2021 SUSTAINABILITY REPORT

OUR ENERGY FOR A SUSTAINABLE FUTURE

EF SOLARE ITALIA

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SUMMARY

LETTER TO STAKEHOLDERS

This is the third edition of the Sustainability Report, which each year illustrates our commitment to operate sustainably, always taking into account the external context and developments which are sometimes, as they have been in these years, unexpected and disruptive.

The health emergency with its impacts on the economy had an impact on everyday life as we knew it, and was followed by a geo-political crisis, which is ongoing as we write. A pandemic and also geo-political tensions were interwoven and went on to define a very challenging situation for the economic and social system as a whole and placed new obstacles in the way of the ambitious global targets striving for sustainable development. The energy sector was greatly affected by the crisis, which caused the emergence of overwhelming issues and latent problems. In spite of the recovery of the economy and consumption, 2021 was marked by a strong energy shock, which saw the intervention of central governments to try and mitigate the effect on bills of the increase in gas prices.

In this context, it is obvious how a structured, organic plan is needed to make our continent more independent from an energy perspective and less exposed to market fluctuations. The role of renewable sources becomes increasingly central, also from the point of view of achieving the European and national decarbonisation targets set. The journey towards energy transition is regulated by targets with the final aim of making our continent carbon neutral by 2050. Against this backdrop, the role of solar energy is vital. To achieve these goals, we need a growth rate ten times higher than the current one.

In 2021 EF Solare worked to consolidate its role as first player in the industry, leading development with increasing attention to environmental and social topics. We offer a model of efficient and sustainable growth, based on projects that are increasingly integrated with the area, and the widespread adoption of digital technologies.
This year, specifically, saw the launch of the new agri-photovoltaic model, strongly supported and promoted by the company. It involves innovation, which will allow the increasing integration of plants in the areas alongside the dual use of the ground.

Another key milestone for 2021 was gaining two of the most important ISO certifications: ISO 14001 for the management of environmental impacts and ISO 45001 for occupational health and safety. Achieving these certifications is the culmination of a journey that has involved the entire organisation and has led to the adoption of an integrated management system for the environment and workplace safety.
For even greater oversight of our plants and their performance, the organisational structure was revised in 2021 and a process aimed at strengthening the control of our assets was pursued thanks to the in-sourcing of maintenance activities and the integration of the monitoring and control system for Italian plants.
At the same time, we never faltered in our commitment to progressively simplify the regulatory and legal framework, advanced through an ongoing dialogue with the relevant institutions.

Not least, we advanced the belief that the creation and dissemination of skills and know-how are strategic factors for the development of photovoltaic power. With this in mind, we participate in the main industry events and promote the awareness of solar power at different levels, through in-house and external training courses.
We are aware that we are only at the beginning of a long, complex journey that will lead to the establishment of new models, not only from an energy perspective, but also environmental, economic and social ones, capable of employing available resources efficiently and rationally, in tune with the principles of the circular economy. Our stakeholders will be accompanying us on this journey. The ultimate goal of generating value remains unchanged. This is something, first and foremost, that is shared and will have a positive impact on needs and expectations.

Paolo Duiella
President

Andrea Ghiselli
Chief Executive Officer

PROFILE OF EF SOLARE ITALIA

SECTOR LEADER

EF Solare Italia is the leader in photovoltaic power in Italy and one of the main players in Europe, with a portfolio composed of more than 300 utility-scale plants, with a total installed capacity that exceeded 1000 MW in 2021.

318
PLANTS

1,046 MW
TOTAL INSTALLED POWER AT THE END OF 2021

EF Solare Italia is the leader in photovoltaic power in Italy and one of the main players in Europe, with a portfolio composed of more than 300 utility-scale plants, with a total installed capacity that exceeded 1000 MW in 2021.

EF Solare Italia is a key player in the contribution to energy transition in both Italy and Europe, thanks to its business model that leverages technological innovation and operational excellence. The generation of energy from renewable sources actually plays a leading role in the move towards a low carbon-emissions economic model. The growth of photovoltaic power is expected to increase significantly over the coming decades, also in relation to the increasingly challenging urgent targets established by the European Green Deal.

The development of EF Solare is supported by its shareholders: F2i - Fondo Italiano per le Infrastrutture, the largest infrastructure fund operating in Italy, which owns 70% of the company and Crédit Agricole Assurances-Predica, the leading French institutional investor in renewable energy, which owns the remaining 30%.

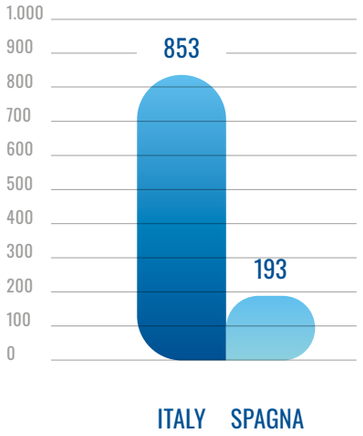
GROWTH AND INTERNATIONALISATION

EF Solare strives to strengthen its leadership at a European level too. This growth strategy took shape through the acquisition of Renovalia, one of the most important Spanish operators in the field of renewables. The transaction, completed in 2020, was of great strategic importance, launching EF Solare Italia among the major European solar energy producers, and allowing them to take the best advantage of the opportunities of joining the particularly dynamic Spanish market, also thanks to a more favourable regulatory framework compared with other EU countries. In 2021, the ***El Bonal*** **plant with a capacity of around 80 MW started operating**, which allowed the Group to exceed an installed photovoltaic capacity of 1 GW.

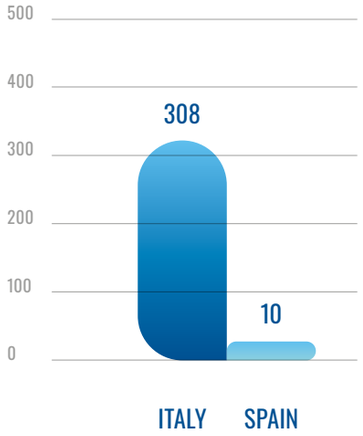
In January 2021, the sale of 30% of the company by F2i was completed, which was one of the largest transactions in the sector. The shareholding structure saw the entry of Crédit Agricole Assurances-Predica, the leading French institutional investor in renewable energy.

2021 HIGHLIGHTS

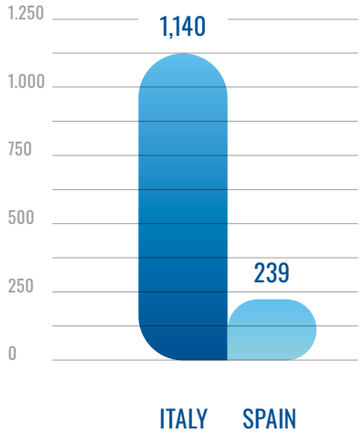
INSTALLED CAPACITY
(MW)



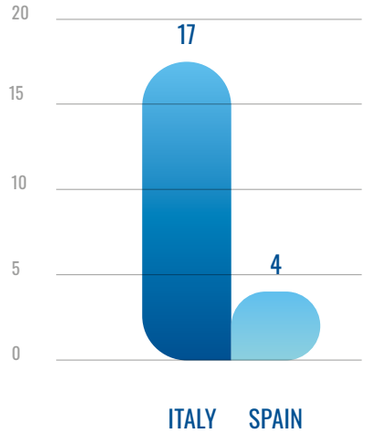
OPERATING PLANTS



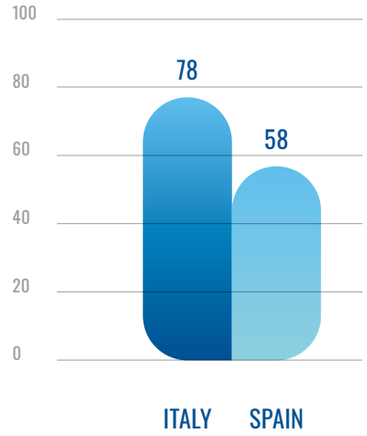
ENERGY PRODUCED
(GWh)



REGIONS IN WHICH PLANTS ARE PRESENT



EMPLOYEES



OUR HISTORY

2009

F2i establishes HFV, the JV with the Novenergia fund dedicated to investments in the photovoltaic industry in Italy.

2015

The JV with Novenergia ends and EF Solare Italia is established, an equal joint venture between F2i and Enel Green Power with an initial portfolio of 252 MW.

2018

F2i acquires, and confers on EF Solare Italia, the second largest photovoltaic operator in Italy: RTR, with 134 plants and a total power of 334 MW. The JV with Enel Green Power ends.

2020

The transaction of acquiring Renovalia, the leading Spanish solar operator, is concluded by EF Solare Italia. 102 MW of operating plants and 879 MW relating to projects under development are acquired.

Publication of the first Sustainability Report and launch of the process to strengthen the sustainability of EF Solare Italia's sustainability profile.

2021

Crédit Agricole Assurances, the leading French institutional investor in renewable energy, together with CA Vita, its Italian subsidiary operating in life insurance, acquires 30% of the share capital of EF Solare from F2i Sgr, the leading Italian infrastructure fund.

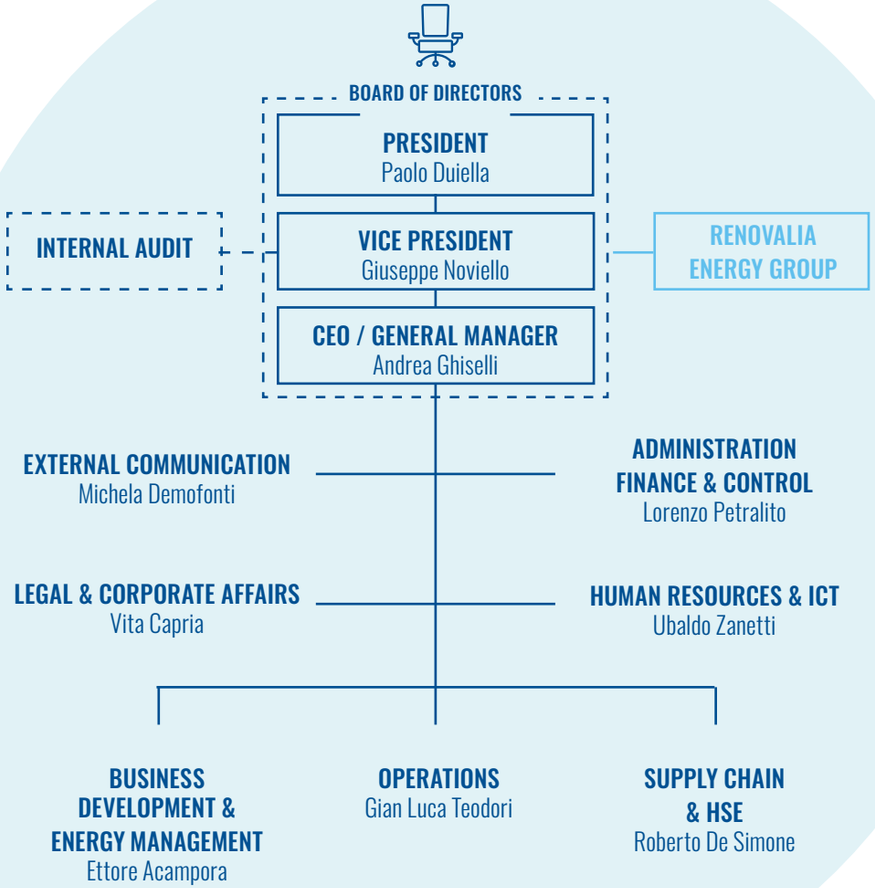
The installed capacity reached over 1 GW when the new El Bonal photovoltaic plant in Spain came onstream.

ISO 14001 and ISO 45001 certification obtained for the management of environmental impacts and worker health and safety.

ORGANISATIONAL STRUCTURE

2021 was also a year of developments for the organisational structure. As the leading solar operator in Italy, the company felt the need to reflect a more industrial approach in the organisation, deemed necessary for the development of asset management and maximizing performance.

The company acquired a new organisational structure for the Operations area, which led to greater efficiency in the management of all existing contract-related assets and liabilities for running the photovoltaic plants thanks to the integration of these responsibilities in the Asset Management unit, and improved management of the maintenance of internalised facilities thanks to greater focus for the Maintenance unit.



OUR SOLAR PLANTS: PERFORMANCE AND EFFICIENCY

Having grown in recent years especially thanks to the acquisition of existing plants, EF Solare has changed its strategy, directing it towards overseeing the entire chain, starting with the development of new plants.

There are three main strategic priorities for EF Solare Italia:

- the development of existing assets, through revamping and repowering;
- the development of new photovoltaic plants, even through innovative formats like agrivoltaics;
- the development of new business models which facilitate the participation of photovoltaic plants in the electricity dispatching services market, also courtesy of the use of storage.

In 2021, EF Solare Italia continued to focus its attention on the optimisation and development of its solar plants to improve the performance of portfolio assets and upgrade their management. The revamping programme has seen more 45 MW of interventions on modules and over 80 MW on inverters. The results were achieved in an extremely complicated context, both in terms of the procurement of components on supply markets and as far as authorisation process time scales are concerned.

The company has also continued with the development of new plants, both in Italy and Spain. In 2021 in Italy there was a positive outcome for the authorisation process for 4 projects involving a total of around 4 MW, which will be implemented in 2022-2023. Specifically, in southern Italy, EF Solare is promoting agrivoltaics projects, a type of installation capable of creating shared value in the area, combining the production of clean energy with local production activities.

Between Italy and Spain, in 2021 the electricity produced and introduced into the network by EF Solare photovoltaic plants, totalled more than 1,300 GWh, thereby avoiding the release of over 600,000 tonnes of CO_2.

