

GLOBAL SOLAR MICRO INVERTER MARKET

Industry Insights, Trends, Outlook, and
Opportunity Analysis, 2024-2031

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*Key Pointers are applicable to other companies as well

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SECTION 1

RESEARCH OBJECTIVES AND ASSUMPTIONS

- Research Objectives
- Assumptions
- Abbreviations

This report studies the current scenario as well as the future potential of Global Solar Micro Inverter Market. Global Solar Micro Inverter Market is segmented on the basis of Technology, Power Rating, Provider, End-User, and Region.

Key features of the study:

This report provides an in-depth analysis of the Global Solar Micro Inverter Market, market size (US\$ million), and the compound annual growth rate (CAGR %) for the forecast period (2024-2031)

- It elucidates potential revenue opportunity across different segments and explains attractive investment proposition matrix for this market. It provides valuable insights about market drivers, restraints, opportunities, regional outlook, and competitive strategies adopted by the leading players.
- It profiles leading players in the global solar micro inverter market based on the following parameters- company overview, financial performance, product portfolio, geographical presence, key developments, and future plans
- Insights from this report would allow marketers and the management authorities of the companies to make informed decisions with respect to their future market expansion, and marketing tactics
- Global solar micro inverter market report caters to various stakeholders in this industry including residential, commercial and industrial, and utility-scale end-user
- Stakeholders would greatly benefit in decision-making through various strategy matrices used in analyzing the global solar micro inverter market

Assumptions

Market & Forecast:

- Changes in the inflation rate have not been considered while forecasting market numbers
- Macroeconomic indicators such as GDP, end-use business scenario, industry spending, and regulatory decisions have been considered to arrive at the market estimates
- Secondary axis represents Y-o-Y growth

Currency: All the values estimated are in US\$

Scope: Year of Estimation- 2024

Forecast Period: 2024 to 2031

Abbreviations

CAGR	Compound Annual Growth Rate
Y-o-Y	Year-on-Year
Mn	Million
Bn	Billion

SECTION 2 **MARKET OVERVIEW**

Executive Summary

Market

- Market Value (2024): US\$ 5,527.8 million
- CAGR (2024-2031): 12.5%
- Major Technology : Single-Phase Micro Inverters
- Major Power Rating : <250 W
- Major Provider : Solar Installers and Contractors
- Major End User : Residential
- Major Region : Asia Pacific

Driver and Opportunity

DRIVERS

- Rise in Solar PV Installations
- Favorable Government Policies

OPPORTUNITIES

- Emerging Markets and Rural Electrification
- Growing Investments in Solar Infrastructure Development

Restraints

RESTRAINTS

- Grid Integration Challenges
- High Initial Costs

GLOBAL SOLAR MICRO INVERTER MARKET OVERVIEW

GLOBAL SOLAR MICRO INVERTER MARKET IS EXPECTED TO GENERATE AN INCREMENTAL OPPORTUNITY OF US\$ 7,058.15 MILLION BETWEEN 2024 AND 2031

FIGURE 2.1

Global Solar Micro Inverter Market Value (US\$ million) Analysis



Projected growth of the **Global Solar Micro Inverter Market** during 2024-2031

2.3X

- Global Solar Micro Inverter Market is estimated to be valued at US\$ 5,527.80 million in 2024, and is expected to reach US\$ 12,585.90 million by 2031, exhibiting a CAGR of 12.5% over the forecast period 2024-2031
- The global solar micro inverter market is witnessing significant growth due to the increasing adoption of renewable energy and advancements in solar technologies. Solar micro inverters, which convert direct current (DC) generated by individual solar panels into alternating current (AC), are preferred for their ability to enhance system efficiency, improve safety, and support panel-level monitoring.
- This market is primarily driven by the growing demand for decentralized energy systems and residential solar installations. The Asia-Pacific region is rapidly emerging as a key market owing to its expanding solar energy infrastructure.
- However, challenges such as high initial costs and competition from string inverters continue to impact market dynamics. Despite these obstacles, ongoing technological innovations and declining costs of micro inverters are expected to propel market growth over the coming years.

GLOBAL SOLAR MICRO INVERTER MARKET OVERVIEW

Market Snippet, By Technology

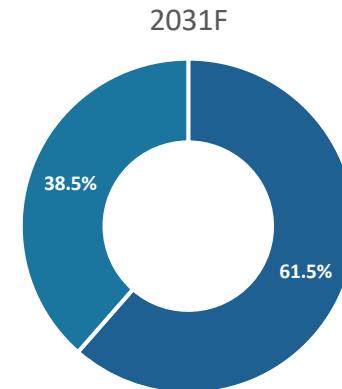
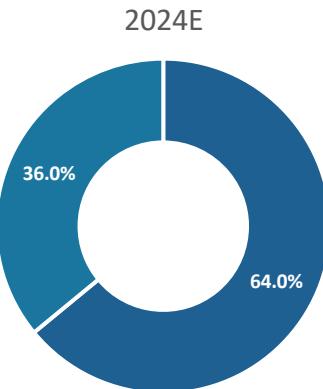
TABLE 2.2

Market Value (US\$ million) Analysis, By Technology, 2024, 2027 & 2031

Technology	2024E	2027F	2031F
Single-Phase Micro Inverters	3540.36	4899.97	7734.15
Three-Phase Micro Inverters	1987.41	2887.98	4851.77

FIGURE 2.2

Market Share (%) Analysis, By Technology



Key Takeaways

- In terms of By Technology, Three-Phase Micro Inverters segment is expected to exhibit a CAGR of 13.6% from US\$ 1987.4 million in 2024 to US\$ 4851.7 million by 2031.
- Among the By Technology segment, in terms of market share, Single-Phase Micro Inverters sub-segment is expected to contribute the largest share, accounting for 61.5% of the market in 2031.

GLOBAL SOLAR MICRO INVERTER MARKET OVERVIEW

Market Snippet, By Power Rating

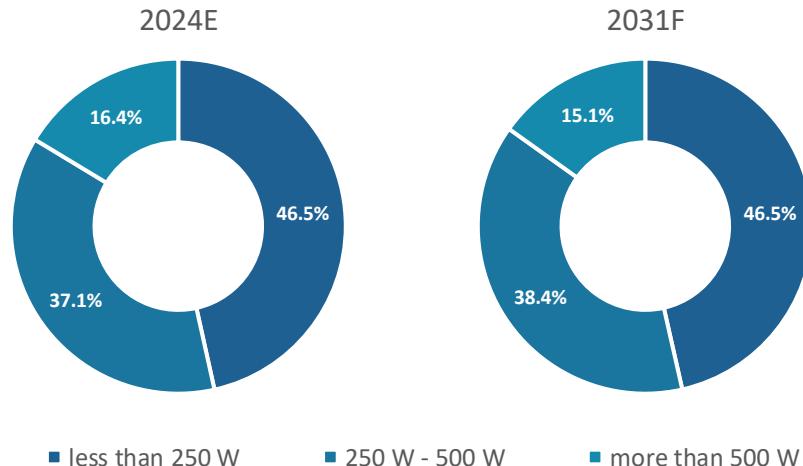
TABLE 2.3

Market Value (US\$ million) Analysis, By Power Rating, 2024, 2027 & 2031

Power Rating	2024E	2027F	2031F
Less than 250 W	2572.25	3620.95	5846.35
250 W - 500 W	2051.57	2933.63	4834.62
More than 500 W	903.944	1233.37	1904.94

FIGURE 2.3

Market Share (%) Analysis, By Power Rating



Key Takeaways

- In terms of By Power Rating, 250 W - 500 W segment is expected to exhibit a CAGR of 13.0% from US\$ 2,051.5 million in 2024 to US\$ 4,834.6 million by 2031.
- Among the By Power Rating segment, in terms of market share, Less than 250 W sub-segment is expected to contribute the largest share, accounting for 46.5% of the market in 2031.

