin site, the multicultural and multidisciplinary environment that our people experience is a key factor in our success.

"We are supporting the organization to improve effectiveness, to manage corporate governance and ethical issues beyond economic performance, and to support realignment of the organization's future direction and vision of new ways of operating."

Beat Sutter, Head of HR





3 GOOD HEALTH AND WELL-BEING AND WELL-BEING

Occupational Health and Safety

Our occupational health and safety system in Marin follows the standards and requirements from the Swiss Federal Coordination Commission for Occupational Safety (CFST, in French), the Swiss National Accident Insurance Fund (SUVA, in German), and the Employer's Federation of the Swiss Watchmaking Industry (CPIH, in French). The system covers all of our coworkers, as well as the other two Swatch Group subsidiaries on site and is overlooked by our Safety Officer. Safety principles are applied to externals, such as visitors and contractors through dedicated safety instructions and trainings.

Health and safety risks are assessed through our Internal Control System, which also covers all other business risks of the company. Three times per year, the Environment, Health and Safety Committee takes place, where the Safety Officer and safety leaders engage to manage risks and incidents throughout the year, and exchange on common practices and lessons learned. Furthermore, our voluntary teams of fire brigade and first-aid brigade support all interventions on fire-fighting, health, rescue, chemicals and natural disasters.

Training plays a key role on maintaining the safety of our coworkers. It is mandatory that everyone receives an introductory safety training when they join EM, and to follow up with trainings refreshing the concepts throughout the years. We also ensure the specific security and safety training for our operators and technicians or any other function in the company which is exposed to specific risks and equipment at their workplace.

Within our health program, we propose prevention actions such as flu prevention, 'bike to work' and some one-off actions prior summer- and winter-time. During the COVID-19 pandemic period, we followed protocols on sanitation, social distancing, and remote work, based on the Swiss Federal Office of Health.













Sustainability Roadmap 2030

Objectives and SDGs



Objectives and SDGs

We published our Sustainability Roadmap 2030 in last year's edition of our Sustainability Report, where we shared the objectives we have established for 2030 and how they are aligned with the Sustainable Development Goals (SDGs).

We are proud to share the progress achieved in 2021 towards these objectives. We realized that some targets have already been reached. For this reason, we will re-assess and update them for the next edition of our sustainability report towards more ambitious targets.

SDGs 3, 4, 8, 9 & 17 due to:	SDGs 6, 7, 12 & 13 due to:
Our focus on people health, safety and development.	Our commitment to reduce our water consumption and waste production.
Our support for innovation and technology.	Our commitment to reduce our GHG emissions.
Our contribution to promote sustainability.	Our contribution to circular economy.

Environment and energy

Module	SDG	Target 2030	Progress	Status
Energy				
EM Microelectronic actively applies measures to increase its energy efficiency.	7 AFTERMALL AND COM DELET	Increase energy efficiency by at least 2% in our main manufacturing site in Marin.		Energy efficiency, according to the AEnEC, increased 4% compared to 2019.
CO₂e emissions EM Microelectronic company actively applies measures to decrease its CO ₂ e emissions. Materials and waste	13 mm	Decrease CO_2e emissions in our main manufacturing site in Marin by 30% by 2025 and 50% by 2030, for scope 1 and 2.		By adopting renewable electricity, we surpassed the goal. We are assessing the best way to keep the momentum going in an electricity scarcity scenario, which may result in a lower value in the coming years.
EM Microelectronic	12 RESPONSIBILE CONSIDER TO A	Increase the total valorization rate up		We are active in the valorization

strives to reduce its non-valorized and landfill waste.

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6 CLEAN WATER AND SANETATION

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Water

EM Microelectronic strives to decrease its water consumption in its manufacturing sites. Increase the total valorization rate up to a minimum of 70% in our Marin site.

Limit the landfill rate to a maximum of 5% for the total waste resulting from our activities in Marin.

Increase the total recycling rate of water up to a minimum of 30% in Marin.



We are active in the valorization of its industrial and hazardous waste, reaching 67% in 2021.

In 2021, our landfill rate was 0.21%.



Recycling rate was 10.5% in 2021.

Objectives and SDGs



We aim to minimize risks of negative impact of our activities on people's health.



We aim to increase efficiency in the use of water resources. We are committed to treat all our wastewater and maximize its recycling.



We help our employees to develop their competency through continuous training programs.



We foster open innovation with a wide range of universities, companies and researchers all over the world.



17 PARTNERSHIPS FOR THE GOALS

We work with universities and companies to boost sustainability in our technology and products. Progress

Objectives and SDGs

Products and Innovation



Green products

EM Microelectronic products are optimized with regard to their environmental friendliness, social benefits and resource efficiency.



Target 2030



In the last years our quality management has been strengthened, resulting in stronger partnerships with our customers.

Status

Many of our products fulfill sustainable purposes. We are assessing methods on how to increase ecodesign and sustainable characteristics in our products.