OVER 1,300 GWh OF ENERGY PRODUCED IN 2021

MORE THAN 600,000 tCO_2 AVOIDED IN 2021

OUR PHOTOVOLTAIC ENERGY PRODUCTION

+1,300 GWh
OF ENERGY PRODUCED IN 2021

Equivalent to the electricity consumption:

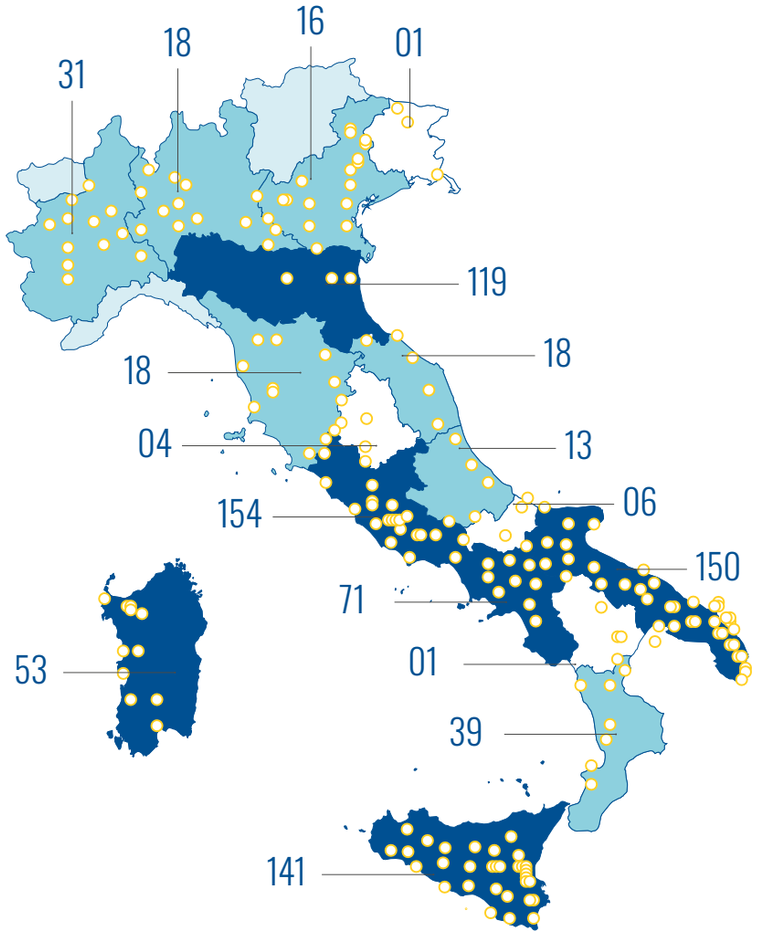
- of a city of a million inhabitants for a whole year
- of more than 480,000 families in a year

+600,000 tCO_2
PREVENTED IN 2021

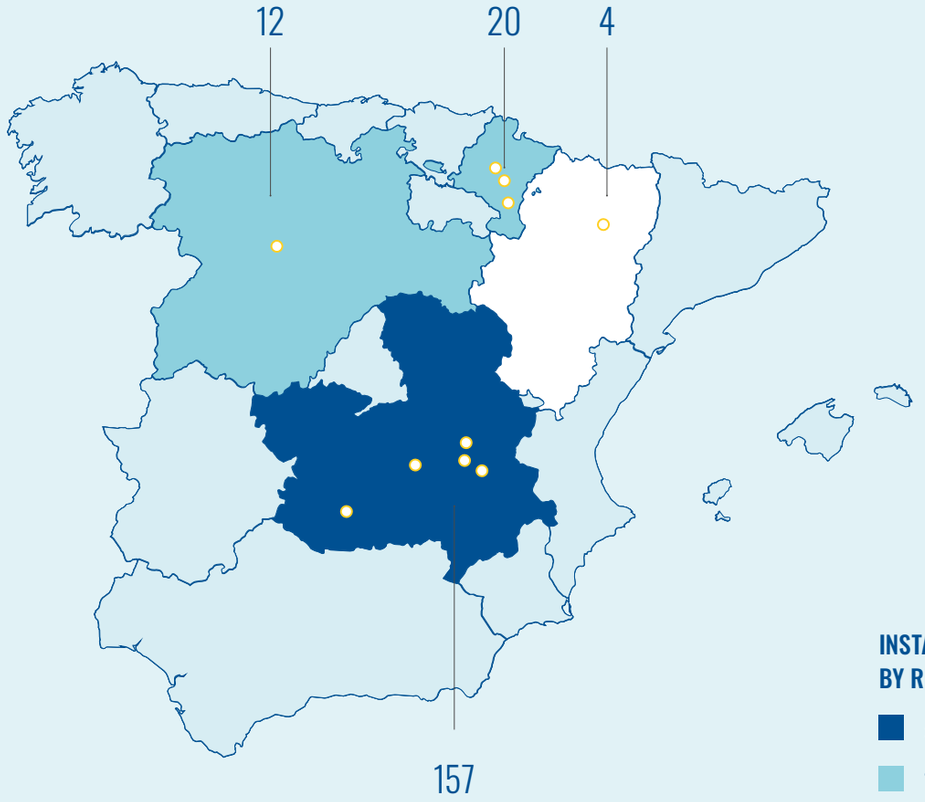
Equivalent to the electricity consumption:

- of more than 3,000 flights from Rome to New York
- generated by emails sent in a year by 4 million employees

PLANTS IN ITALY



PLANTS IN SPAIN



INSTALLED MW BY REGION:

- > 50 MW
- 10 - 50 MW
- < 10 MW
- PLANTS

LOANS IN THE SERVICE OF DEVELOPMENT

In a year marked by significant changes in the organisational and corporate structure, EF Solare Italia managed to remain focused on the implementation of its business strategy, achieving improved economic results. Revenues stood at over €400 million, an increase of almost 4% compared with the previous financial year.

Important financial transactions were also concluded in 2021 to support the development plan for existing and new assets in the period 2021-2024 through the negotiation and activation of additional lines of credit. These activities included the €160 million multi-tranche loan supplied by Crédit Agricole Corporate and Investment Bank, ING Italia, and Intesa Sanpaolo S.p.A. with SACE guaranteeing two tranches, for a five-year period, which will mainly be used for the modernisation and repowering of EF Solare plants in Italy.

The positive impact of the investments that the company will be making in terms of mitigating climate change means that the project reflects the New European Green Deal objectives.

EF Solare's activity is completely in line with European taxonomy, as photovoltaics is an intrinsically sustainable investment. Being sustainable does not, however, only go through regulatory compliance: it also and, above all, requires the ability to actually integrate ESG aspects, in a non-generic way, but applying a selective approach, to focus on the main elements for the business. In this regard, a fundamental challenge for the industry is guaranteeing the sustainability of the value chain and integrating the principles of the circular economy in processes and products. Not least, it will be necessary to keep pushing the boundaries of innovation, developing technological solutions to be able to effectively support energy transition.

Alberto Ponti
F2i - Head of Strategy & Business Development

THE INTEGRATION OF SUSTAINABILITY IN THE STRATEGY

The material topics represent the areas which from a social, environmental and governance point of view are the most important from a dual perspective: the impact on the company and the importance for the context and external stakeholders.

Materiality therefore restores a snapshot of the areas based on the sustainable development strategy of the business. The updating of the topics is therefore a vital stage for maintaining a clear vision of the priority areas in which to develop sustainability guidelines and actions, from a perspective of both opportunities and risk management.

Last year the company launched a process aimed at listening and involving external stakeholders, including their outlook in the materiality analysis. Specifically, interviews were conducted in 2022 with certain parties selected as representing key stakeholder categories, including shareholders, industry associations, partners in training projects, several suppliers, business development partners, leading research institutions and financial operators. The comparison with stakeholders

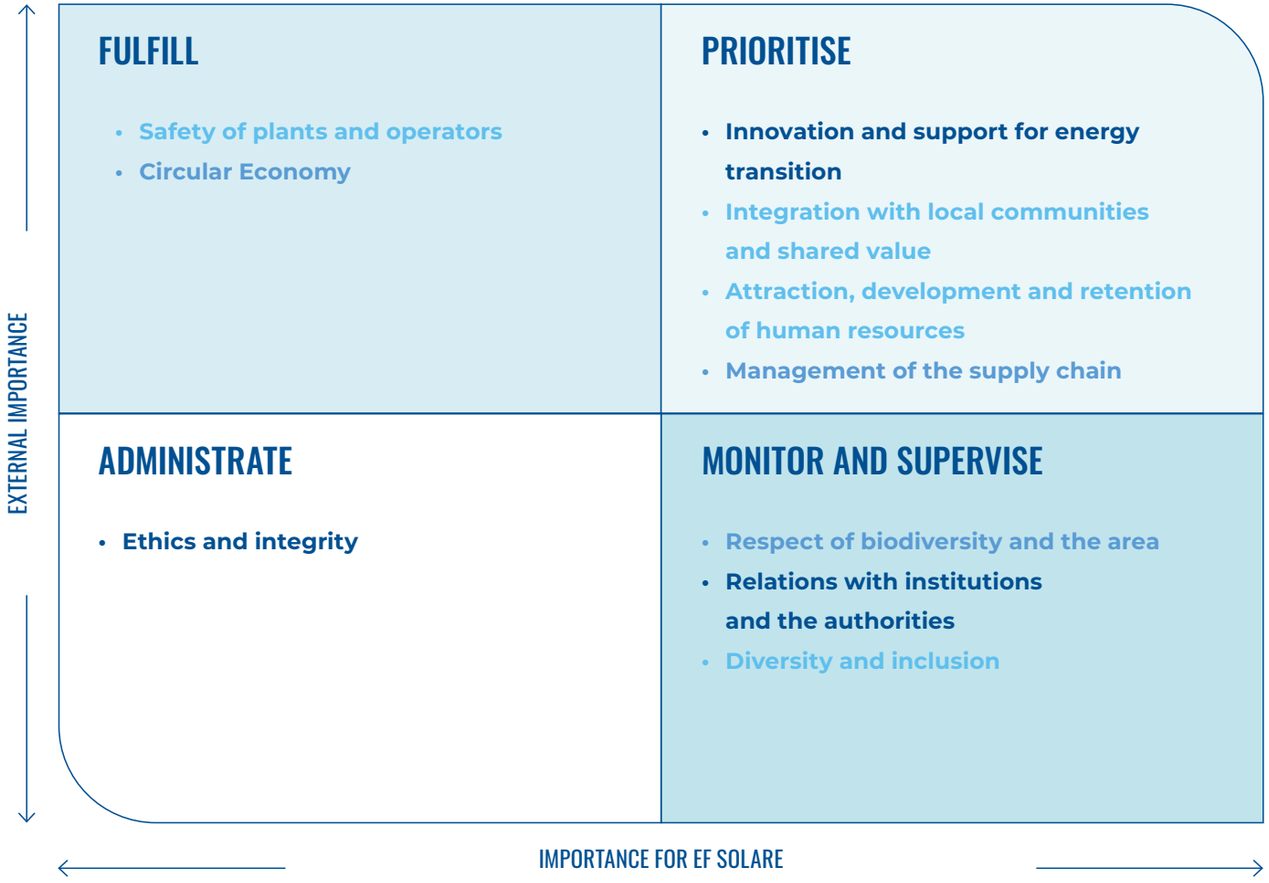
returned a positive perception of the company, acknowledged as being a reliable party with a long-term vision and also offered EF Solare Italia's management areas of improvement on which to focus their attention.

Innovation for energy transition and decarbonisation, in relation to the development of more promising technologies such as the storage of the energy produced and green hydrogen, and achieving market parity for photovoltaic plants, are the most important topics for which stakeholders, specifically financial and institutional ones, expect a strong commitment from the company. Innovation must be accompanied by increasing attention to the reference area, both through the development of new projects integrated with the local setting, and through the development and creation of expertise, understanding the company as a school extended to and aimed at new generations.

Added to this is the matter of the circular economy, which is reflected in the choice of the procurement and disposal of the panels in the development of new plants and the revamping and repowering of existing plants.
The changes made to the materiality matrix following the results of the updating process involve not only the identification of the circular economy as a new material topic, but also the changes in the importance of several topics and related management approaches.
Specifically, the integration with the area and management of the supply chain were deemed by stakeholders as particularly significant subjects: accordingly, the increased importance means EF Solare is committed towards strengthening its oversight, both in organisational terms and especially as far as management processes and practices are concerned.

Conversely, although the theme of ethics and integrity remains absolutely central, it has been repositioned in the area to which a more routine, consolidated management applies; this evaluation can also be interpreted as evidence of the trust placed by stakeholders in the company's way of operating.

2021 MATERIALITY MATRIX



FULFILL
Topics which EF Solare focuses great attention on, managed through an approach mainly directed at conformity.

ADMINISTRATE
Topics overseen in the routine management of the business.

PRIORITISE
Topics that represent current and future challenges on which the company's attention must be concentrated.

MONITOR AND SUPERVISE
Specific topics for the positioning of EF Solare where the company intends to expand their oversight.