GLOBAL SOLAR MICRO INVERTER MARKET OVERVIEW

Market Snippet, By Provider

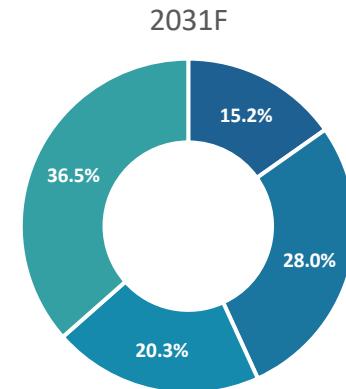
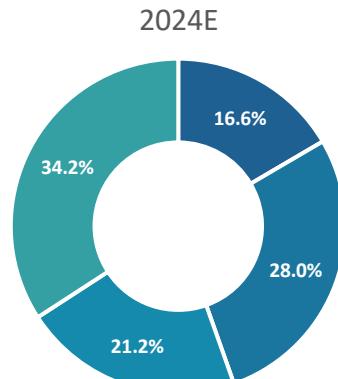
TABLE 2.4

Market Value (US\$ million) Analysis, By Provider, 2024, 2027 & 2031

Provider	2024E	2027F	2031F
Direct Sales through OEM	915.487	1243.99	1916.81
Distributors and Wholesalers	1549.57	2180.86	3518.05
Retailers	1174.54	1622.59	2555.39
Solar Installers and Contractors	1888.17	2740.51	4595.66

FIGURE 2.4

Market Share (%) Analysis, By Provider



Key Takeaways

- In terms of By Provider, Solar Installers and Contractors segment is expected to exhibit a CAGR of 13.5% from US\$ 1,888.1 million in 2024 to US\$ 4,595.7 million by 2031.
- Among the By Provider segment, in terms of market share, Solar Installers and Contractors sub-segment is expected to contribute the largest share, accounting for 36.5% of the market in 2031.

GLOBAL SOLAR MICRO INVERTER MARKET OVERVIEW

Market Snippet, By End User

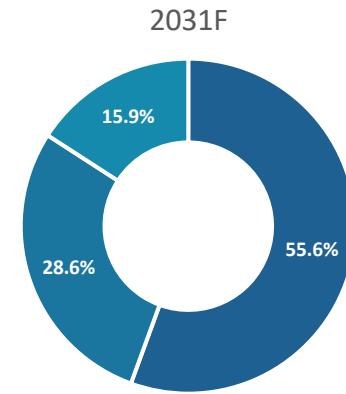
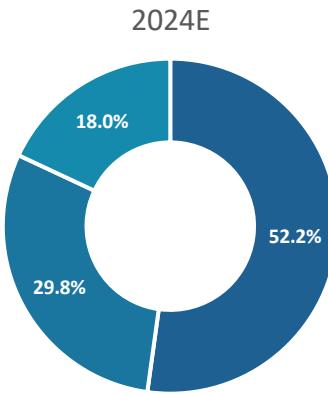
TABLE 2.5

Market Value (US\$ million) Analysis, By End User, 2024, 2027 & 2031

End User	2024E	2027F	2031F
Residential	2885.14	4174.87	6993.2
Commercial and Industrial	1645.29	2277.63	3595.26
Utility-scale	997.334	1335.45	1997.46

FIGURE 2.5

Market Share (%) Analysis, By End User



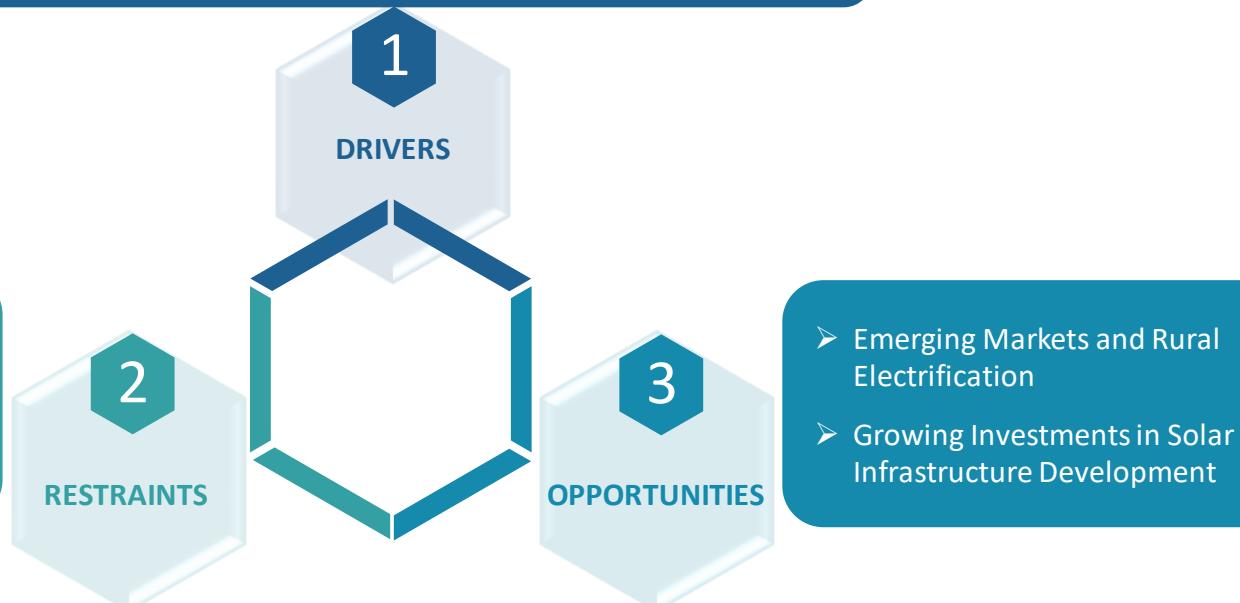
Key Takeaways

- In terms of By End User, Residential segment is expected to exhibit a CAGR of 13.5% from US\$ 2,885.1 million in 2024 to US\$ 6,993.2 million by 2031.
- Among the By End User segment, in terms of market share, Residential sub-segment is expected to contribute the largest share, accounting for 55.6% of the market in 2031.

