



Making a sustainable path to sustainability

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Green energy development seeks to create a sustainable, clean planet but must not compromise on CO₂ emissions or ecological damage in the rush to expand capacity. Renewable energy must continuously prove its low-carbon efficacy, protect biodiversity, and harmonize with industries like agriculture. Achieving this requires committed investments in technical innovation and transparent, traceable manufacturing from industry, business, and policymakers.



Achieving zero CO₂ emissions by 2050 implies much more than producing clean energy. We all agree on the importance of building renewable energy power plants to generate electricity using clean and natural resources, but not at any expense. The manufacturing processes must be completely transparent, and installations must preserve the existing biodiversity where they will operate for around 30 years.

2023 ended with exciting news: the COP28 United Nations Climate Change Conference, held in Dubai, led to a significant joint agreement to triple renewable energy capacity by 2030, which would result in an even faster growth in renewable energy within the next five years. With this opportunity in mind, renewable energy professionals focus on the latest news on energy growth and opportunities, product demand, price fluctuation, and technology innovation.

Countries established goals on clean energy capacity aligned with cross-national policies. Politicians claim to include energy transition plans in their election campaigns and define goals aligned with cross-country policies.

As a result, companies have an opportunity to generate profits using renewable energy while contributing to a country's endless efforts to achieve carbon neutrality.

However, in this exciting energy context, a new paradigm emerges. Is the path to sustainability sustainable? We all work to create a sustainable future, which is excellent as long as the path to that momentum is also sustainable.

According to the IEA (International Energy Agency), renewable energy capacity added to energy systems worldwide grew by 50% in 2023, reaching almost 510 gigawatts (GW), with solar PV accounting for three-quarters of the additions.

This information is widely celebrated across the solar energy industry. Still, we have yet to reach the time to be ecstatic when affirming that the avenue we took to achieve that goal was as green as the energy that those 510 GW generate.

Nevertheless, the industry is fully aware of this matter and is working on it, but as Rome was not built in a day, defining officially certified standards to prove low carbon generation and ensuring compliance from all manufacturers will not happen from one day to another.

Emissions production has already become a hot topic in the PV industry. Most solar panel manufacturers often boast about their capability to provide carbon emission information to their clients. However, how accurate can this data be, and more, in

particular, when they are not responsible for the whole module's value chain production?

They must gather this specific information from the third parties from whom they purchased the silicon, ingots or wafers. Therefore, they have no choice but to trust that the carbon information provided is accurate, not tampered with, and delivered fast enough to satisfy the client's expectations.

Only module manufacturers with access to silicon and an integrated value chain in-house production can provide carbon data from raw material to the end product. But how many of these players can provide their carbon data immediately, systematically, and agilely? How many of them allow access to the information that describes every process in every step of their manufacturing process?

The release of the 'In Board Daylight Report' in 2021 was a turning point in the solar manufacturing industry. The report raised awareness about forced labour. SolarPower Europe and Solar Energy UK showed their concerns about responsible production and established a Supply Chain Sustainability Workstream, today known as the Solar Stewardship Initiative (SSI).

SSI is committed to ensuring that solar energy growth is ethical and sustainable.



It collaborates with manufacturers, developers, installers, and purchasers across the global solar value chain to foster responsible production, sourcing, and material stewardship.

The initiative aims to create a transparent solar value chain. It focuses on maximizing the solar industry's positive impact, respecting human rights and fostering justice and equality across energy transition.

The SSI Traceability Standard's primary goal is to track and trace the movement of goods, materials, and information at each stage of the supply chain, from the source of raw materials to the end buyer.

The SSI established ESG Standards to evaluate manufacturing in three key areas: Governance and Business Ethics, Environment, and Human and Labour Rights.

Including the SSI Traceability and the ESG Standards together is already a long way towards the willingness to prove transparency in manufacturing.

Governmental policies and sustainability awareness influence solar PV investors. They are interested only in the assets whose production generated the lowest carbon emissions. Consequently, EPCs and developers make purchase decisions based on carbon information since their lenders strictly request careful analysis when evaluating the financing of solar PV projects.

Therefore, solar manufacturers have no choice but to work toward sustainability. Some module products have switched from the traditional Siemen rod-silicon methodology to the Fluidized Bed Reactor

(FBR) technology for granular silicon. By implementing FBR technology, the producers need half the power compared to rod-silicon and reduce the percentage of water, hydrogen, and other resources, which also decreases the amount of capital investment.

PV manufacturers also optimize their production processes to comply with key certifications, like ISO17065 and ISO170021, which are required to be part of ISS, or the prestigious carbon footprint certification from the French Energy Regulation Commission (CRE). Additionally, solar companies restructure their strategies to attain the 17 Sustainability Development Goals established by the United Nations in the Agenda 2030.

PV plant projects have become more competitive during their development phase and when finding investors or buyers. Installation designs and solar solutions are now more ad-hot than ever since biodiversity preservation came out to light in the solar business. New PV innovations are designed to respect and foster the local flora and fauna on the ground and even over water with floating systems.

Agrivoltaics is just in its early steps, optimizing energy and water consumption with irrigation systems powered by PV and avoiding water evaporation with the shade provided by the solar modules.

In conclusion, authorities and other policymakers must focus their effort not only on reaching renewable energy capacity goals but also on making all the energy players comply with sustainability and environmental standards on their way to net zero.



About the author

Marisa González Berrocal is an expert in Global Marketing and Communications in the Renewable Energy Industry.

She has gained over 20 years of international experience in defining Global marketing plans and their regional adaptation in more than 25 countries across five continents.

She has worked as Head of the Marketing and Communications Department for international solar energy companies, including Conergy, Epuron, SunEdison, TrinaTracker, and GCL.

She supported these companies' growth and market entry across different segments and business models.

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