- **Social topics**
- **Environmental topics**
- **Economic and governance topics**

MATERIAL TOPIC	APPROACH TO MANAGEMENT	INTERPRETATION OF THE TOPIC
INNOVATION AND SUPPORT FOR ENERGY TRANSITION	**PRIORITISE**	EF Solare Italia presents itself as a vital player in the solar industry for guaranteeing the transition to a low carbon emissions development model, through the generation of new solar power and capacity. A pivotal factor for the company in this regard is technological innovation, enabling ever increasing integration of renewable energy in the energy system.
ATTRACTION, DEVELOPMENT AND RETENTION OF HUMAN RESOURCES	**PRIORITISE**	The company is aware of and focused on the aspects of added value related to hu-man capital and the process of attracting, developing and retaining the best re-sources in the company. EF Solare Italia focuses on the strategic tool of creating new professional skills and expertise in order to be competitive in a rapidly developing sector, where highly-qualified technical and managerial resources must be attracted and retained.
INTEGRATION WITH LOCAL COMMUNITIES AND SHARED VALUE	**PRIORITISE**	The dialogue between businesses, institutions and players in the area is a tool for the cohesion of civil society and for sustainable development. EF Solare Italia recognises this value and is committed to nurture open relations to integrate increasingly in the dynamics of local development.
RELATIONS WITH INSTITUTIONS AND THE AUTHORITIES	**MONITOR AND SUPERVISE**	EF Solare Italia has always been committed to maintaining an ongoing, proactive dialogue at an institutional level and with the industry authorities, making a contribu-tion to the development of the regulatory framework so that it is capable of guaran-teeing the sustainability of investments.
RESPECT OF BIODIVERSITY AND THE AREA	**MONITOR AND SUPERVISE**	The photovoltaic plants are an integral part of the areas: only operating courtesy of natural resources, without however detracting value or changing the equilibrium thanks to the considered choice of location and minimal environmental impacts dur-ing the entire life cycle.

MATERIAL TOPIC	APPROACH TO MANAGEMENT	INTERPRETATION OF THE TOPIC
ETHICS AND INTEGRITY	**ADMINISTRATE**	Ethics and integrity and the core values of EF Solare Italia, which is committed to be-coming a reference in the field for the integration of these values too in the running of the business and management of relations with all stakeholders.
DIVERSITY AND INCLUSION	**MONITOR AND SUPERVISE**	In an industry generally characterised by a low degree of diversity of the workforce, both in terms of generation and gender, EF Solare is committed to expand the diver-sity of the corporate population and guarantee management naturally devoted to diversity and inclusion.
SAFETY OF PLANTS AND OPERATORS	**FULFILL**	Guaranteeing the safety of plants and operators is an ongoing commitment, to which EF Solare Italia responds with the application of management practices and stand-ards aimed at preventing risks and creating a shared corporate culture.
MANAGEMENT OF THE SUPPLY CHAIN	**PRIORITIZE**	The supply chain is deemed to be a fundamental element of the business model, complementary to the management of human capital. The management of the sup-ply chain also has a particularly marked risk and opportunity profile behind it, as it involves a global chain with many players. EF Solare Italia applies good practices of correctness and transparency in the selection and management of relations with suppliers, guaranteeing high-quality, cost-effective standards.
CIRCULAR ECONOMY	**FULFILL**	The transition to a circular economy model is a challenge of enormous scope, which EF Solare Italia is called upon to answer, following the circular economy processes that involve and will involve the industry and the supply chain. This historical mo-ment requires the shift to a development model designed to preserve the value of natural resources for as long as possible, restricting recourse to new raw materials, minimising the creation of waste and promoting the recycling and reuse of the actual panels, where possible.

OUR SUSTAINABLE DEVELOPMENT MODEL

WE MAKE A CONTRIBUTION EVERY DAY TO ACHIEVING THE DECARBONISATION TARGETS SET AT A NATIONAL AND EUROPEAN LEVEL, THANKS TO THE PRODUCTION OF CLEAN ENERGY AND THROUGH THE STRATEGIC TOOL OF INNOVATION

REFERENCE MATERIAL TOPICS

- **INNOVATION FOR ENERGY TRANSITION**
- **ETHICS AND INTEGRITY**
- **RELATIONS WITH INSTITUTIONS AND THE AUTHORITIES**

Photovoltaic power plays an important role in energy transition: it is an evolving industry with enormous development potential, which is also formulating new technologies, such as agrivoltaics, to optimise energy production and, at the same time, minimise the land used.

For its part, EF Solare is a company full of talent in the areas, actively committed to the optimisation of plant performance and presents itself as a leading player in the development and promotion of the agrivoltaic model.

Charles Portalier
Crédit Agricole Assurances
Investement Director - Infrastructure

SOLAR ENERGY FOR ACHIEVING THE GOAL OF CARBON NEUTRALITY

In 2021, in spite of the impacts resulting from the pandemic and the prelude to the crisis that affected the energy markets, renewables grew globally by 257 GW, increasing the green share of the global energy mix by 9%.

The majority of the new capacity (60%) was installed in Asia, with Europe in second place thanks to an additional 39 GW[1].
This increase shows how the increase in the cost of raw materials and transport, due to the combined effect of the pandemic and the international geo-political crisis, although it had an impact on the price of solar panels and wind turbines, did not prevent the expansion in 2021 of renewable sources, which remain the key factor underlying the processes of energy and ecological transition, not only for Europe, but also for other areas of the world.

1. IRENA, Renewable Capacity Statistics 2022.

Analysing the individual technologies, photovoltaic power grew by 17% globally in 2021, with 160 GW of power developed in a year. The scenarios devised by the IEA (International Energy Agency) predict that almost all new power developed from now until 2026 (95%) will be made up of green technologies, with photovoltaic power being the driver: on its own, solar power will represent 60% of new installations[2].

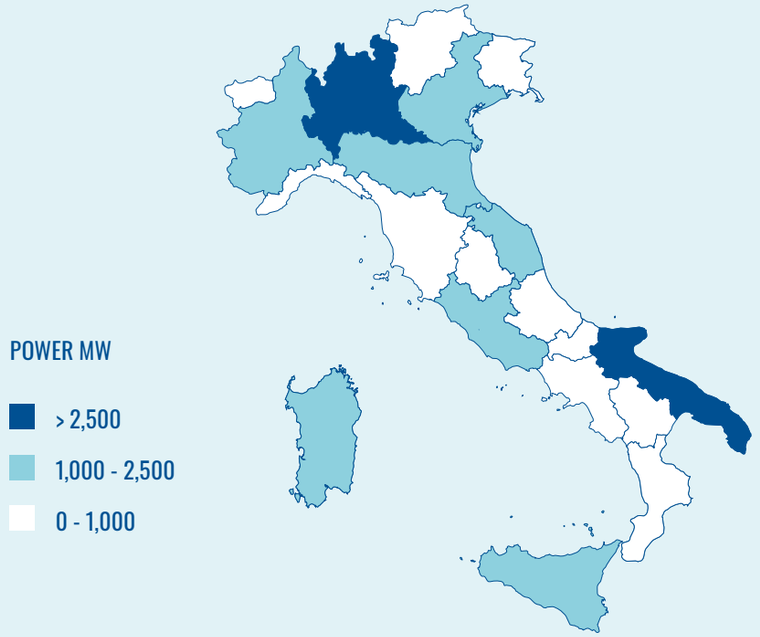
At a European level, new photovoltaic power installed in 2021 reached 25.9 GW compared with 19.3 GW in 2020[3], reaching a total capacity of 186 GW[4]. Once again, Germany was the country with the most installed power in 2021 (5.3 GW), followed by Spain (3.8 GW).

Looking at the Italian market, 935 MW of photovoltaic power was installed in 2021, with the overall cumulative power currently exceeding 22 GW with more than a million plants[5].

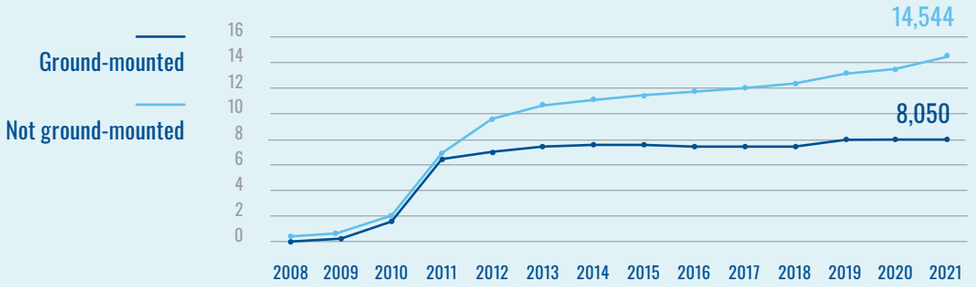
2. IEA, Renewables Market Report 2021.
3. Solar Power Europe, EU Market Outlook.
4. Polytechnic of Milan Renewable Energy Market Report 2022 of the Energy & Strategy Group.
5. Polytechnic of Milan Renewable Energy Market Report 2022 of the Energy & Strategy Group.

SOLAR POWER IN ITALY

Source: GSE 2021



TOTAL POWER GW



THE TARGETS FOR 2030

Reduction of CO_2

-55%

(1990 base)

Increase in energy from renewables

+70 GW

10 times as much needed to achieve these targets

TODAY

Renewables satisfy **36.4%** of demand and represent **41.6%** of national electricity production

Current annual growth **+0.8 GW**

Source: Terna, December 2021

THE REGULATORY FRAMEWORK AND OBJECTIVES OF TRANSITION

In order to achieve the target, set by the Green Deal made binding by the Climate Change Law approved by the European Commission and Parliament in July 2021, which establishes the climate neutrality of the European Union by 2050 and the reduction of emissions by 55% by 2030 compared with 1990 levels, it will be necessary to install about 70 gigawatts of renewable power in Italy over the next ten years, namely 7GW per year.

The same target was also indicated in the Ecological Transition Plan (PTE) of the Ministry of Ecological Transition[6]. Consequently, the targets set in the Integrated National Plan for Energy and Climate (PNIEC)[7], which forecasts that solar power will reach 52 GW in 2030, will be revised upwards and made even more challenging to include the new targets set by the New European Green Deal and "Fit for 55%" package.

Similarly, in Spain the Plan Nacional Integrado de Energía y Clima 2021-2030 outlined an ambitious renewables growth process, with photovoltaic power reaching 39 GW of installed power by 2030, from the current 15 GW.

6. The PTE set a target of an increase of 72% of renewable sources in electrical generation by 2030, which entails the installation of around 70 GW by 2030.
7. The PNIEC set the following targets for 2030: a 55% increase in renewable sources, a 30% share of renewable energy out of final energy consumption and reaching approximately 52 GW of solar energy.
8. Polytechnic of Milan, Renewable Energy Report 2021.

THE CONTRIBUTION OF 1 GW OF NEW INSTALLED PHOTOVOLTAIC POWER[8]

0.63 mln tCO$_2$ per year

EMISSIONS PREVENTED

1.7 TWh/year

ENERGY PRODUCED

THE KEY ISSUES OF THE REGULATORY FRAMEWORK

All these aspects further increased the need for a step change in the development of the sector in Italy, which makes it possible to achieve considerably higher annual installation rates than those observed, exploiting the untapped market potential to the fullest.

This change will only be possible if facilitated by a revision of the current regulatory and legal framework, specifically with reference to the permitting stage. The key issue lies precisely in this stage: the difficulty of gaining authorisation, a necessary prerequisite for investing in new plants of revamping/repowering operations, slows down development and market growth.
The first sign of a step change was launched by the government and the Ministry for Ecological Transition through various regulatory formats coming into effect aimed at simplifying and improving the authorisation processes, such as the "Decreto Legge Semplificazioni", which established the PNRR – PNIEC Technical Commission for procedures to evaluate the environmental impact under state jurisdiction and introduced agrivoltaics as a quid novis compared with ground-mounted photovoltaic power in an agricultural area, allowing access to public reward schemes.
In addition, the Legislative Decree for implementing the European RED II Directive paved the way for the regulatory framework for the adjustment of incentive schemes for renewables involving, among the many new features introduced, the request for the Regions to identify the areas suitable for the installation of renewable plants which could benefit from a reduction in time scales and a simplification of authorisation procedures.

In Spain the regulatory framework is currently more favourable, also thanks to the approval in 2020 of a Decree Law containing various measures regarding authorisation and simplifications for the construction of new plants or upgrading existing ones. These include the regulation of permits for access to and the connection of renewable plants to the electricity grid, the introduction of a new competitive tender mechanism, and several rules aimed at streamlining the authorisation system (for example, operators being exempted from renewing specific authorisations, when carrying out non-essential modifications to generating plants).
This regulatory framework means that overall, the time frames for the construction of a utility-scale photovoltaic plant in Spain are around half of those in Italy.

EF Solare Italia, in this dynamic context of constant change, intends to continue to invest in sustainable growth for the photovoltaic sector, through the development of new plants and the repowering of existing ones, making its contribution to the decarbonisation of the energy system. Increasing room will be given in the investments to the innovation of the sector through the development of new technologies or business models, such as, for example, agrivoltaics and electro-chemical storage.

THE PNRR AND NEW AREAS OF OPPORTUNITY

The National Recovery and Resilience Plan (PNRR), approved by the Italian parliament in April 2021, represents a powerful tool for the sustainable growth of the country.

The efforts for recovery outlined by the plan are developed round three strategic areas, shared at a European level: digitalisation and innovation, ecological transition and social inclusion.

The plan identifies six cross-cutting missions, functional to achieve the economic-social goals defined in the government's strategy. For the "Green revolution and ecological transition" mission, there are plans to allocate 31% of total resources. Internally, the mission breaks down, in turn, into four components: specifically, the "Renewable energy, hydrogen, network and sustainable mobility" component attracts resources of €23.78 billion.

Within this component is the commitment to increase the share of renewable energy, in line with the decarbonisation targets. The expansion of the share of renewables will take practical shape through different areas of investment:

- the development of agrivoltaics, which allows the production of energy without compromising the use of land dedicated to agriculture;
- the promotion of renewables for energy communities and personal consumption, extending the experimental prototypes in this field;
- the promotion of innovative plants, with the construction of offshore plants and experimental technologies;
- the development of biomethane.