SECTION 3 **GLOBAL SOLAR MICRO INVERTER** **MARKET**

Market Dynamics and Trend Analysis

- Rise in Solar PV Installations
- Favorable Government Policies





RISE IN SOLAR PV INSTALLATIONS

- The growing adoption of solar photovoltaic (PV) systems is a key driver propelling the global solar micro inverter market. Over the past decade, the deployment of solar PV installations has surged due to the increasing emphasis on renewable energy to mitigate climate change, coupled with supportive government policies and incentives. According to the International Energy Agency (IEA) Report - 2023, global solar PV capacity will reach 1,100 GW at the end of 2024, representing a significant milestone in the transition toward clean energy.
- This exponential growth is driven by declining costs of solar panels and associated components, technological advancements, and increasing energy demands across residential, commercial, and industrial sectors. Microinverters play a critical role in optimizing the efficiency and reliability of solar PV systems. Unlike traditional string inverters, micro inverters convert DC to AC electricity at the individual panel level, maximizing power output even under shading or varying sunlight conditions.
- Furthermore, the integration of micro inverters with smart energy management systems is enabling better monitoring, diagnostics, and grid connectivity. This synergy is particularly attractive to consumers looking for advanced, data-driven insights into their energy production and consumption. The rise in solar PV installations, therefore, directly fuels the need for micro inverters, creating a ripple effect across the entire value chain of the solar industry.
- On Nov 21, 2024, according to Mercom India News, domestic solar installations in India surged by 167% year-on-year, reaching 16.4 GW in the first nine months of 2024, compared to 6.2 GW during the same period in 2023. Solar energy now represents approximately 20% of India's overall installed power capacity and over 44% of its total renewable energy capacity. These developments reflect a robust growth trajectory for India's solar sector, positioning it as a critical component of the country's energy landscape.



FAVORABLE GOVERNMENT POLICIES

- Government policies around the world have played a crucial role in driving the adoption of solar energy technologies, including micro inverters. Many countries have implemented initiatives such as subsidies, tax credits, and feed-in tariffs to encourage the use of renewable energy sources and reduce dependency on fossil fuels.
- For instance, in March 2023, the U.S. federal government offered an Investment Tax Credit (ITC) to encourage solar installations, effectively reducing upfront costs for consumers and businesses. Homeowners can benefit from a 30% tax credit for installing solar systems on residential properties, as outlined in Section 25D of the tax code. Additionally, the Section 48 commercial credit applies to both customer-sited commercial solar systems and large-scale utility solar farms.
- Moreover, governments in regions like Asia Pacific and North America have launched large-scale solar projects and incentivized residential and commercial installations, contributing to the rising demand for solar micro inverters. Policies aimed at achieving net-zero emissions by 2050, along with carbon trading mechanisms, have further incentivized businesses to invest in clean energy. Additionally, financial support through grants and low-interest loans for solar installations has made solar technologies more accessible to small businesses and households, driving market expansion.
- Regulatory mandates for grid-connected solar systems to meet safety and efficiency standards have also increased the adoption of advanced micro inverters. Unlike traditional inverters, micro inverters improve energy output, enhance system reliability, and support smart grid integration, aligning with government goals for modernizing energy infrastructure. The strong backing from government policies globally is expected to remain a significant growth driver for the solar micro inverter market in the years ahead.

01

GRID INTEGRATION CHALLENGES

- One of the significant restraints in the global solar micro inverter market is the challenge of integrating these systems into existing electrical grids. As solar energy adoption grows, the demand for efficient grid management increases. Unlike centralized inverters, micro inverters operate on a per-panel basis, leading to higher variability in energy output. This decentralized structure can create complexities in grid stability, voltage regulation, and synchronization, especially in regions with aging or underdeveloped grid infrastructure.
- Moreover, the intermittent nature of solar energy due to weather conditions further complicates grid integration. Utility providers often struggle with balancing the supply-demand equation when solar systems feed surplus energy back into the grid. The lack of standardization across micro inverter technologies adds another layer of difficulty, as diverse protocols and system designs require extensive grid upgrades to accommodate new installations.
- In October 2023, Havells India Limited, a prominent player in the fast-moving electrical goods (FMCG) sector, introduced Dual Mode Micro Inverter (DMMI), a groundbreaking innovation poised to transform the solar power landscape by addressing significant limitations of traditional inverters and micro inverters. The DMMI features an MPPT-based Solar Charge Controller, which efficiently converts DC current from solar panels into AC current. It is available in two models: DMMI-800 and DMMI-1600. These inverters are designed to seamlessly switch between On-Grid and Off-Grid modes, accommodating various grid conditions. Both models are compatible with all solar module technologies.

02

HIGH INITIAL COSTS

- The global solar micro inverter market encounters a significant hurdle due to the substantial initial costs associated with these devices. Although solar micro inverters are efficient and technologically advanced, they require a considerable upfront investment compared to traditional string inverters. This cost difference arises from their intricate design, advanced features, and the necessity for individual installation on each solar panel. While micro inverters provide notable advantages such as enhanced energy output, improved monitoring capabilities, and increased reliability, their premium pricing can discourage potential buyers, particularly in price-sensitive markets.
- Establishing a large-scale solar farm demands a significant capital investment for land acquisition, solar panels, mounting structures, inverters, transmission infrastructure, and potentially energy storage systems. This upfront capital requirement can pose a barrier for developers and investors, especially in regions where financing options or incentives are scarce. Furthermore, the return on investment (ROI) for large-scale solar projects typically hinges on factors such as government subsidies, tax incentives, and financing costs. Elevated initial expenses may render projects financially less appealing or viable unless substantial incentives or a supportive policy framework exist.
- This challenge is particularly pronounced for residential users and small to medium-sized businesses that may have limited budgets for transitioning to solar energy. Although government incentives, subsidies, and decreasing costs of solar modules help alleviate some of these challenges, the high pricing of micro inverters continues to impede widespread adoption.

EMERGING MARKETS AND RURAL ELECTRIFICATION

- The global solar micro inverter market is experiencing significant growth, driven by increasing opportunities in emerging markets and the urgent need for rural electrification. Rural electrification is vital for advancing the socio-economic development of non-urban areas within a country. Traditional electricity grids, which are costly and require extensive transmission infrastructure, often face challenges in reaching remote regions. In response, solar farms and photovoltaic (PV) installations have emerged as practical alternatives.
- Governments in emerging economies are introducing policies and incentives to promote renewable energy adoption. In India, the Ministry of New and Renewable Energy (MNRE) supports similar initiatives through programs like Deendayal Upadhyaya Gram Jyoti Yojana (DDUGJY) and Saubhagya scheme. These initiatives aim to achieve universal electrification by promoting decentralized solar power solutions. By leveraging solar energy, these programs ensure sustainable energy access in rural India, contributing to overall socio-economic progress.
- In addition to economic benefits, rural electrification through solar energy contributes to broader social and environmental goals. Access to reliable electricity improves education, healthcare, and small business opportunities, while reducing reliance on fossil fuels. This alignment with global sustainability objectives, such as the United Nations Sustainable Development Goals (SDGs), further boosts the adoption of solar micro inverters in emerging markets.
- As urban centers in developing countries expand, the demand for decentralized energy solutions, including solar micro inverters, is expected to rise. These inverters are also compatible with smart grids and energy storage systems, making them a future-ready technology for sustainable growth.

GROWING INVESTMENTS IN SOLAR INFRASTRUCTURE DEVELOPMENT

- The global solar micro inverter market is poised for substantial growth, driven by increasing investments in solar infrastructure development worldwide. Governments, private organizations, and environmental agencies are prioritizing renewable energy as a sustainable solution to combat climate change and reduce carbon emissions. This shift has led to large-scale solar energy projects, residential solar installations, and the adoption of advanced technologies like micro inverters to optimize energy efficiency.
- Solar micro inverters play a pivotal role in enhancing the performance of solar systems by converting direct current (DC) to alternating current (AC) at the panel level, thus maximizing energy output. With growing emphasis on reducing energy losses and improving system reliability, these devices are becoming a preferred choice across various applications. Moreover, government incentives, tax benefits, and subsidies for solar installations in regions like North America, Europe, and Asia Pacific are fueling demand for innovative micro inverter solutions.
- In addition, advancements in smart grid technologies and the integration of Internet of Things (IoT) capabilities with micro inverters are creating new avenues for market expansion. These technologies allow real-time monitoring and control, making solar systems more efficient and user-friendly. As countries continue to modernize their energy infrastructure and encourage renewable energy adoption, investments in solar infrastructure are expected to grow significantly, creating lucrative opportunities for companies operating in the solar micro inverter market.
- On November 7, 2024, the International Solar Alliance released its World Solar Investments report, projecting that global solar investments are set to reach US\$ 500 billion by the end of 2024, primarily driven by countries such as China, Vietnam, and India. As energy investment priorities shift globally, the solar sector is anticipated to achieve an average annual investment of US\$ 444 billion through 2030. This surge in funding reflects a renewed urgency among nations to meet clean energy and net-zero goals, leading to the development of sustainable and resilient energy systems in the years ahead.