Products and Innovation

Modules	SDG	Target 2030	Progress	Status
Supply chain				
EM Microelectronic suppliers demonstrably comply with our SER Code of Conduct for socially	8 BEEDIT WEBLAND BECKNONG GROWTH	100% of fulfilled SAQ questionnaire from our key suppliers.		All high-risk suppliers in Asia are already audited.
and environmentally responsible supply.				This type of criteria is already included
		Systematically integrate sustainability criteria in our supplier and service partner choice.		for our key suppliers.
Logistics				
EM Microelectronic optimizes its logistics in terms of energy consumption, emissions, and packaging.	9 Businetestatie	Define and implement improvement measures together with transport service providers and customers.		We have included scope 3 emissions from downstream transport and distribution of our products.
		Find sustainable alternatives for our packaging materials.		EM is working with packaging suppliers to find more sustainable materials.
Safety and people				

Safety

EM Microelectronic actively applies safety measures to maintain a very low rate of injuries.

Employees

EM supports the development and the engagement of its employees.



Maintain our absence rate and incident rate below local median values.

Continue and develop training programs for all of our employees (Health, Safety and Environment).



Continue and develop training programs for all our employees (safety, technology and innovation, management, design, production, maintenance etc.).



incident rates have been decreased below Swiss median values.

As a result of continuous efforts our absence and

EM has already several trainings in place and will extend the programs according to the identified needs, legal and company requirements.

With social distancing measures easing up in 2021, we were able to increase the average training hours per employee compared to 2020. In 2021, we also structured our training programs to be able to provide better statistics.

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Data

This section presents a breakdown in table form of all the data collected and estimated for the material topics presented in this report for the calendar year 2021, which was previously presented in graph form throughout the different sections.

Greenhouse gas emissions, in metric tons CO₂e

Energy consumption, in MWh

Sources	2021	2020	2019
Natural gas	5,996	9,129	10,027
Biogas	666	1,014	144
Electricity Marin	25,998	23,663	23,334
Electricity BKK	834	894	871
Fuel oil ¹	5	51	37
Vehicle fleet	21	23	32
Total	33,520	34,774	34,445
Change from 2019	-2.68 %	0.96%	-
U			

Sources	Scope	2021	2020	2019	Emission factor source
Natural gas ¹	1	1,100	1,675	1,840	UK Government
Biogas ^{1,2}	1	0.1	0.2	0.03	UK Government
Fluorinated gases and $N_2^{}O$	1	797	747	704	IPCC AR5
Fuel oil ¹	1	1	16	12	UK Government
Vehicle fleet ¹	1	5	6	8	UK Government
Refrigerants	1	62	86	62	IPCC AR5
Electricity Marin (market-based)	2	0	4,295	4,235	Electricity supplier
Electricity Marin (location-based)	2	557	921	908	ecoinvent database v3.8 cut-off
Electricity Bangkok (location-based)	2	537	660	643	ecoinvent database v3.8 cut-off
Fuel- and energy-related activities ¹	3	752	-	-	ecoinvent database v3.8 cut-off, UK Government
Business travel	3	16	-	-	ecoinvent database v3.8 cut-off
Employee commuting	3	629	-	-	ecoinvent database v3.8 cut-off
Downstream transport and distribution	3	716	-	-	Transport suppliers
Scope 1		1,966	2,530	2,626	
Scope 2 ³		537	4,955	4,878	
Scope 3		2,112	-	-	
Total scope 1+2		2,503	7,485	7,505	
Change from 2019		-66.64%	-0.26%		

Data

Water use in 2021, in m³

Activity	Marin	Bangkok
Withdrawal	197,927	2,217
Discharge	162,703	1,773.6
Consumption	35,224	443.4

Waste categories in 2021, in metric tons

Category	Marin Weight	Valorized waste ¹	Bangkok Weight	Valorized waste ¹
Hazardous	173	40%	0.16	100%
Non-hazardous	141.30	100%	14.72	86%
Total	314.30	67%	14.89	86%

Waste treatment methods in 2021, in metric tons

Marin Weight	Hazardous	Bangkok Weight	Hazardous
124.16	32%	12.85	1%
85.11	34%	-	-
104.25	100%	-	-
0.66	0.5%	2.03	0%
0.11	100%	-	-
314.30		14.89	
	Weight 124.16 85.11 104.25 0.66 0.11	Weight Hazardous 124.16 32% 85.11 34% 104.25 100% 0.66 0.5% 0.11 100%	Weight Hazardous Weight 124.16 32% 12.85 85.11 34% - 104.25 100% - 0.66 0.5% 2.03 0.11 100% -

Data

Employee category breakdown at the end of 2021

	Marin		Bangkok	Bangkok		
Category	Total	New hires	Total	New hires		
Female employees	89	10	120	8		
Male employees	274	22	30	4		
Employees under 30 years old	32	11	20	8		
Employees between 30 and 50 years old	201	17	117	4		
Employees over 50 years old	130	4	13	-		
Total	363	32	150	12		

Occupational health and safety statistics in 2021

Incident	Marin	Bangkok
Work-related injuries without downtime	5	0
Work-related injuries with downtime	4	0
Fatalities	0	0
Work-related ill-health	0	0
Hours worked	757,197	361,090

		GRI STANI	DARD	DISCLO	SURE	LOCATION
GRI	Index			2-1 2-2	Organizational details Entities included in the organization's	7, 11 11
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81 401:	Employment 2016	401-1	New employee hires and employee turnover	29
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