In particular, for agrivoltaics, the PNRR plans an investment of €1.1 billion for the installation of 1.04 GW of agriculture-energy production hybrid systems. All projects should have a monitoring system aimed at collecting data both on photovoltaic plants and on underlying agricultural activities and production, in order to evaluate the micro-climate, water savings, the recovery of soil fertility, resilience to climate change and agricultural productivity for different types of crops.

EF Solare Italia wants to make its contribution to achieving the renewable goals established in the PNRR. Specifically, the company has well-established experience in agrivoltaics thanks to expertise acquired in photovoltaic greenhouses. At the end of 2021 the company presented the prototype of a new zero ground consumption agrivoltaic model in Scalea, in conjunction with their agricultural partner Le Greenhouse and Convert Italia.

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AGRIVOLTAICS: TECHNOLOGICAL INNOVATION FOR ENERGY TRANSITION AND INTEGRATION IN THE AREAS

MARKET PARITY, THE MAIN CHALLENGE FOR THE INDUSTRY

In order to manage to make a significant contribution to the decarbonisation of the energy sector, renewable energies must overcome the challenge of market parity, setting itself economically-sustainable alternatives in the long term.

This means being capable of offsetting the plant construction and running costs with the profits generated by the market, gradually reducing the support from public reward schemes.

At the moment the electricity market is marked by great upheavals, which create new opportunities for renewables: since the second half of 2021 the retail price of electricity has been subject to continuous increases, caused by the rise in the price of gas and CO_2, hitting a peak in the month of December 2021, with a second rise in February 2022, corresponding to the start of international geo-political tensions. It is important in this context to consider the role that renewables could have in controlling energy prices: the increase in the supply of green energy at zero marginal cost would actually allow prices to drop steeply during the hours of the day when renewable plants are introducing more energy.

To facilitate the development of large renewable projects in the future, investors and industry operators need to be given signs of stable prices. In this respect, the main instruments are the long-term scheduling of public tenders and PPAs (Power Purchase Agreements). This would also have the benefit of promoting a reduction in the purchase price of electricity for consumers.

We have an historical, well-established relationship with EF Solare, the leading player in the industry, in which we acknowledge the special attention paid to optimising performance and the efficiency of its solar plants. For this reason, we are convinced that the revamping programme which EF is committed to is strategic, both for the actual company and for the entire industry, with a 360° importance: revamping the plant means making them increasingly safer, making them sustainable and having the possibility of implementing and applying the most modern technologies.

Sergio Agosta
Terna Energy Solutions – Chief Executive Officer

AN INTEGRATED STRATEGY

The long-term strategy of the company captures and follows the sector trends basing itself on four pillars, fundamental for achieving market parity in the near future.

TECHNOLOGY
Increasingly digitalised smart maintenance of plants and significant revamping and repowering operations.

ECONOMIES OF SCALE
To increase the revenue streams and stabilise cash flows over a period of time.

INTEGRATED APPROACH TO THE MARKET
To make operational management more efficient through a significant plant portfolio.

FINANCE
Research and development into innovative financial instruments to give access to the financial resources needed to support the long-term development of the sector.

Investments in revamping and repowering are aimed at improving the efficiency of existing assets with the same soil use. The technological modernisation plan of the plants continued in 2021.

Specifically, 125 MW of retrofit operations were carried out involving modules, inverters, anchorage structures, as well as the reconditioning of minor components, correcting the effects of any under-performance caused by defective equipment.

The insourcing of Operations & Maintenance (O&M) activities, continued this year too, operational control of plants increased favouring technical performance and longevity. In 2021 EF Solare's O&M managed 87 plants located in Sicily, Apulia, Campania and Molise with a total of 227 MW in house.

45 MW
OF MODULES REVAMPING IN 2021

85 MW
OF INVERTERS REVAMPING AND RETROFIT IN 2021

TECHNOLOGICAL INNOVATION AT THE SERVICE OF PERFORMANCE

Innovation is a vital tool for achieving the decarbonisation goals on one side and reaching market parity for the sector on the other side. With this in mind, EF Solare Italia operates to identify, investigate, implement in its business and lastly promote the dissemination in the sector of the best technological innovation opportunities, with the goal of maximising the performance of assets and optimising management.

In 2021 the company launched a widespread digitalisation process for the management of solar plants, equipping itself with an integrated monitoring system capable of collecting all the data on the production and availability of the plants in a single platform, making it possible to identify the status of the assets and the possibility of optimising them through prompt corrective maintenance. In 2021 the project involved 139 plants and 427 MW, in ten different regions.

An important new feature also involved the actual tools used in maintenance activities. In 2021 EF Solare launched a multi-year programme of thermal-imaging analysis using drones, a technology that makes it possible to identify the main problems of photovoltaic module malfunctions by measuring differences in temperature between various parts of the modules. The project involves a variable number of inspections on all the plants, based on the problems detected, for a total of approximately 2 GW over 3 years. An innovative web-based platform was also developed, which allows the immediate use of the data coming from the thermal imaging, in order to be able to schedule any prompt interventions. Thanks to these increasingly more detailed analyses, it has been possible to further optimise routine and extraordinary maintenance activities, as well as schedule any revamping and repowering operations more effectively.

LEARN MORE

EF SOLARE'S INTEGRATED MONITORING

LEARN MORE

THE PROJECT FOR THERMAL IMAGING ANALYSIS USING DRONES

EF Solare is firmly committed to pooling experience and knowledge, promoting new expertise for energy transition. This commitment is demonstrated by active participation in Elettricità Futura working groups, as well as belonging to numerous initiatives, from the communication campaigns promoted by the association, to the creation of webinars and themed events, up to participation in the Accademia del Sole, a training project on photovoltaic power dedicated to young people.

Agostino Re Rebaudengo
Elettricità Futura - President

ASSETS UNDER PUBLIC DEBATE

EF Solare is devoted to strengthening its public commitment, promoting and taking part in the main industry initiatives, and making its contribution through a constructive, ongoing dialogue with the main reference players and the development of a regulatory framework that is favourable to the growth of the sector. The development of the frameworks and the simplification of the authorisation processes, together with expanding know-how and technological innovation, are the vital elements for accelerating energy transition.

In 2021 the company participated in 18 events as a speaker, including sponsoring the international conference of the Italian Electrotechnical Association and the XVI edition of the Trento Economics Festival. The company made a significant contribution to the dissemination of awareness of the world of photovoltaic power and to insights into innovations under development in the industry, through collaboration in and the sponsorship of various research projects.

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THE REGULATORY FRAMEWORK AND OBJECTIVES OF TRANSITION

THE CONTRIBUTION TO AWARENESS OF THE SECTOR: EF SOLARE ITALIA'S COLLABORATION IN RESEARCH PROJECTS

01

IREX ANNUAL REPORT 2021
The development of the Italian electrical system. Renewables, infrastructure, hydrogen

Althesys

Picture of the renewables sector in its entirety, starting from strategic trends to the performance of investments, by way of the serious challenges presented by storage and green hydrogen.

02

THE DESIGN OF THE AUTHORISATION SYSTEM FOR DECARBONISATION AND RELAUNCHING INVESTMENTS

Elettricità Futura
study conducted by Althesys

Study of the characteristics and current configuration of the permitting system, highlighting the critical areas and quantifying the costs, with the goal of relaunching the design of a more efficient authorisation chain.

03

RENEWABLE ENERGY REPORT 2021
The European Green Deal: a laboratory of ideas for the development of renewables in Italy

Energy & Strategy Group
Polytechnic of Milan

Thorough investigation into the state and development prospects of the world of renewable energy, with a focus on the post-pandemic recovery and the role of the PNRR as a catalyst for funds and investments in the sector.

04

HYDROGEN INNOVATION REPORT 2021

Energy & Strategy Group
Polytechnic of Milan

Analysis of the state of the technology and the potential associated with hydrogen: processes featured in the production phase, regulatory opportunities, market dissemination potential.

In 2021 EF Solare actively participated positively in the institutional discussion aimed at defining clear regulatory framework for enabling the agrivoltaic sector. The company also took part in round table discussions with Elettricità Futura and Italia Solare and in the first national network launched by ENEA for the promotion of sustainable agrivoltaics. It also collaborated in the preparation of the "Linee guida sull'applicazione dell'agro-fotovoltaico" [Guidelines for the application of agrivoltaics] published in December by the University of Tuscia. Lastly, a popular article was published in the industry journal L'Energia Elettrica[9], which illustrates the ten-year experience of the company in the field.

PARTICIPATION IN INDUSTRY ASSOCIATIONS

Elettricità Futura	Italia Solare
AIET	ISES Italia
CEI - Comitato Elettrotecnico Italiano	SolarPower Europe

9. "The opportunities of agrivoltaics in Italy - The experience of EF Solare", Michela Demofonti, Giuseppe Noviello, L'Energia Elettrica - number 5 - volume 98 - September/October 2021.

ETHICS AND INTEGRITY

The principles of responsibility and standards of behaviour that guide the company when conducting its business are summarised in the Code of Ethics, which, first and foremost, commits employees, but also all those working towards achieving the company's objectives, from shareholders to suppliers.

EF Solare Italia attentively supervises compliance with the Code of Ethics, with adequate prevention and control information tools and procedures. The EF Solare Italia Supervisory Body has guarantee functions.
The corporate document is part of a wider internal audit and risk management system, centred around the Organisation and Control Model in conformity with Legislative Decree 231/2001. The Model is periodically reviewed, so that it is constantly updated in line with legislative amendments and complies with organisational changes.

With regard to the topics governing privacy, in 2021 EF Solare made improvements to the Privacy Model to make it more responsive to the business context, alongside this updating information to adapt it to privacy topics connected with the health emergency and green pass requirement.

In addition, all the necessary activities for selecting and appointing a Data Protection Officer (DPO) outside of the organisation were implemented in 2021 and formalised in January 2022.

VALUES FOR RESPONSIBLE BUSINESS MANAGEMENT


IMPARTIALITY


HONESTY


CORRECTNESS IN THE CASE OF POTENTIAL CONFLICTS OF INTER-EST


FAIRNESS WHEN EXERCISING AUTHORITY


CONFIDENTIALITY


RELATIONS WITH SHAREHOLDERS AND DEVELOPING THEIR INVESTMENT


VALUE OF HUMAN RESOURCES AND PROFESSIONAL DEVELOPMENT


PERSONAL INTEGRITY


TRANSPARENCY AND COMPLETENESS OF INFORMATION


DUE DILIGENCE AND CARE WHEN EXECUTING TASKS AND CONTRACTS


FAIR COMPETITION


PROTECTING THE ENVIRONMENT AND SUSTAINABLE DEVELOPMENT

IN THE ENVIRONMENT AND FOR THE ENVIRONMENT

OUR ACTIVITIES ARE COMPATIBLE WITH THE ENVIRONMENT WHICH THEY ARE A PART OF, THANKS TO THE OPTIMISATION OF PERFORMANCE AND ATTENTION TO THE CIRCULAR ECONOMY PRINCIPLES

REFERENCE MATERIAL TOPICS

- **RESPECT OF BIODIVERSITY AND THE AREA**
- **MANAGEMENT OF THE SUPPLY CHAIN**
- **SAFETY OF PLANTS AND OPERATORS**

The integration between solar power and the world of agriculture is a vital strategic lever for achieving the decarbonisation targets and, at the same time, developing the areas and their specific needs.

There are players like EF Solare who have promoted these innovative models like agrivoltaics. The new prototype constructed in Scalea is a model of excellence, capable of generating 4.0 new, digital farms, with significant external benefits for the area.

Mariangela Lancellotta
Le Greenhouse – Co-founder

AGRIVOLTAICS: TECHNOLOGICAL INNOVATION FOR ENERGY TRANSITION AND INTEGRATION IN THE AREAS

Photovoltaic technology, by converting the insolation of the sun into electricity, is intrinsically clean. When operating, the plant does produce climate-changing gas emissions.

The main environmental impact, or at least the generally-perceived one, is the land use in the case of ground-mounted installations. However, consider that to install the approximately 30 GW of additional photovoltaic power required by the PNIEC (Integrated National Plan for Energy and Climate), 0.5% of the agricultural areas used would be sufficient or 4% of the agricultural areas not used[10]. There is an installation method that makes it possible to reduce the use of these minimal land percentages to almost zero: the agrivoltaics.

10. Polytechnic of Milan, Renewable Energy Report 2021 of the Energy & Strategy Group.

EF Solare, which has for many years been engaged in the management of approximately 30 MW of photovoltaic greenhouses, supports the dissemination of a new agrivoltaic model in which the electricity production plants are integrated with agricultural activity, through raised structures supporting the panels.

Various studies bear witness to the environmental benefits of agrivoltaics. The micro-climate underneath the modules stays cooler in summer and warmer in winter, reducing irrigation evaporation rates in summer months, improving the photosynthesis of the crops which are able to better resist the heat and also improving the performance of the photovoltaic modules, which take advantage of the lower temperatures. Another benefit is the reduction of the water footprint. The quantity of water used is 70% lower than for open-field cultivation.

Agrivoltaic projects are therefore a great opportunity for combining the country's decarbonisation requirements with safeguarding agricultural and animal husbandry activities, at the same time combating the abandonment of the land through promoting investment to the benefit of the competitiveness of agricultural businesses.

THE ADVANTAGES OF AGRIVOLTAICS FOR AGRICULTURE

01

AGRIVOLTAICS COMBATS THE ABANDONMENT OF AGRICULTURAL LAND, INCREASING PRODUCTIVITY.