IMPACT ANALYSIS



01

RISING INVESTMENTS AND PRIVATE SECTOR PARTNERSHIPS

- The global solar micro inverter market is witnessing a surge in investments and partnerships, driven by increasing demand for efficient renewable energy solutions and the need for decentralized energy systems
- Rising investments and partnerships in the private sector will play a pivotal role in providing the requisite impetus to the market growth. In 2022, solar photovoltaic (PV) technology solidified its position as the leading investment choice in global power generation. According to the International Energy Agency (IEA), in 2023, investments in solar PV capacity additions grew by over 20% vis-à-vis the previous year, exceeding US\$ 320 billion, setting a new record. Solar PV accounted for nearly 45% of total global electricity generation investment, significantly surpassing combined spending on all fossil fuel technologies. This surge in investment is driven by ambitious government targets, supportive policies, and the increasing competitiveness of solar PV technology.
- In March 2024, CleanCapital and Sunrise Mountain Partners, key players in the realm of renewable energy finance, announced an expanded partnership aimed at accelerating investment in community-based solar projects across the U.S. This strategic alliance aims to develop numerous community solar farms in multiple states, projected to generate approximately 350 million kilowatt hours of clean energy annually.
- Similarly, on June 17, 2024, Pacific Partnerships, a company within CIMIC Group, acquired the development rights for the Cobbora Solar Farm, a 700-megawatt (MWac) project in 2024, along with a large-scale battery energy storage system (BESS) in New South Wales, Australia. This project will be one of the largest solar farms in Australia, spanning a 3,000-hectare site near Dubbo. Pacific Partnerships Energy, through its energy business, will oversee the development, investment, and operational management of the Cobbora Solar Farm and BESS, highlighting substantial private sector involvement in expanding renewable energy infrastructure.

02

SMART COMMUNICATION TECHNOLOGIES AND IMPROVED BATTERY STORAGE

- The integration of smart communication technologies and advancements in battery storage systems is revolutionizing the global solar micro inverter market. These innovations are driving efficiency, reliability, and user-friendliness, making solar energy solutions more accessible and scalable for residential, commercial, and industrial users.
- Smart communication technologies, such as IoT-enabled systems and real-time monitoring solutions, allow solar micro inverters to seamlessly connect with broader energy management platforms. These features enable users to track power generation, consumption patterns, and system performance with precision. Real-time data analytics and remote troubleshooting reduce downtime and maintenance costs, providing a more efficient and user-centric solar power ecosystem. Furthermore, cloud-based platforms and mobile applications enhance user control, making it easier for system operators and homeowners to optimize energy usage while addressing performance issues proactively.
- Parallel to this, advancements in battery storage are enhancing the value proposition of solar micro inverters. Improved lithium-ion batteries and the emergence of next-generation storage technologies, such as solid-state batteries, have significantly increased energy density and lifespan while reducing costs. This progress enables better energy storage for surplus solar power, ensuring consistent energy availability even during periods of low sunlight or grid outages.
- On August 28, 2024, Envertech, a company that specializes in providing high-efficiency solar microinverter solutions, introduced EVT2000SE Series, which includes three models: EVT1600SE, EVT1800SE, and EVT2000SE. Each model supports input power ranging from 250W to 650W, with maximum AC outputs of 1600W, 1800W, and 2000W, respectively. These micro inverters are equipped with built-in communication technology, enabling remote monitoring of individual solar panels. Homeowners can access detailed, real-time performance metrics through the EnverView APP. If the micro inverters are located too far from the household Wi-Fi router, users have the option to add an additional monitoring device.

P

Political

Government policies play a significant role in the solar micro inverter market. Many countries are offering subsidies, tax incentives, and renewable energy targets to encourage solar adoption. However, political instability or changes in government priorities can create uncertainty in some regions. Trade policies, import/export tariffs, and international agreements on renewable energy also influence the global supply chain and competitiveness of solar micro inverters.

E

Economical

The growth of the solar micro inverter market is closely tied to the economic conditions of regions adopting solar energy. Declining costs of solar technology and growing energy demand in emerging economies are driving market expansion. However, fluctuations in exchange rates, inflation, and raw material prices can impact manufacturing and pricing. Additionally, rising energy costs and the push for energy independence in various countries are making solar solutions more attractive.

S

Social

There is a growing awareness of environmental sustainability and clean energy among consumers, which positively impacts the adoption of solar micro inverters. Societal shifts toward green living and corporate commitments to sustainability are pushing both individuals and businesses to invest in renewable energy systems. Additionally, increasing urbanization and demand for energy-efficient solutions are creating opportunities for advanced solar technologies.

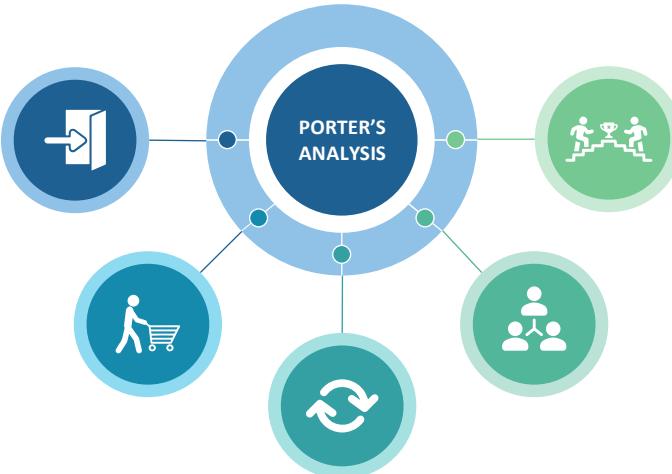
T

Technological

Innovations in inverter efficiency, design, and integration with smart grids and energy storage systems are improving the performance and reliability of solar installations. The rise of IoT and AI technologies is enabling better monitoring and control of energy systems, making micro inverters a preferred choice over traditional string inverters. However, rapid technology evolution also creates pressure for continuous R&D and the risk of product obsolescence.

Threat of New Entry

While the market offers lucrative growth opportunities, the high initial investment in technology development and compliance with stringent regulatory standards create barriers for new players. However, advancements in technology and increasing demand for renewable energy encourage startups to enter the space, albeit at a slower pace.



Buyer Power

With many options available in the market, buyers, including solar installers, project developers, and end users, hold moderate bargaining power. Their preference for cost-effective and efficient solutions drives manufacturers to deliver high-quality products at competitive prices.

Threat of Substitutes

The threat of substitutes remains low as solar micro inverters are a niche technology with distinct advantages over alternatives like string inverters, including higher energy efficiency and ease of installation. However, emerging technologies or alternative energy solutions could pose challenges in the long term.