Between 2000 and 2017 every year in the EU approximately 80,000 hectares of agricultural land was lost on account of abandonment.[1]

02

AGRIVOLTAICS CREATES NEW EMPLOYMENT OPPORTUNITIES IN RURAL COMMUNITIES FOR THE AGRICULTURAL SECTOR AND FOR THE SERVICE INDUSTRY.

In rural areas of the EU youth unemployment increased at an average rate of 18% in 2015-2017. Solar power is the energy source that creates the most jobs per MW installed.[2]

03

AGRIVOLTAICS BOOSTS INVESTMENTS WHICH INCREASE THE COMPETITIVENESS OF AGRICULTURAL BUSINESSES THROUGH DIGITALISATION AND DIVERSIFICATION OF RISK.

Several studies show how thanks to agrivoltaics the income for an agricultural business can increase by more than 20%.[3]

04

AGRIVOLTAICS HELPS DECREASE THE WATER FOOTPRINT FOR AGRICULTURE, REDUCING EVAPOTRANSPIRATION.

The crops in our photovoltaic greenhouses used 70% less water compared with traditional crops with an annual saving of more than 5 million litres of water per hectare.[4]

05

THE PHOTOVOLTAIC PANELS PROTECT THE CROPS FROM EXTREME WEATHER EVENTS DUE TO CLIMATE CHANGE, HIGH TEMPERATURES, WATER SHORTAGES AND NEW PARASITES, ALLOWING THE AGRICULTURAL BUSINESS TO CUT HARVEST INSURANCE COSTS.

In 2007-2016 ground temperatures in the EU were approximately 1.6 °C higher compared with the pre-industrial period.[5]

Fonti:
1. - 2. - 5. SolarPower Europe – Agrisolar Best Practices Guidelines 2021.
3. Dinesh et al. (2016) – The potential of Agrivoltaic systems.
4. Last year we consumed 1,400,000 litres of water per hectare compared with 6-7,000,000 litres of water per open field.

GLOBAL AGRIVOLTAICS

Many countries, like France, China, Japan and the United States, are already convinced of the development of agrivoltaics, promoting innovative, sustainable and technologically-advanced solutions.

NON–EU

More than 1,800 agrivoltaic plants are currently installed in **Japan**.

China has installed 1.9 GW of agrivoltaic plants including the largest facility in the world with a power of 700 MW near the Gobi Desert in which berries are cultivated to combat the desertification of the area.

In **South Korea**, the government plans to install 100,000 agrivoltaic projects in farms.

EU 27

In **France**, since 2017 separate auctions have been held for agrivoltaic projects. In 2020, new agrivoltaic capacity of 80 MW was awarded.

Agrivoltaic R&S projects were supported in **Germany** (e.g. research activities at the Fraunhofer Institute for Solar Energy Systems ISE). At the beginning of February 2022, the German government announced the implementation of over 200 GW in agricultural areas.

Europe offers great potential for agrivoltaics. If agrivoltaic projects were installed on 1% of European agricultural land, it would be possible to install more than 900 GW of agrivoltaics.

THE TEN-YEAR EXPERIENCE OF EF SOLARE

EF Solare has been committed to agrivoltaics for more than ten years as a lever for integrating in the areas and contributing to the implementation of integrated solutions to support energy transition, at the same time returning the land to centre stage.

This experience began with the construction of photovoltaic greenhouses on the Tyrrhenian and Ionian coast of the province of Cosenza, in Calabria, and it continued with the acquisition of facilities of the same type in Umbria and Sardinia. Mainly citrus fruits were cultivated in the greenhouses (lemons, citrons, oranges) and goji berries.

The approach adopted is respectful of the traditions of the area, but, at the same time, mindful of modern technologies. It is actually possible to support the development of innovative, digitalised types of agriculture underneath the photovoltaic greenhouses. All the plants grown are constantly monitored through sensors that measure different agronomic factors, making it possible to guarantee the best possible growing conditions for the crops and improving the agronomic results achieved compared with open-field cultivation. Simply think that the lemons grown in Sicily in the greenhouses are the same quality as the IGP lemons grown in open fields.

OUR PHOTOVOLTAIC GREENHOUSES

+30 MW
OF INSTALLED CAPACITY

+44 mln
KWH PRODUCED PER YEAR*

+20 mila
OF CO_2 EMISSIONS AVOIDED

~17.000
PLANTS GROWN

*capable of satisfying the electricity requirements of more than 16,000 families.

RESPECTING THE SPECIAL FEATURES OF THE AREAS AND BIODIVERSITY

For these two assets to coexist happily constant dialogues with the communities throughout every stage is vital. For this reason, EF Solare always starts with observing and studying the special features of the area (natural, geomorphological, production, human).

LEARN MORE

SMART HIVES IN EF SOLARE'S PHOTOVOLTAIC GREENHOUSES

It was decided to cultivate native species in the EF Solare greenhouses, like citrons in Calabria or the Sardinian "pompìa" (a citrus fruit that has almost disappeared) in Milis. In this way a contribution is being made to maintaining traditions that are thousands of years sold, appreciating the areas and their history.

Always with a view to protecting biodiversity, the Scalea and Orsomarso photovoltaic greenhouses have smart beehives that control the presence of the bees, a species particularly threatened by climate change. It is possible to remotely monitor the weight of the hive in the greenhouses and other parameters aimed at assessing the well-being of the bees. In recent years, the results that have emerged from monitoring the activities of the bees, including pollination, were positive and have confirmed a virtuous coexistence between photovoltaic greenhouses and the biodiversity of the external environment. This project has also contributed to raising awareness of the topic to a large number of operators working in the greenhouses.

A NEW AGRIVOLTAIC MODEL - THE SCALEA PROTOTYPE

The successful experience of photovoltaic greenhouses led the Group, together with their historical agricultural partner Le Greenhouse and Convert Italia, a company specialised in the provision of solar tracker systems, to develop a new, innovative agrivoltaic model, originating from the mutual sharing of skills and expertise gained in their respective areas over the years.

The new 2.0 agrivoltaic solution does not use up land, and is capable of satisfying the needs of open-field cultivation while at the same time maintaining the benefits of agrivoltaics detected under the greenhouses, such as shade and water saving, always starting from the observation and analysis of the special features of the area.

The model, which combines technological innovation and awareness of the environment and social impacts, was presented at the convention organised every year by EF Solare, which was held in Scalea in 2021, where the first prototype was built.

New agrivoltaics involves the selection of preferably double-sided panels to capture as much energy as possible and the use of structures with solar trackers, without concrete foundations, an aspect which guarantees that the installation is fully reversible. The structures, adequately spaced to allow agricultural activity (also allowing the use of mechanised agricultural equipment), are approximately 3 metres tall.

The mono-axial trackers are then integrated with the crop irrigation and spraying systems and with the digital monitoring systems which can be programmed and managed remotely, which track the agronomic parameters of the plants and their growth, to guarantee the best growing conditions for the crops. This configuration provides a ground shade index of between 15% and 30% guaranteeing the right amount of direct light and diffused light. The approach at the basis of the model, in keeping with what was carried out in the greenhouses, is to start from the research into the characteristics of the area and its crops, choosing those related to the tradition and taking native species into serious consideration.

LEARN MORE

AGRIVOLTAIC

A SUMMARY OF THE NEW 2.0 AGRIVOLTAIC MODEL

01 BIFACIAL SOLAR PANELS

02 STRUCTURES ATTACHED TO THE GROUND, 3 METRES TALL, WITH NO CONCRETE FOUNDATIONS

03 ADEQUATE SPACING BETWEEN THE ROWS TO ALLOW AGRICULTURAL ACTIVITY

04 SUN TRACKER SYSTEMS

05 IRRIGATION SYSTEMS INTEGRATED IN THE PANEL SUPPORT STRUCTURE

06 DIGITAL MONITORING SYSTEMS TO TRACK THE AGRONOMIC PARAMETERS OF THE PLANTS

07 CROPS CHOSEN ON THE BASIS OF CHARACTERISTICS AND THE TRADITION OF THE AREA

EF SOLARE'S ANNUAL CONVENTION

EF Solare's annual convention focused specifically on agrivoltaics, "Transition2Green: the contribution of agrivoltaics". After skipping a year because of the health emergency, the convention was held in Scalea where the Group presented a preview of the prototype of the new agrivoltaic model. Thanks to numerous contributions, the convention made it possible to compare different points of view and collect ideas and suggestions for the future.

The convention also provided an opportunity to discuss current energy and agricultural topics, through reports and accounts from the main industry institution and body representatives.

It was very well attended, with the presence of speakers from the institutional (GSE, ENEA, senators of the Republic) and academic world (University of Tuscia, RSE Scientific Council).

LEARN MORE

EF SOLARE
2021 ANNUAL
CONVENTION

THE LIFE CYCLE OF THE PLANTS: ENVIRONMENTAL IMPACTS AND SUSTAINABILITY

EMBODIED CARBON AND COMPLIANCE WITH EUROPEAN TAXONOMY

Any solar plant does not produce climate-changing gases in the operational phase. Indaylight hours when it is working, can self-supply the auxiliary services using the electricity produced.

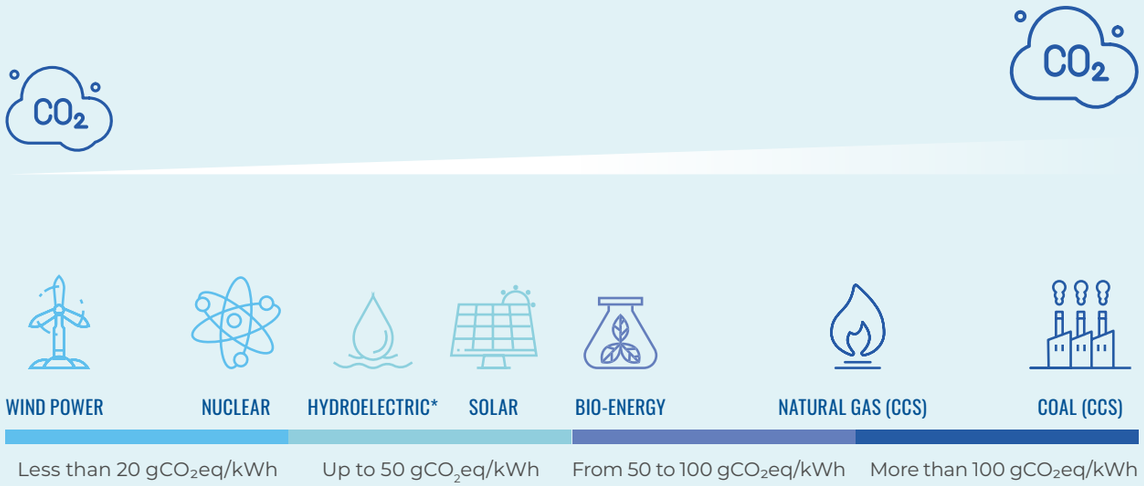
The main impacts in environmental terms involve other phases of the life cycle of the plant, namely the production of main components (panels, inverters, transformers), support structures and components, transport, construction and maintenance of the actual facility and, lastly, disposal of the photovoltaic cells at the end of their useful life. Various academic studies have highlighted that the emissions generated in these phases, so-called embodied carbon, overall have less impact compared with those related to fossil technologies, in addition to being comparable with those of other technologies like wind and nuclear power.

The production of electricity through photovoltaic technology has embodied carbon which does not exceed 50 gCO_2eq/KWh[11]: in this sense, the solar chain is already structured to be compliant with the new European Regulation 2020/852, namely the Taxonomy of sustainable investments, which will affect the flow of financial resources to the industry in the near future. For the energy sector, the Taxonomy establishes a maximum carbon footprint of 100g CO_2 for the production of 1kWh of electricity.

As well as complying with this threshold, unless ineligible on account of the Taxonomy, no significant harm should be done to the other objectives set by the Regulation, such as safeguarding biodiversity and respecting the circular economy principles, guaranteeing that the panels and associated components are produced with a view to lasting as long as possible, are easy to dismantle, reconstruct and recycle.

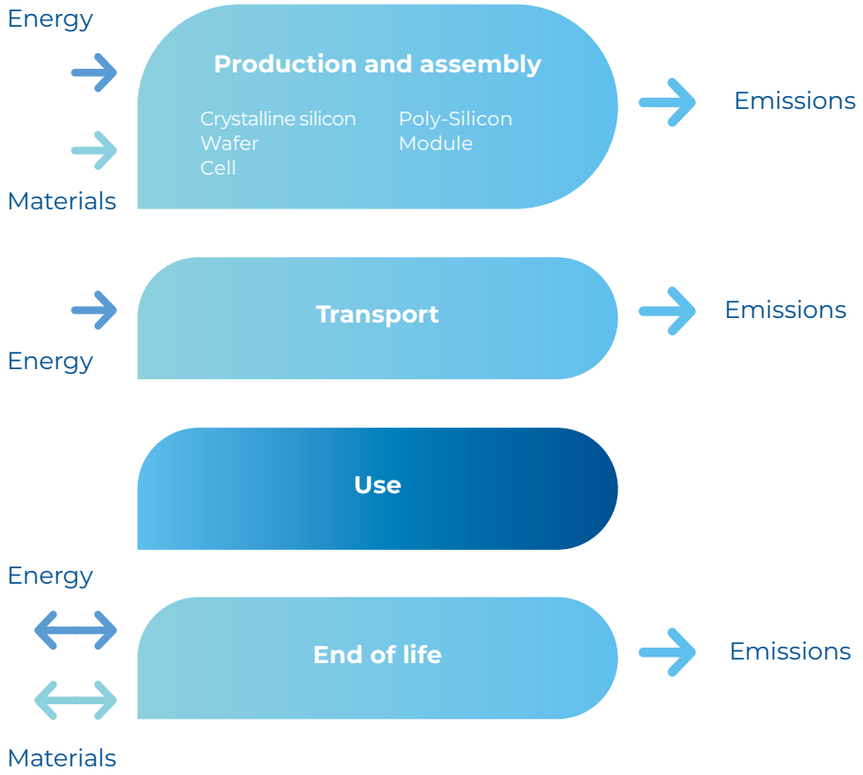
11. IPCC, Chapter 7 - Energy Systems.

ELECTRICAL PRODUCTION AND CARBON FOOTPRINT



*excluding reservoirs.

THE LIFE CYCLE OF PHOTOVOLTAIC PLANTS[12]



12. Polytechnic of Milan, Renewable Energy Report 2022 of the Energy & Strategy Group.

SAFEGUARDING BIODIVERSITY

The choice of the location of the plants depends, in the first place, on economic evaluations based on insolation and the exposure of the land, and the complexity of connecting to the electrical grid. During the authorisation process the environmental impacts of the plants are examined in order to preserve and protect biodiversity, the natural habitat, the hydro-geological structure as well as the archaeological heritage of the areas.

EF Solare Italia also focuses on initiatives that make it possible to create self-consumption systems or ones which use decommissioned industrial areas, quarries or former mines, minimising the environmental impact and recovering land for the use of communities.

That's not all: specifically, in agrivoltaic facilities, safeguarding biodiversity and specific crops is a vital element.

GO TO THE PAGE

RESPECTING
THE SPECIAL
FEATURES OF
THE AREAS AND
BIODIVERSITY

Solar power is a strategic sector for transition towards a model based on a low carbon emission. The main challenge that the industry presently faces is to integrate the principles of a circular economy from the very first phases of the construction and development of the panels, to guarantee the most correct, prudent possible use of the resources, as well as maximising the useful life of the panels. With this in mind, the attentive, robust management of the global supply chain of the panels by all operators is vital.

Marianna Di Saverio
SACE – Environmental Risk Analyst

THE USE OF RESOURCES AND CIRCULARITY

To date, the industry finds itself facing a constant increase in actual and future volumes of decommissioned panels. The growth in photovoltaic waste undoubtedly represents a challenge at an environmental level, but also the opportunity to create new value through the recovery of materials and adoption of business models related to the reuse and integration of circular economy criteria.

Italian regulations include a strict framework to prevent the dispersion into the environment of pollutant materials and to optimise the recovery of materials in the panels which can be recycled.

In the chains it is actually possible to separate raw materials and materials such as glass, aluminium, plastic, copper, silver and silicon, or cadmium telluride, depending on the type of panel, with recovery percentages ranging from a minimum of 85% reaching 95%. Specifically, the management of photovoltaic waste is regulated by Legislative Decree 49/2014

on WEEE, which implements European Directive 2012/19/EU on electrical and electronic equipment waste. The regulation requires the collection of 85% and recycling of 80% of the materials used in the panels, percentages which are then reached within the panel recovery chain.
The producers of the panels are responsible for their recycling and disposal, including through the membership in a consortium that ensures their correct end of life.
As far as reuse is concerned the chain is faced with a great opportunity: managing to regulate and maximise the possibility of reusing the panels, a practice that will play an important role in extending the useful life of the modules, preventing premature disposal and giving the panel a new life with an extra ten years, which may even extend to another 15 years.

With regard to the use of resources, the direct impact on water resources should be pointed out. This involves the washing of the surfaces of the panels which is carried out at least once a year. The estimated water consumption for every megawatt installed is around 8,000 litres.

Taking all these elements into consideration, EF Solare Italia is committed to develop sustainable procurement policies and make its operations increasingly more eco-efficient in time maximising the performance of its plants and keeping the environmental impacts associated with their maintenance to a minimum.

The company is also committed to make its corporate activities more eco-sustainable, through the implementation of various initiatives.

THE SUSTAINABILITY OF CORPORATE ACTIVITIES

Leasing hybrid vehicles for sustainable mobility with reduced CO_2 emissions

Adaptation of printers to eco-compatible systems (print and share and withheld printing) to reduce paper and electricity consumption

Installation of a raggiera at the Trento office for employees who want to travel by bicycle, to facilitate sustainable mobility

Use of water dispensers with 100% recycled eco-compatible plastic

6.8 mln
LITRES OF WATER USED PER YEAR FOR WASHING THE PANELS IN ITALY

100%
OF WASTE PRODUCED FROM MAINTENANCE AND REVAMPING ACTIVITIES SENT FOR RECOVERY

96%
OF ELECTRICITY PROCURED FOR THE OFFICES COMES FROM RENEWABLE SOURCES

OVER 100,000
IN INVESTMENTS IN ENVIRONMENTAL MANAGEMENT

THE CARBON FOOTPRINT OF EF SOLARE ITALIA

SCOPE 1

268 tCO_2

Direction emissions from:
- use of fuels for heating
- use of fuels for the company fleet

SCOPE 2
(MARKET BASED)

8,358 tCO_2

Indirect emissions from the purchase of electricity intended for the operation of:
- offices
- auxiliary facilities

SCOPE 3
(ITALY)

2,206 tCO_2

Indirect emissions resulting from organisation activities:
- paper consumption
- business travel
- business travel accommodation
- estimated mileage for O&M activities

FOR RESPONSIBLE PROCUREMENT

The selection and management of suppliers is a fundamental aspect for creating and maintaining a sustainable supply chain.

464
SUPPLIERS ON THE REGISTER

540
ACTIVE SUPPLIERS

85
SUPPLIERS APPROVED DURING THE YEAR

Aware of this, since 2021 the selection and approval process for suppliers also takes into account their environmental and social performance, with the goal of becoming a driver of sustainability along the entire value chain.

Already at the end of 2020, the company launched a first initiative for exploring the management of ESG topics (Environmental, Social and Governance) by business partners, creating a database with suppliers filling out a questionnaire aimed at looking into the presence of various sustainability safeguards.

An organic, structured process was launched in 2021 in conjunction with an external partner, for the ESG evaluation of all suppliers through a ratings system. Alongside this, at the begining of 2022 a digital procurement platform has been launched, which will be directly connected to the social and environmental evaluation of suppliers, offering a complete overview for every supplier.

AN INTEGRATED MANAGEMENT SYSTEM FOR SAFETY AND THE ENVIRONMENT

EF Solare Italia operates and manages its activities in order to reach "Target Zero": zero accidents, zero occupational illnesses and zero environmental accidents.

LEARN MORE

ISO CERTIFICATION

The company is committed to constantly guarantee the safety of facilities and workers, applying the best management procedures and practices, and promoting a shared health and safety culture among employees and workers.
A process was launched in 2020 that involved the entire company and in 2021 allowed it to obtain two of the most important international certifications:

- certification for the management of the environmental impacts of the business, international reference standard ISO 14001, which defines an important, clear environmental management system to be integrated in the corporate processes system;
- certification for the management of occupational health and safety, international reference standard ISO 45001, which offers guidelines for structuring a risk management and mitigation system for occupational health and safety, and the promotion of increasingly safer practices.

These ISO certifications were issued at the end of April 2021 by RINA, which was the certification body. In spite of the difficulties ensuing from Covid-19, numerous audits and inspections were conducted between 2020 and 2021, certifying the quality of the work cared out.
To achieve these two certifications it was designed and built a Integrated Management System for the protection of the Environment and Health and workers safety: the significant corporate processes, managing the non-conformities detected and the related corrective measures, preparing the plan of action and monitoring the achievement of the annual environment and workplace safety targets, updating and integrating the corporate HSE policy accordingly.

The adoption of the Integrated Management System for the Environment and Workplace Safety led to identifying the HSE tasks, responsibilities and processes within the organisation, clearly and efficiently, at the same time gaining more sensitivity and awareness of HSE topics, and contributing to an even more efficient management of the core business.

SAFETY AND SECURITY OF SYSTEMS

The safety of the systems is the vital elements for being able to guarantee the continuous, efficient production of clean energy, preventing the risks of intrusions by unauthorised persons in the plants, the theft of materials, breaks in production. To meet this challenge, EF Solare Italia combines a mix of cutting-edge technologies (thermal cameras - Day & Night, microwave or infra-red barriers, differentiated pressure underground pipes, microphone or fibre optic cables).

In 2021, EF Solare implemented a new safety management model according to which the companies that are awarded tenders can follow the entire process related to security: from the maintenance of safety equipment to the management of the control room, from the management of the connectivity necessary for the management of the alarms to the rapid response services if an alarm goes off.

The close cooperation established with the security companies appointed will make it possible to achieve greater awareness of the management of security for each area and facility, each of which has its own specific plant engineering requirements.
Investments are continuing alongside this to improve the efficiency of anti-intrusion systems, with the goal of constantly improving the quality of the services available.

LEARN MORE

OPTIMISATION OF THE SAFETY AND SECURITY OF PLANTS

PEOPLE DEVELOPMENT AND SUPPORTING COMMUNITIES

WE ALWAYS PUT OUR PEOPLE
IN FIRST PLACE, PROMOTING WELL-BEING
AND EXPERTISE, AND WE GENERATE
SHARED VALUE FOR THE COMMUNITIES
WE ARE PRESENT IN

REFERENCE MATERIAL TOPICS

ATTRACTION, DEVELOPMENT AND RETENTION OF HUMAN RESOURCES

DIVERSITY AND INCLUSION

INTEGRATION WITH LOCAL COMMUNITIES AND SHARED VALUE

PEOPLE FIRST

The expertise and the professional qualities of people are the foundations of a company that continues to grow: for this reason, EF Solare strives every day to guarantee a dynamic, cohesive work environment, where the possibility of professional development is ensured, with individuals and their abilities and expertise at the heart.

The company invests in its human capital every day, promoting active policies for attracting and retaining the most suitable professionals for the present and future requirements of the company.

As at 31 December 2021 the workforce stood at 136 people, 78 of whom are based in Italy and 58 in Spain. The average age is relatively young, with more than 80% of employees under the age of 50. Female employees account for approximately 30% of the total. The turnover of employees was significant this year too: the flows directly reflect the underlying dynamics of the labour market, featuring high volatility also created by the post-pandemic situation.

Throughout the period of the pandemic, EF Solare constantly strived to maintain the cohesion of the team and, as soon as it was possible, organised opportunities for socialising and getting together again. A team building event was organised in March 2022, open to all employees. It was an occasion for everyone to socialise and take advantage of training, especially new hires.

In spite of the difficulties related to the health emergency, EF Solare Italia continued to work on corporate processes and communication to facilitate the integration of new people in the company, with dedicated induction sessions.

The company also launched an internal communication project through a monthly newsletter, to update employees on news within the company and involve them, as well as developments in the field of renewable energy.

In line with the previous year, round table discussions with Renovalia on key topics continued to optimise the integration process between the two organisational structures and standardise management.

136
EMPLOYEES

80%
OF THE WORKFORCE IS < 50 YEARS OLD

93%
OF EMPLOYEES HAVE A PERMANENT CONTRACT

THE WELL-BEING OF EMPLOYEES IS OUR TOP PRIORITY

Listening to people and caring about their well-being are two crucial factors, designed to create a sense of community and shared identity, in line with the corporate mission.

The practice of remote working was also augmented in 2021, with the approval of a individual agreement that will allow smart-working two days a week, something that is particularly appreciated by employees.

At the beginning of this year a company welfare system was introduced, in which there is a budget available to every employee to use for daily expenses in different areas. From education to assistance to families, from healthcare to public transport concessions.

Lastly, a survey based on a questionnaire completed by all employees was conducted, which recorded a response rate of over 90%, a sign of employee's involvement and their desire to take part in the growth and improvement of the company. The goal was to explore everyone's expectations and demands. It is an engagement tool that will be used as the starting point for defining and structuring future interventions based on the results that emerge.

The partnership with EF Solare was initially established through pooling the shared values that SAFE nurtures on a daily basis, including credibility.

The support that EF Solare provides to our Master is vital and contributes to achieving a strategic goal for the entire sector: nurturing and developing talent through effective communication that can increase awareness of the benefits resulting from renewables. To accelerate the energy transition process, it is vital to raise awareness among new generations of topics such as energy and sustainability, to create a society of talents and give a new impetus to the development of the country.

Raffaele Chiulli
SAFE - President

SHARED EXPERTISE FOR GROWTH AND FOR THE INDUSTRY

The training and development of the skills of one's people are the strategic tools that EF Solare is permanently committed to the promotion of.

As the first step in the process of improvement, in 2020 all corporate skills were organically mapped with the goal of developing structured, customised training paths, consistent with the requirements of the Group. The training plan is still in the process of being defined and will be finalised this year. Training activities continued in 2021, focused on technical and professional skills and environmental and safety topics.

EF Solare Italia's committed is not only focused internally, but also on supporting and fostering know-how in the solar industry as a whole, with a view to helping to disseminate awareness of photovoltaic power and educating cross-cutting professional profiles required by the development of the sector.

LEARN MORE

"BEST FIELD VISIT" AWARD

In line with previous years, collaboration with SAFE post-graduate masters' courses continued in 2021 (Management of Energy Resources) and with the La Sapienza University of Rome (EFER-Energy Efficiency and Renewable Energy Sources) and support was given to the Accademia del Sole's specialist course for future technical maintenance staff.

Under the scope of the SAFE master's course, this year the students went to visit a plant near Rome and could access the control room virtually. The experience was particularly welcomed, to the extent that the company won the "Best visit to a plant" prize, awarded based on the evaluation of the actual students.