Competitive Rivalry

The market is highly competitive, with several established players and new entrants offering innovative solutions. Companies focus on enhancing product efficiency, reliability, and affordability to gain a competitive edge. This rivalry pushes continuous advancements and price competitiveness.

Supplier Power

Suppliers of raw materials and components for solar micro inverters wield moderate power. The growing demand for renewable energy products ensures a stable market for suppliers, but manufacturers often seek multiple sources to mitigate risks and reduce dependency on specific suppliers.

The global solar micro inverter market is shaped by regulatory frameworks that promote renewable energy adoption, ensure product quality, and prioritize environmental sustainability. These regulations differ across regions, impacting market growth, manufacturing, and adoption rates.

Renewable Energy Policies

Many governments have implemented policies to encourage the use of renewable energy, including solar power. Initiatives like tax incentives, subsidies, and feed-in tariffs help reduce costs for end users and drive demand for solar micro inverters. Countries with ambitious carbon neutrality goals, such as those in the European Union and North America, are leading the way with supportive policies.

Safety and Quality Standards

Solar micro inverters must comply with stringent safety and quality standards to ensure they meet performance and reliability expectations. Certification requirements, such as those from Underwriters Laboratories (UL) in the U.S. or the International Electrotechnical Commission (IEC) globally, are crucial for manufacturers to access key markets.

Grid Integration Regulations

Regulatory guidelines govern how solar systems, including micro inverters, integrate with power grids. These rules focus on maintaining grid stability and energy efficiency, requiring features like smart grid compatibility, voltage regulation, and anti-islanding capabilities.

Environmental Compliance

Increasing attention to environmental sustainability has led to regulations on the materials and processes used in manufacturing solar equipment. Producers are encouraged to minimize the environmental impact of their products, including recyclability and the use of non-hazardous materials.

1

Customer Education Programs:

Many potential buyers are unfamiliar with the technical aspects of solar energy systems, and educating them can help bridge this gap. By offering online webinars, interactive workshops, and product demonstration videos, companies can explain the operational benefits of micro inverters, such as increased energy efficiency, reduced energy loss, and improved system reliability. These programs can be tailored to different customer segments, including homeowners, commercial businesses, and installers, ensuring that each group receives relevant and easy-to-understand information.

2

Participation in Trade Shows and Conferences:

Participating in trade shows and industry conferences is a key marketing initiative for promoting solar micro inverters on a global scale. These events bring together industry leaders, potential buyers, and influencers, providing a unique opportunity for companies to showcase their products, innovations, and expertise in the solar energy sector. By having a presence at these events, companies can engage directly with key decision-makers, build strategic partnerships, and expand their networks. Live demonstrations of solar micro inverters can generate immediate interest and provide hands-on experiences that highlight the product's value and performance.

3

Create Awareness Through Campaigns:

Creating awareness through targeted marketing campaigns is essential for driving the growth of the solar micro inverter market. These campaigns can be launched across a variety of platforms, including digital media, social media, email marketing, and traditional advertising channels. The goal is to highlight the environmental and financial benefits of adopting solar energy solutions with micro inverters. Campaigns can be structured to appeal to specific target audiences, such as homeowners looking to reduce energy costs or businesses aiming to meet sustainability goals.

KEY DEVELOPMENTS (1/3)

On October 28, 2024, Servotech Power Systems Ltd., a company specializing in the manufacturing, trading, and exporting of a diverse range of products, including LED lighting solutions, uninterruptible power supplies (UPS), solar products, and flameproof LED lights, launched a new range of solar products at an event in New Delhi. The offerings included on-grid inverters ranging from 1 kW to 100 kW, hybrid inverters with capacities of 2 kW to 7.5 kW for single-phase and 10 kW to 22.5 kW for three-phase applications, as well as battery energy storage systems designed for domestic users with capacities from 1.2 kWh to 15 kWh, including a 5.1 kW model for e-rickshaws. Additionally, the company introduced solar pump controllers suitable for water pumps from 2 HP to 10 HP and micro inverters with outputs of 800 W and 1600 W. These product launches were aligned with central government initiatives aimed at promoting solar energy adoption among residential and commercial users.

On October 3, 2024, Enphase Energy, Inc., a global energy technology company and a leading supplier of microinverter-based solar and battery systems, announced the launch of its IQ8X Microinverters in Australia. IQ8X Microinverters featured a peak output AC power of 384 W and were designed to support higher-powered solar modules with a capacity of up to 505 W DC. These microinverters were compatible with modules that had higher cell counts, including configurations with 96 cells and 88 or 80 half-cut cells. Additionally, Enphase extended the warranty on all IQ8 Microinverters activated from October 1, 2024, to an industry-leading 25 years, marking the longest standard residential warranty available in the Australian market.

KEY DEVELOPMENTS (2/3)

On March 28, 2024, Enphase Energy, Inc. announced that it had begun shipping its IQ8P Microinverters to Thailand and the Philippines. These microinverters, designed for both residential and commercial applications, featured a peak output AC power of 480 W to support newer high-powered solar modules. The IQ8 Microinverters were engineered to maximize energy production and could handle a continuous DC current of 14 amperes, enhancing energy harvesting capabilities. The newly released IQ8P Microinverters were the most powerful models offered by Enphase to date, compatible with a full range of solar modules up to 640 W DC. All activated IQ8P Microinverters in these markets came with a 15-year limited warranty.

In December 2023, Fenice Energy, a company that specializes in end-to-end rooftop solar solutions, including solar panels, microinverters, solar batteries, and EV charging infrastructure, introduced micro-inverters designed for both residential and commercial solar setups. XT36, a three-phase microinverter tailored for commercial solar installations, delivered a maximum output of 3,600 VA and could connect up to eight high-power modules to a single unit. It was designed to work with solar modules ranging from 315 Wp to over 670 Wp in power output, featuring a maximum input current of 20 A. Additionally, XT36 boasted a peak efficiency of 97% and a nominal maximum power point tracking (MPPT) efficiency of 99.9%. The microinverter was also equipped with reactive power control to better manage spikes in solar power within the grid.

KEY DEVELOPMENTS (3/3)

In November 2023, Fenice Energy, formerly known as SunEdison, launched micro-inverters for both residential and commercial solar installations. XT36, a three-phase microinverter designed for commercial photovoltaic setups, provided an output of up to 3,600 VA and could connect to eight high-power modules within a single unit. With a maximum input current of 20 A, XT36 was engineered to be compatible with solar modules ranging from 315 Wp to over 670 Wp in power output. It achieved a peak efficiency of 97% and a nominal maximum power point tracking (MPPT) efficiency of 99.9%. Additionally, XT36 featured reactive power control for the improved management of photovoltaic power spikes in the grid. The unit measured 359 mm x 273 mm x 56 mm and weighed 7 kg.

On October 5, 2023, Havells India Limited, a Fast-Moving Electrical Goods (FMEG) company, unveiled its Dual Mode MicroInverter (DMMI). This innovation, supported by four U.S. patents, aimed to transform the solar power industry by overcoming key limitations of traditional inverters and microinverters. The DMMI featured an MPPT-based Solar Charge Controller that converted DC current from solar panels into AC current. It was offered in two models, DMMI-800 and DMMI-1600, which could seamlessly switch between On-Grid and Off-Grid modes to accommodate various grid scenarios. Both models were compatible with all types of solar module technologies.