1.540
HOURS OF TRAINING PROVIDED

11
AVERAGE HOURS OF TRAINING PER EMPLOYEE

We see how it is becoming increasing more important to think with a network mindset: the creation of the Sustainable Agrivoltaic National Network came about as a result of this. It promotes best practices in the industry and fuels discussion and the creation of know-how on an innovative theme. Operators in renewables have the potential to trigger a virtuous mechanism by designing plants that are part of the landscape, thereby strengthening relations with the area, and also involving local communities through shared experiences within the spaces occupied by the facilities.

Alessandra Scognamiglio
Enea - Coordinator Task force Sustainable Agrivoltaics

PRESENCE IN THE COMMUNITIES

EF Solare plants are present in a widespread manner throughout Italy, covering 17 regions. Local communities have had the opportunity to get to know the company's activities over a period of time and recognise the benefits brought by the generation of renewable energy.

EF Solare's commitment is demonstrated through the pursuit of harmonious integration with the players of the social and economic fabric, with the goal of generating a positive, discernible impact for local stakeholders.

Firstly, EF Solare always strives to interact with local administrations and parties, working through an approach that brings together openings for dialogue, mutual recognition and keeping local conflicts to a minimum, the result of the concrete application of the values of integrity and transparency in relations.

To support the economy in areas where there is a presence, local labour is preferred in all stages of the process for the construction of new plants and their maintenance, where the latter is sub-contracted out.

This context includes numerous activities for the communication and promotion of local events and initiatives aimed at enhancing the interaction between the company and the area, such as taking part in fund raising in Sardinia for the municipalities near the Milis greenhouses that suffered from the summer fires.

In Spain, in the municipality of Puertollano, where the El Bonal plant came into service in 2021, the company gave an undertaking to contribute to the well-being of the community by renovating the playgrounds and green areas of the city, with a view to creating, integrated, welcoming, sustainable spaces.

Taking into consideration sponsorship, charitable donations and partnerships established as a whole, in 2021 EF Solare Italia allocated more than €100,000 in total to communities.

ANNEXES

PERSONNEL DATA

	GRI Standards	Units of measurement	Italy	Spain	Total
INFORMATION ON PERSONNEL AND OTHER WORKERS					
STAFFING LEVELS					
Number of employees at 01/01	102-8	no.	**77**	**69**	**146**
Total entries		no.	14	13	27
Total exits		no.	13	24	37
Total Number of employees at 31/12		no.	**78**	**58**	**136**
EMPLOYEES BY TYPE OF CONTRACT					
Employees with a temporary contract	102-8	no.	6	3	**9**
Employees with a permanent contract		no.	72	55	**127**
Employees by type of employment					
Employees with a full-time contract	102-8	no.	76	56	**132**
Employees with a part-time contract		no.	2	2	**4**
FREEDOM OF ASSOCIATION AND COLLECTIVE BARGAINING					
COLLECTIVE BARGAINING AGREEMENTS					
% of employees covered by collective bargaining agreements	102-41	%	100%		

	GRI Standards	Units of measurement	Italy	Spain	Total
TURNOVER OF EMPLOYEES					
NEW HIRES AND TURNOVER OF PERSONNEL					
Total new entries	401-1	no.	**14**	**13**	**27**
New entries rate		%	18	22	**20**
Total number of exits		no.	**13**	**24**	**37**
Outgoing turnover		%	17	41	**27**
Average job seniority		years	4.11		
TURNOVER OF EMPLOYEES BY GENDER					
New entries	401-1	**no.**	**14**	**13**	**27**
Men		no.	13	9	22
Women		no.	1	4	5
New entries rate		**%**	**18**	**22**	**20**
Men		%	23	24	23
Women		%	5	20	12
Exits		**no.**	**13**	**24**	**37**
Men		no.	8	22	30
Women		no.	5	2	7
Outgoing turnover rate		**%**	**17**	**41**	**27**
Men		%	14	58	32
Women		%	24	10	17

	GRI Standards	Units of measurement	Italy	Spain	Total
TURNOVER OF EMPLOYEES BY AGE GROUP					
New entries	401-1	**no.**	**14**	**13**	**27**
< 30 years		no.	4	8	12
between 30 and 50 years		no.	7	4	11
> 50 years		no.	3	1	4
New entry rate		**%**	**18**	**22**	**20**
< 30 years		%	44	67	57
between 30 and 50 years		%	12,5	11	12
> 50 years		%	23	10	17
Exits		**no.**	**13**	**24**	**37**
< 30		no.	2	8	10
between 30 and 50 years		no.	9	9	18
> 50 years		no.	2	7	9
Outgoing turnover rate		**%**	**17**	**41**	**27**
< 30 years		%	22	67	48
between 30 and 50 years		%	16	25	20
> 50 years		%	15	70	39

	GRI Standards	Units of measurement	Italy	Spain	Total
TRAINING					
Technical and professional expertise	404-1	no.	729		
Environment and safety		no.	512		
Managerial skills		no.	85		
Total hours of training provided		**no.**	**1326**	**214**	**1540**
Employees that have attended at least one training course		no.	79	58	137
Average hours of training per employee		no.	16.8	3.7	11.2
TRAINING HOURS BY GENDER					
Total	404-1	**no.**	**1326**	**214**	**1540**
Men		no.	1070	145	1215
Women		no.	257	69	326
EMPLOYEES TRAINED BY GENDER					
Total	404-1	**no.**	**79**	**58**	**137**
Men		no.	56	38	94
Women		no.	23	20	43
TRAINING HOURS BY GRADE					
Total	404-1	**no.**	**1326**	**214**	**1540**
Senior Managers		no.	300	4	304
Middle Managers		no.	386	40	426
Office Workers		no.	431	102	533
Manual Workers		no.	210	68	278

	GRI Standards	Units of measurement	Italy	Spain	Total
EMPLOYEES TRAINED BY GRADE					
Total	404-1	**no.**	**79**	**58**	**137**
Senior Managers		no.	8	1	9
Middle Managers		no.	24	10	34
Office Workers		no.	34	30	64
Manual Workers		no.	13	17	30

	GRI Standards	Units of measurement	Italy	Spain	Total
DIVERSITY AND EQUAL OPPORTUNITIES					
EMPLOYEES BY GENDER					
Men	102-8	no.	57	38	**95**
Women		no.	21	20	**41**
EMPLOYEES BY AGE GROUP					
< 30 years	405-1	no.	9	12	**21**
between 30 and 50 years		no.	56	36	**92**
> 50 years		no.	13	10	**23**

	GRI Standards	Units of measurement	Italy	Spain	Total
EMPLOYEES BY GRADE AND AGE GROUP					
Senior Managers	405-1	**no.**	**7**	**1**	**8**
of which <30 years		no.	0	0	0
of which between 30 and 50 years		no.	4	1	5
of which > 50 years		no.	3	0	3
Middle Managers		**no.**	**24**	**10**	**34**
of which <30 years		no.	0	0	0
of which between 30 and 50 years		no.	20	9	29
of which > 50 years		no.	4	1	5
Office Workers		**no.**	**36**	**30**	**66**
of which <30 years		no.	7	8	15
of which between 30 and 50 years		no.	25	14	39
of which > 50 years		no.	4	8	12
Manual Workers		**no.**	**11**	**17**	**28**
of which <30 years		no.	2	4	6
of which between 30 and 50 years		no.	7	12	19
of which > 50 years		no.	2	1	3

	GRI Standards	Units of measurement	Italy	Spain	Total
EMPLOYEES BY GRADE AND GENDER					
Senior Managers	405-1	**no.**	**7**	**1**	**8**
of which men		no.	6	1	7
of which women		no.	1	0	1
Middle Managers		**no.**	**24**	**10**	**34**
of which men		no.	17	7	24
of which women		no.	7	3	10
Office Workers		**no.**	**36**	**30**	**66**
of which men		no.	23	13	36
of which women		no.	13	17	30
Manual Workers		**no.**	**11**	**17**	**28**
of which men		no.	11	17	28
of which women		no.	0	0	0
EMPLOYEES BY CONTRACT TYPE AND GENDER					
Permanent contract	102-8	**no.**	**72**	**55**	**127**
of which men		no.	52	35	87
of which women		no.	20	20	40
Temporary contract		**no.**	**6**	**3**	**9**
of which men		no.	5	3	8
of which women		no.	1	0	1
EMPLOYEES BY TYPE OF EMPLOYMENT AND GENDER					
Full time	102-8	**no.**	**76**	**56**	**132**
of which men		no.	57	38	95
of which women		no.	19	18	37
Part time		**no.**	**2**	**2**	**4**
of which men		no.	0	0	0
of which women		no.	2	2	4

	GRI Standards	Units of measurement	Italy	Spain	Total
GENDER PAY GAP					
REMUNERATION DIFFERENTIAL (RATIO BETWEEN AVERAGE HOURLY WAGE MEN/WOMEN)*					
Senior Managers	405-2	%			5
Middle Managers		%			5
Office Workers		%			-17

*The calculation formula has changed compared with 2021. It no longer meets GRI Standard 405-2, but is formulated in accordance with the calculation guidelines provided under the scope of the PAI reporting required by SFDR Regulation 2088.

HEALTH AND SAFETY

	GRI Standards	Units of measurement	Italy	Spain	Total
SAFETY EXPENDITURE AND INVESTMENTS					
Safety expenditure (opex)		€ thousands	428		
Investments for safety (capex)		€ thousands	265		
Total expenditure and investments		**€ thousands**	**693**		
HEALTH AND SAFETY POLICIES AND MANAGEMENT SYSTEMS					
Employees covered by health and safety management procedures and policies	403-8	no.	78	58	136
		%	100	100	100
Employees covered by health and safety management systems or policies certified in accordance with international standards (OHSAS 18001 - ISO45001)		no.	78	0	78
		%	100	0	57
ABSENTEEISM					
Absenteeism rate		**%**	**1,90**	**3,52**	**n.a.**

	GRI Standards	Units of measurement	Italy	Spain	Total
WORK-RELATED INJURIES					
Total employee work-related injuries	403-9	**no.**	**0**	**3**	**3**
- of which on the way to or from work			*0*	*0*	*0*
- of which days lost			*0*	*1*	*1*
- of which no days lost			*0*	*2*	*2*
- of which women			*0*	*0*	*0*
Hours worked		no.	140,013	112,232	252,245
Employee frequency index (without journeys)			**0**	**26.7**	**11.9**
Days lost through injury		no.	0	103	103
Employee severity index (without journeys)			**0**	**0**	**0**
Near miss		no.	3		

PLANTS

	GRI Standards	Units of measurement	Italy	Spain	Total
PLANT DATA					
Total number of photovoltaic plants	EU-1	no.	308	10	318
Installed capacity		MW	853	193	1046
Average age of operating plants (if it can be calculated/is available)		years	11	11	11
Land occupied by photovoltaic plants		conventional m2	19,701,482		
Installed capacity per unit of land used		W/m2	43		

	GRI Standards	Units of measurement	Italy	Spain	Total
OPERATING DATA					
Energy produced	EU-2	MWh	1,140,263	239,214	1,379,477
Energy introduced into the network		MWh	1,108,344	233,777	1,342,121
AVAILABILITY					
Average availability factor	EU-30	%	96.9		
EFFICIENCY					
Average performance ratio of the plants	EU-11	%	72.8		

PHOTOVOLTAIC GREENHOUSES

	GRI Standards	Units of measurement	Italy
Total number of photovoltaic plants	EU-1	n.	10
Installed capacity		MW	32
Average age of operating plants (if it can be calculated/is available)		years	11
OPERATING DATA			
Energy produced	EU-2	GWh	42.4
Energy introduced into the network		GWh	41.6
AVAILABILITY			
Average availability factor	EU-30	%	98.7
EFFICIENCY			
Average performance ratio of the plants	EU-11	%	71.4

ENVIRONMENTAL DATA

	GRI Standards	Units of measurement	Italy	Spain	Total
EXPENDITURE AND INVESTMENTS					
Expenditure (opex)		€ thousands	302.62		
Investments (capex)		€ thousands	124.13		
Total		**€ thousands**	**426.75**		
SITE INSPECTIONS					
HSE Audit		no.	40		
Inspections by third parties		no.	159		
ENVIRONMENTAL COMPLIANCE					
Monetary value of fines imposed	307-1	€ thousands	0	0	0
Non-monetary measures suffered		no.	0	0	0

PLANTS AND ENERGY PRODUCTION

	GRI Standards	Units of measurement	Italy	Spain	Total
CHEMICAL SUBSTANCES					
SF6 present in the electrical equipment		kg	n.a.	n.a.	n.a.
SF6 top ups		kg	0.0	0.0	0.0
ENERGY					
WATER RESOURCES					
Water used for washing the panels	303-5	lt	6,800,000	1,500,000	8,300,000

	GRI Standards	Units of measurement	Italy	Spain	Total
WASTE					
WASTE PRODUCTS					
Hazardous	306-3	t	0	1.64	1.64
Non hazardous		t	2,284.8	27.5	2,312.3
WASTE PRODUCED BY MAINTENANCE ACTIVITIES					
Hazardous	306-4, 306-5	t	0		
Non hazardous		t	4		
Total		**t**	**4**		
sent for recovery		%	100		
disposed of		%	0		
WASTE PRODUCED BY REVAMPING ACTIVITIES					
Hazardous	306-4, 306-5	t	0		
Non hazardous		t	2244,8		
Total		**t**	2244,8		
sent for recovery		%	100		
disposed of		%	0		

ENVIRONMENTAL IMPACTS OF OFFICES

	GRI Standards	Units of measurement	Italy	Spain	Total
MATERIAL USED BY WEIGHT OR VOLUME					
Paper	301-1	kg	6,300		
Toner for printers		no.	12		

	GRI Standards	Units of measurement	Italy	Spain	Total
ENERGY					
DIRECT CONSUMPTION BY SOURCE (*)					
natural gas	302-1	Sm3	0	0	
diesel		lt	52,261	31,996	84,257
petrol		lt	19,236	0	19,236
LPG		kg	0	0	0
INDIRECT CONSUMPTION					
Electricity procured from the grid*	302-1	MWh	17,684	1,818	19,502
- of which from a renewable source		MWh	182	660	842
- of which from a non-renewable source		MWh	17,501	1,159	18,660
SELF-PRODUCTION AND CONSUMPTION					
self-produced electricity	302-1	MWh	31,919	5,437	37,356
WATER RESOURCES					
Total withdrawals of water	303-3	m^3	607	173	780

*Electricity for running auxiliary services and offices

	GRI Standards	Units of measurement	Italy	Spain	Total
CARBON FOOTPRINT					
Emissions of tCO_2 (scope 1)	305-1	t CO_2	183	84.7	268
Emissions of tCO_2 (scope 2– market based)	305-1	t CO_2	8,025.5	332	8,358
Emissions of tCO_2 (scope 3)	305-1	t CO_2	2,240	n.a.	