INSIGHTS ON NUMBER OF SOLAR FARMS AND PENETRATION OF INVERTERS INSTALLED (1/14)

Year Installed	Name of Solar Farm	Location	Size (Size and Capacity)
2018	Bhadla Solar Park Phase II	Rajasthan, India	2250 MW
2019	Pavagada Solar Park	Karnataka, India	2000 MW
2019	Rewa Ultra Mega Solar Park	Madhya Pradesh, India	750 MW
2018	NP Kunta Solar Park	Andhra Pradesh, India	1000 MW
2019	Phuoc Ninh Solar Power Plant	Ninh Thuan Province, Vietnam	168 MW
2019	Longyangxia Dam Solar Park	Qinghai, China	850 MW
2019	Datong Solar Power Top Runner Base	Shanxi, China	1000 MW
2017	Atacama Solar Photovoltaic Power Plant	Atacama Desert, Chile	210 MW

INSIGHTS ON NUMBER OF SOLAR FARMS AND PENETRATION OF INVERTERS INSTALLED (2/14)

Year Installed	Name of Solar Farm	Location	Size (Size and Capacity)
2019	Tailem Bend Solar Farm	South Australia, Australia	127 MW
2020	Limondale Solar Farm	New South Wales, Australia	349 MW
2019	Yarrabee Solar Project	Queensland, Australia	315 MW
2017	Sunraysia Solar Farm	New South Wales, Australia	255 MW
2019	Kiamal Solar Farm	Victoria, Australia	265 MW
2018	Tailem Bend 1 Solar Farm	South Australia, Australia	127 MW
2019	Numurkah Solar Farm	Victoria, Australia	128 MW
2018	Chinchilla Solar Farm	Queensland, Australia	121 MW

INSIGHTS ON NUMBER OF SOLAR FARMS AND PENETRATION OF INVERTERS INSTALLED (3/14)

Year Installed	Name of Solar Farm	Location	Size (Size and Capacity)
2020	Karadoc Solar Farm	Victoria, Australia	112 MW
2019	Daydream Solar Farm	Queensland, Australia	180 MW
2018	Hayman Solar Farm	Queensland, Australia	60 MW
2019	Alfield Solar Farm	South Cambridgeshire, U.K.	50 MW
2011	Finsterwalde Solar Park	Finsterwalde, Germany	80 MW
2018	Villanueva Solar Power Plant	Villanueva de Gállego, Spain	500 MW
2014	Cestas Solar Park	Cestas, France	300 MW
2010	Montalto di Castro Photovoltaic Power Plant	Montalto di Castro, Italy	84.2 MW

INSIGHTS ON NUMBER OF SOLAR FARMS AND PENETRATION OF INVERTERS INSTALLED (4/14)

Year Installed	Name of Solar Farm	Location	Size (Size and Capacity)
2016	La Castilleja Solar Park	Badajoz, Spain	200 MW
2019	Kozani Solar Park	Kozani, Greece	204 MW
2018	Talayuela Solar	Cáceres, Spain	300 MW
2011	Olmedilla Photovoltaic Park	Olmedilla de Alarcón, Spain	60 MW
2019	Scaldia Solar Park	Scaldia, Netherlands	54.5 MW
2013	Lapa Solar Park	Moura, Portugal	46 MW
2019	Tramm-Donnstetten Solar Park	Tramm-Donnstetten, Germany	49 MW
2017	Hoenigsberg Solar Park	Hoenigsberg, Austria	42 MW

INSIGHTS ON NUMBER OF SOLAR FARMS AND PENETRATION OF INVERTERS INSTALLED (5/14)

Year Installed	Name of Solar Farm	Location	Size (Size and Capacity)
2015	Midden-Groningen Solar Park	Midden-Groningen, Netherlands	103 MW
2018	Proyecto Don Rodrigo	Alcalá de Guadaira, Spain	175 MW
2014	Andasol Solar Power Station	Granada, Spain	150 MW
2017	Hjortland Solar Park	Hjortland, Norway	30 MW
2016	La Providencia Solar Park	Badajoz, Spain	150 MW
2019	Sungrow Anlagenpark Friesland	Friesland, Germany	100 MW
2015	Waldfolenz Solar Park	Waldfolenz, Germany	52 MW
2017	Darro Solar Park	Darro, Spain	174 MW

INSIGHTS ON NUMBER OF SOLAR FARMS AND PENETRATION OF INVERTERS INSTALLED (6/14)

Year Installed	Name of Solar Farm	Location	Size (Size and Capacity)
2012	Templin Solar Park	Templin, Germany	128 MW
2019	Sebenico Solar Park	Šibenik, Croatia	50 MW
2016	Montalto di Castro Solar Park	Montalto di Castro, Italy	84 MW
2018	Kern County Solar Park	Kern County, California, U.S.	250 MW
2013	Ormesa Solar Park	Ormesa, Portugal	48 MW
2019	Eindhoven Solar Park	Eindhoven, Netherlands	25 MW
2016	Mount Signal Solar	Imperial County, California, U.S.	794 MW
2014	Copper Mountain Solar Facility	Boulder City, Nevada, U.S.	794 MW

INSIGHTS ON NUMBER OF SOLAR FARMS AND PENETRATION OF INVERTERS INSTALLED (7/14)

Year Installed	Name of Solar Farm	Location	Size (Size and Capacity)
2014	Solar Star (I and II)	Rosamond, California, U.S.	579 MW
2019	Tranquillity Solar Project	Fresno County, California, U.S.	200 MW
2016	Mount Storm Wind Farm and Solar Project	Grant County, West Virginia, U.S.	250 MW
2014	California Flats Solar Project	Monterey County, California, U.S.	280 MW
2016	Desert Sunlight Solar Farm	Desert Center, California, U.S.	550 MW
2016	Moapa Southern Paiute Solar Project	Clark County, Nevada, U.S.	250 MW
2016	Springbok Solar Farm	Kern County, California, U.S.	350 MW
2018	Techren Solar Project	Boulder City, Nevada, U.S.	300 MW

INSIGHTS ON NUMBER OF SOLAR FARMS AND PENETRATION OF INVERTERS INSTALLED (8/14)

Year Installed	Name of Solar Farm	Location	Size (Size and Capacity)
2017	Butler Solar Power Facility	Butler County, Georgia, U.S.	102 MW
2015	Solar Farm Perry	Taylor County, Georgia, U.S.	135 MW
2018	Blythe Mesa Solar Project	Riverside County, California, U.S.	485 MW
2019	Pecan Creek Solar	West Texas, U.S.	110 MW
2017	San Luis Valley Solar Ranch	Alamosa County, Colorado, U.S.	100 MW
2015	Long Lake Solar Park	Norfolk County, Ontario, Canada	100 MW
2019	Westlands Solar Park	Kings County, California, U.S.	200 MW
2016	Garland Solar Facility	Kern County, California, U.S.	200 MW

INSIGHTS ON NUMBER OF SOLAR FARMS AND PENETRATION OF INVERTERS INSTALLED (9/14)