SUPPLIERS

	GRI Standards	Units of measurement	Italy	Spain	Total
Total value of supplies (ordered)	102-9	€ thousands	94,900		
of which assets		€ thousands	28,800		
of which services		€ thousands	66,100		
of which works		€ thousands	0		
Value of orders from regional centres (*)	204-1	€ thousands	70,200		
Percentage of orders from regional centres		%	74		
SELECTION AND APPROVAL OF SUPPLIERS					
Total suppliers on the register	102-9	no.	464		
Suppliers approved during the year (**)		no.	85		
Active suppliers (***)		no.	540		
ENVIRONMENTAL EVALUATION OF SUPPLIERS					
Percentage of new suppliers that were evaluated using environmental criteria	308-1	%	0		
SOCIAL EVALUATION OF SUPPLIERS					
Percentage of new suppliers that were evaluated using social criteria	414-1	%	0		

(*) Value of orders from suppliers with premises in the regions in which the plants are located.

(**) New suppliers approved and also suppliers whose approval has been renewed.

(***) Suppliers that have received at least one order or contract during the year.

COMMUNITY

	GRI Standards	Units of measurement	Italy	Spain	Total
INVESTMENTS IN THE COMMUNITY					
Total investments	203-1	**€**	111,000		
of which sponsorship or monetary charitable donations		€	106,000		
of which the value of donations in kind		€			
of which the value of man hours		€	*5,000*		
BREAKDOWN OF INVESTMENTS BY SCOPE					
for education and cultural activities		%	*95*		
for safeguarding the environment		%			
for social welfare		%	*5*		
for supporting sport		%			

COMPLIANCE

	GRI Standards	Units of measurement	Italy	Spain	Total
ANTI-CORRUPTION					
EMPLOYEE ANTI-CORRUPTION COMMUNICATION AND TRAINING					
total % of employees who are informed of anti-corruption policies and procedures		%	100%		
EMPLOYEE ANTI-CORRUPTION TRAINING					
Total employees who have receiving training on anti-corruption policies and procedures	205-2	no.	100%		
Total percentage of employees who are informed of anti-corruption policies and procedures		%	100%		

	GRI Standards	Units of measurement	Italy	Spain	Total
CONFIRMED CASES OF CORRUPTION AND ACTIONS TAKEN					
Confirmed incidents of corruption	205-3	no.	0	0	0
Proceedings against the organisation or employees for incidents of corruption		no.	0	0	0
ANTITRUST					
Legal actions pending or completed with regard to anti-compete behaviour and breaches of antitrust and monopoly legislation with regard to the company	206-1	no.	0	0	0
SOCIO-ECONOMIC COMPLIANCE					
Monetary value of fines imposed	419-1	€ thousands	0	0	0
Non-monetary measures suffered		no.	0	0	0

METHODOLOGICAL NOTE

Through the Sustainability Report, the third edition of which is being published this year, EF Solare Italia is reporting to all its stakeholders on the company's commitment to energy transition and the sustainable development of its activities. The document illustrates operating activities and the results achieved with reference to the financial year 1 January - 31 December 2021.

SCOPE AND APPLICATION OF GRI STANDARDS

The scope of this data has been extended compared with previous reports and, this year, covers Italian and Spanish operations in their entirety, presenting the data in an aggregated way, with some exceptions pointed out in the test and data tables.

In line with the previous financial year, this report was prepared using the 2016 GRI Standards published by the GRI - Global Reporting Initiative as the reference methodology, integrated with several indicators in the "GRI Electric Utilities Sector Supplement", which can be recognised by the "EU" prefix, applied in compliance with the so-called "in accordance-core" level of conformity. The complete list of GRI Standards applied is given in the correlation table published on page 76.

MATERIALITY ANALYSIS AND REPORTING PROCESS

The information contained in the report was selected in relation to the material topics that emerged as a result of the materiality analysis. The analysis made it possible to evaluate the importance of each topic taking into account the outlook inside and outside of the company. The updating this year, in line with the previous year, also involved the direct participation of several external stakeholders, involved through dedicated interviews. The 2021 material topics are reported in the matrix published on page 16.

The contents of the report were provided by the entire corporate organisational structure through a collection process based on dedicated forms, for quantitative data, and direct interviews with function representatives for the qualitative side, in line with the approach required by the GRI Standards. The preparation of the document was coordinated by External Communication. The report was presented to the Board of Directors of EF Solare Italia at the meeting of 26 July 2022 and then published on the company website (www.efsolareitalia.com). It was not subjected to external auditing. However, note that the most important economic and financial data and operating data were already included within the scope of the audit conducted on the financial statements. The reconciliation tables for material topics and associated GRI scopes is illustrated below.

Material topics	GRI standards (topics)	Limitation of the topic in the internal scope	Extension of the topic to the external scope
_ Innovation and support for energy transition _ Management of the supply chain _ Integration with local communities and shared value	201: Economic performance		
	203: Indirect economic impacts		
_ Ethics and integrity _ Relations with institutions and the authorities	205: Anti-corruption		
	419: Socio-economic compliance		
_ Attraction, development and retention of human resources _ Diversity and inclusion	401: Employment:		
	404: Training and education		
	405: Diversity and equal opportunities		
	406: Non-discrimination		
_ Safety of plants and operators	403: Occupational health and safety		Suppliers (contracting work and services)
_ Respecting biodiversity and the area	302: Energy		
	303: Water		Suppliers (contracting work and services)
	305: Emissions		Suppliers (contracting work and services)
	306: Waste		
	307: Environmental compliance		
_ Circular economy	306: Waste		

GRI REFERENCES

GRI standard	Disclosure	Description	References
GRI 102 – GENERAL DISCLOSURES			
Organisation profile	102-1	Name of the organisation	EF Solare Italia
	102-2	Activities conducted, brands, products and services	Pag. 4
	102-3	Location of headquarters	Trento, Italy
	102-4	Location of operations	Pag. 4
	102-5	Ownership structure	Pag. 4
	102-6	Markets served	Pag. 4
	102-7	Scale of the organisation	Pag. 52
	102-8	Information on employees and other workers	Pag. 52, 58-65
	102-9	Description of the supply chain	Pag. 48, 71
	102-10	Significant changes to the organisation and the supply chain	Pag. 74-75
	102-11	Precautionary principle or approach	Pag. 74-75
	102-12	External initiatives	Pag. 28-30
	102-13	Membership of associations	Pag. 30
Strategy	102-14	Statement from senior decision-maker	Pag. 2
	102-15	Key impacts, risks and opportunities	Pag. 13-15

GRI standard	Disclosure	Description	References
GRI 102 – GENERAL DISCLOSURES			
Ethics and integrity	102-16	Values, principles, standards and norms of behaviour	Pag. 31
	102-17	Mechanisms for advice and concerns about ethics	Pag. 31
Governance	102-18	Governance structure	Pag. 7
Stakeholder engagement	102-40	List of stakeholder groups	Financial communities, Institutions, Businesses and trade associations, Suppliers, Local communities, Customers, Partners
	102-41	Percentage of employees covered by collective bargaining agreements	100% of employees are covered by the CCNL
	102-42	Identifying and selecting stakeholders	Pag. 13-14
	102-43	Approach to stakeholder engagement	Pag. 13-14
	102-44	Key topics and concerns raised	Pag. 15-16
Reporting process	102-45	Entities included in the consolidated financial statements and not included in the sustainability report	The scope of the report coincides with that of the Sustainability Report published
	102-46	Defining report content and topic boundaries	Pag. 74-75
	102-47	List of material topics	Pag. 15-16
	102-48	Restatements of information compared with the previous reports	Pag. 74-75
	102-49	Changes in material topics and scope	Pag. 13-14
	102-50	Reporting period	The report refers to the period from 1 January 2021 to 31 December 2021
	102-51	Date of the most recent report	Annual
	102-52	Reporting frequency	
	102-53	Contacts for requesting the report	Contact: info@efsolareitalia.com

GRI standard	Disclosure	Description	References
GRI 102 – GENERAL DISCLOSURES			
Processo di reporting	102-54	Declaration of compliance with GRI Standard	Pag. 74-75
	102-55	GRI Index	Pag. 76-81
	102-56	External audit	Pag. 74-75
GRI 200 – ECONOMIC ASPECTS			
GRI 201 Economic performance	103-2; 103-3	Approach to Management	Pag. 11
	201-1	Direct economic value generated and distributed	Pag. 11
GRI 203 Indirect economic impacts	103-2; 103-3	Approach to Management	Pag. 56
	203-1	Infrastructure investments and services supported	Pag. 57
	203-2	Significant indirect economic impacts	Pag. 57
GRI 205 Anti-corruption	103-2; 103-3	Approach to Management	Pag. 16, 31
	205-1	Operations assessed for risks related to corruption	Pag. 72-73
	205-2	Communication and training about anti-corruption policies and procedures	Pag. 72-73
	205-3	Confirmed incidents of corruption and actions taken	In 2021 there were no confirmed cases of corruption or reports received in this regard
GRI 300 – ENVIRONMENTAL ASPECTS			
GRI 302 Energy	103-1; 03-2; 103-3	Approach to Management	Pag. 16
	302-1	Energy consumed within the organisation	Pag. 69-70
GRI 303 Water	103-1; 03-2; 103-3	Approach to Management	Pag. 16
	303-1	Withdrawals of water by source	Pag. 68

GRI standard	Disclosure	Description	References
GRI 300 – ENVIRONMENTAL ASPECTS			
GRI 305 Emissions	103-1; 03-2; 103-3	Approach to Management	Pag. 16, 42-43
	305-1	Direct emissions of greenhouse gases (Scope I)	Pag. 47
	305-2	Indirect emissions of greenhouse gases (Scope II)	Pag. 47
	305-3	Other indirect emissions of greenhouses gases (Scope III)	Pag. 47
GRI 306 Effluents and waste	103-1; 03-2; 103-3	Approach to Management	Pag. 16, 45-46
	306-2	Waste by type and disposal method	Pag. 69
GRI 307 Environmental compliance	103-1; 03-2; 103-3	Approach to Management	Pag. 16, 42
	307-1	Non-compliance with environmental laws and regulations	In 2021 there were no confirmed cases of corruption or reports received in this regard
GRI 400 – SOCIAL ASPECTS			
GRI 401 Employment	103-1; 03-2; 103-3	Approach to Management	Pag. 16, 52-53
	401-1	New employee hires and employee turnover	Pag. 59-60
GRI 403 Occupational health and safety	103-1; 03-2; 103-3	Approach to Management	Pag. 16, 49-50
	403-1	Occupational health and safety management system	Pag. 49
	403-2	Identifying dangers, assessing risks and enquiries into incidents	Managed in accordance with the guidelines of Legislative Decree 81/08
	403-3	Workplace medical services	Managed in accordance with the guidelines of Legislative Decree 81/08
	403-4	Worker participation, consultation, and communication on occupational health and safety	Managed in accordance with the guidelines of Legislative Decree 81/08
	403-5	Worker training on occupational health and safety	Pag. 61

GRI standard	Disclosure	Description	References
GRI 400 – SOCIAL ASPECTS			
GRI 403 Salute e sicurezza sul lavoro	403-6	Promotion of worker health	Pag. 49
	403-7	Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	Pag. 49
	403-8	Work-related injuries	Pag. 66
	403-9	Employees covered by an occupational health and safety management system	Pag. 65
	403-10	Work-related ill health	In the last three-year period, there were no confirmed cases of work-related ill health or reports in this regard
GRI 404 Training and education	103-1; 03-2; 103-3	Approach to Management	Pag. 16, 54-55
	404-1	Average annual training hours per employee	Pag. 61
GRI 405 Diversity and equal opportunities	103-1; 03-2; 103-3	Approach to Management	Pag. 16, 52
	405-1	Diversity of governance bodies and employees	Pag. 62-64
	405-2	Ratio of basic salary and remuneration of women to men	Pag. 65
GRI 406 Non-discrimination	103-1; 03-2; 103-3	Approach to Management	Pag. 16, 52
	406-1	Incidents of discrimination and corrective actions taken	No incidents of discriminatory behaviour were reported in 2021
GRI 419 Socio-economic compliance	103-2; 103-3	Approach to Management	Pag. 16
	419-1	Non-compliance with laws and regulations in the social and economic area	There were no confirmed cases of non-compliance with socio-economic regulations in 2021

GRI standard	Disclosure	Description	References
ENERGY AND UTILITIES SECTOR SUPPLEMENT			
	EU-1	Installed power	Pag. 66
	EU-2	Energy input	Pag. 67
	EU-11	Average efficiency	Pag. 67
	EU-30	Availability factor	Pag. 67

Editorial Project Coordination
EF SOLARE ITALIA

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