Year Installed	Name of Solar Farm	Location	Size (Size and Capacity)
2015	Astoria Solar Project	Astoria, Oregon, U.S.	100 MW
2017	East Pecos Solar Project	Pecos County, Texas, U.S.	120 MW
2018	Powerhold Solar	Halifax County, North Carolina, U.S.	100 MW
2017	Phoebe Solar Farm	Winkler County, Texas, U.S.	130 MW
2018	Cove Mountain Solar Project	Bedford County, Pennsylvania, U.S.	100 MW
2016	Roserock Solar Farm	Pecos County, Texas, U.S.	300 MW
2019	Rambler Solar Project	Tom Green County, Texas, U.S.	315 MW
2018	Bishops Hill Solar Park	Henry County, Illinois, U.S.	135 MW

INSIGHTS ON NUMBER OF SOLAR FARMS AND PENETRATION OF INVERTERS INSTALLED (10/14)

Year Installed	Name of Solar Farm	Location	Size (Size and Capacity)
2015	Ishikari Solar Park	Hokkaido, Japan	110 MW
2019	Lockett Solar Project	Wilbarger County, Texas, U.S.	379 MW
2017	Blackwell Solar Project	Kay County, Oklahoma, U.S.	180 MW
2016	Cove Mountain II Solar Project	Bedford County, Pennsylvania, U.S.	75 MW
2018	Big Bend Solar Project	Tallahassee, Florida, U.S.	106 MW
2019	Coyote Ridge Solar Project	Lyon County, Nevada, U.S.	350 MW
2015	Garland Solar Facility II	Kern County, California, U.S.	200 MW
2017	Rockhound Solar Project	Luna County, New Mexico	50 MW

INSIGHTS ON NUMBER OF SOLAR FARMS AND PENETRATION OF INVERTERS INSTALLED (11/14)

Year Installed	Name of Solar Farm	Location	Size (Size and Capacity)
2016	Astoria II Solar Project	Astoria, Oregon, U.S.	40 MW
2018	Engie North America Bifacial Project	West Baton Rouge Parish, Louisiana, U.S.	50 MW
2019	Red Pine Solar Project	St. Clair County, Illinois, U.S.	175 MW
2017	Rosamond Central Solar	Rosamond, California, U.S.	165 MW
2015	Santiago Solar Project	Pecos County, Texas, U.S.	121 MW
2018	Upton County Solar Power Plant	Upton County, Texas, U.S.	252 MW
2016	Willow Springs Solar Project	Kern County, California, U.S.	150 MW
2018	White Rock Solar Project	Cooke County, Texas, U.S.	150 MW

INSIGHTS ON NUMBER OF SOLAR FARMS AND PENETRATION OF INVERTERS INSTALLED (12/14)

Year Installed	Name of Solar Farm	Location	Size (Size and Capacity)
2017	Dragon Wash Solar Project	Pecos County, Texas, U.S.	50 MW
2015	Macho Springs Solar Park	Luna County, New Mexico	50 MW
2010	Copper Mountain Solar Facility	Boulder City, Nevada, U.S.	794 MW
2019	Benban Solar Park	Aswan, Egypt	1.65 GW
2019	Mohammed bin Rashid Al Maktoum Solar Park Phase IV	Dubai, UAE	950 MW
2017	Ouarzazate Solar Power Station	Ouarzazate, Morocco	510 MW
2018	Mohammed bin Rashid Al Maktoum Solar Park Phase III	Dubai, UAE	800 MW
2016	Quaid-e-Azam Solar Park	Bahawalpur, Pakistan	1 GW

INSIGHTS ON NUMBER OF SOLAR FARMS AND PENETRATION OF INVERTERS INSTALLED (13/14)

Year Installed	Name of Solar Farm	Location	Size (Size and Capacity)
2019	Amin Solar PV Project	Nouakchott, Mauritania	50 MW
2020	Agadir Solar Power Station	Agadir, Morocco	170 MW
2016	Djibouti PV Solar Farm	Grand Bara, Djibouti	300 MW
2019	Al Dhafra PV2 Solar Project	Abu Dhabi, UAE	2 GW
2020	Kom Ombo Solar Power Plant	Aswan, Egypt	200 MW
2019	Kafue Gorge Regional Training Centre Solar Plant	Lusaka, Zambia	600 kW
2017	PV Solar Plant Atouguia I	Atouguia, Angola	25 MW
2018	Bokpoort Concentrated Solar Power Project	Northern Cape, South Africa	50 MW

INSIGHTS ON NUMBER OF SOLAR FARMS AND PENETRATION OF INVERTERS INSTALLED (14/14)

Year Installed	Name of Solar Farm	Location	Size (Size and Capacity)
2019	Tafila Wind Farm and Solar Power Plant	Tafila, Jordan	117 MW
2018	Dyason's Klip 1 Solar PV Project	Northern Cape, South Africa	175 MW
2020	Dibeen Solar PV Project	Amman, Jordan	50 MW
2017	Paleisheuwel Solar Power Plant	Western Cape, South Africa	75 MW
2018	Quweira Solar Power Plant	Aqaba, Jordan	103 MW
2019	Zeerust Solar Power Plant	North West Province, South Africa	200 MW
2020	Ouarzazate Solar Power Station Phase IV	Ouarzazate, Morocco	400 MW
2018	KarmSolar Solar Energy Project	Aswan, Egypt	5 MW

CLIENT OBJECTIVES

- Black Star Farms is a large local fruit and wine producer and processor located in Suttons Bay, Michigan. Black Star Farms has long been interested in alternative forms of energy.

- Black Star Farms is a producer of proteins for their farm-to-table restaurant and bed and breakfast, which also raises livestock for beef, ham, poultry, and eggs. To manage the energy consumption and cost optimization, they were initially considering alternative forms of energy and considered geothermal and wind energy.
- After much deliberation they decided to go ahead with solar. They appointed Harvest Energy Solutions. The company is a full-service distributor, installer and integrator of renewable and energy saving products serving the agricultural industry in the Midwest.
- Besides they also partnered with SolarEdge for supply and maintenance contract. The company offers advanced solar inverters and power optimizers, which enhance the performance of solar PV systems.

SOLUTION AND IMPLEMENTATION

- The solar energy project implemented at Black Star Farms was a fixed, ground mounted solar array with a vibrated I-beam structure.

- The structure had an array of 204 260 W modules, for a total of 54.08 kW. The system was installed by Harvest Energy Solutions, implementing Canadian Solar panels and SolarEdge inverters. Harvest Energy Solutions managed all the material requirements, and also coordinated with the electrical contractor and utility, and the final installation of the system. They additionally provided ideas for locations and orientations.
- SolarEdge supplied the Power Optimizer SolarEdge P300 and Central Inverter SolarEdge 7600A for the project. The total cost of the project was USD 219,701 which was externally funded by grants, external funding and company contribution.

IMPACT

- Installation of the farm led to an average yearly production of 6000-7000 Kwh of annual electricity generation thus generating an alternative and stable energy source

- The Black Star Farms solar energy system has been in operation since November 1, 2015. As per the audits, since its implementation, the system has not experienced any issues nor have any adjustments been made by either farm management or Harvest Energy Solutions.
- Harvest Energy Solutions maintains an online server that is updated in real time and can be accessed at any time by farm managers to monitor the operation and electrical production of the system
- Black Star Farms has conducted a company-wide energy audit within the past two years and has implemented many energy and cost-saving initiatives and had planned to implement another 53 kW solar energy system elsewhere on their farm for accruing the benefits

SOLAR INVERTER MARKET ANALYSIS, 2011-2023, OVERVIEW OF KEY SOLAR INVERTER MANUFACTURERS

OVERVIEW OF KEY SOLAR INVERTER MANUFACTURERS (1/2)

Solar inverters are critical components in photovoltaic (PV) systems, converting the direct current (DC) electricity generated by solar panels into alternating current (AC) electricity suitable for use in homes, businesses, and the electricity grid. They play a pivotal role in optimizing the efficiency and performance of solar energy systems by ensuring maximum power output under varying sunlight conditions. Several major companies dominate the solar inverter market, each known for their technological innovations and global presence. Companies such as Huawei, SMA Solar Technology, SolarEdge, and Siemens are prominent players in this sector. These companies offer a wide range of inverters catering to different types of solar installations, from residential rooftops to large-scale solar farms.

HUAWEI

Huawei, known primarily for its telecommunications equipment, has rapidly expanded into the solar micro inverter market. It offers string inverters for residential and commercial applications, as well as Micro inverters for utility-scale projects. Huawei leverages its expertise in digitalization and connectivity to provide inverters with advanced monitoring and optimization capabilities. Their marketing strategy focuses on technological innovation, emphasizing the integration of AI and digital twins for predictive maintenance and performance optimization. Huawei promotes its inverters through strategic partnerships with solar developers, utilities, and by participating in industry events to showcase their technological advancements.

DELTA ELECTRONICS

The company offers advanced solar inverters, which are specifically engineered to meet the demanding requirements of utility-scale solar installations. Delta Electronics leverages its extensive experience and global presence to serve utility-scale solar projects worldwide, collaborating closely with engineering, procurement and construction (EPC) contractors and utility companies to deliver integrated solutions.

SOLAR INVERTER MARKET ANALYSIS, 2011-2023, OVERVIEW OF KEY SOLAR INVERTER MANUFACTURERS

OVERVIEW OF KEY SOLAR INVERTER MANUFACTURERS (2/2)

SMA SOLAR TECHNOLOGY

The company is a long-established player in the solar inverter market, known for its robust and high-performance inverters across all scales of solar installations. SMA offers a wide range of inverters including string inverters, hybrid inverters (combining PV and battery storage) for utility-scale projects. SMA maintains a strong global presence through direct sales channels, partnerships with distributors and installers, and active engagement in industry associations and exhibitions.

SIEMENS

The company offers a range of solar inverters for various applications. Siemens' inverters cater to both grid-connected and off-grid solar installations. They provide inverters for residential, commercial, and utility-scale projects, focusing on integrating their products with digital solutions for smart grid management and energy optimization. Siemens markets its inverters through a combination of direct sales, partnerships with EPC contractors and developers, and participation in industry exhibitions and forums.

SOLAR INVERTER, BY TYPES

CENTRAL INVERTER

Central inverters, also known as large central inverters, are typically used in utility-scale or large commercial photovoltaic (PV) systems. The DC electricity generated by the solar panels is fed into the central inverter, where it is converted into AC electricity suitable for use in homes, businesses, or for feeding into the electrical grid. One of the key advantages of central inverters is their cost-effectiveness for large-scale installations. By consolidating the DC inputs from multiple strings of panels into a single inverter, they reduce the overall cost per watt of installed PV capacity.



STRING INVERTERS

String inverters are smaller-scale inverters designed to manage the output from a group (or string) of solar panels connected in series. Each string typically consists of 5 to 20 panels, depending on the specifications of the inverter. One of the primary advantages of string inverters is their ability to handle varying shading conditions more effectively compared to central inverters. Since each string operates independently, the performance of one string is not directly affected by the shading or underperformance of another string. This makes string inverters a preferred choice for residential and small to medium-sized commercial installations.

MICRO INVERTER

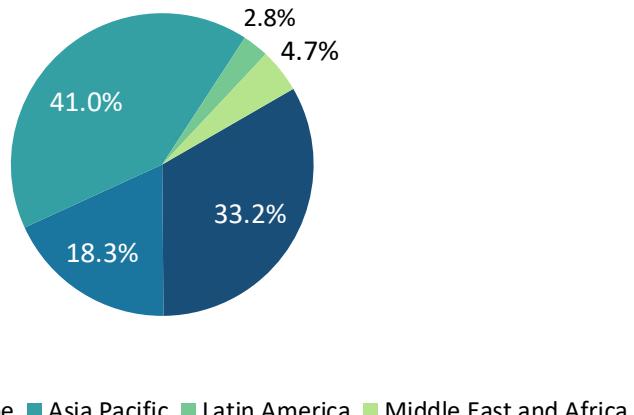
Micro inverters represent a more distributed approach to solar power conversion. Micro inverters are installed on each individual solar panel such that each solar panel operates independently with its own micro inverter, converting the DC electricity directly from the panel into AC electricity.

SOLAR INVERTER MARKET ANALYSIS, 2011-2023, TOTAL DEMAND OF SOLAR INVERTERS, BY REGION (UNITS) (1/2)

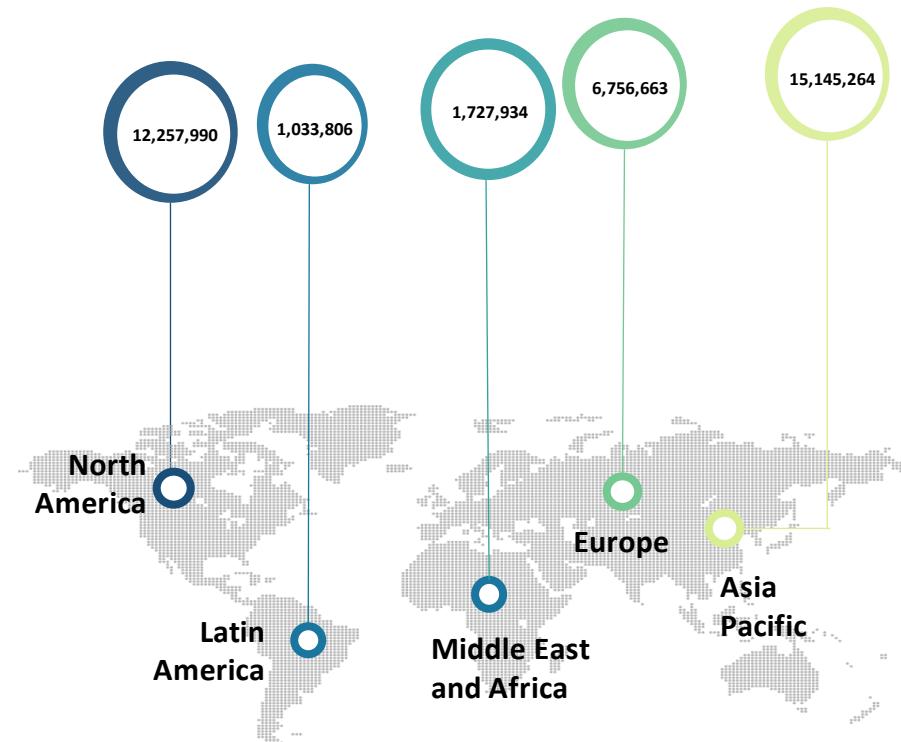
ASIA PACIFIC IS EXPECTED TO DOMINATE THE SOLAR INVERTERS MARKET OVER THE YEARS 2011-2023

Key Market Highlights :

- Below table represent the solar inverter market volume share by different regions such as North America, Europe, Asia Pacific, Latin America, and Middle East and Africa
- The global market volume of solar inverter is 36,921,657 Units in 2023. Asia Pacific accounted for the largest share in overall years (2011-2023).



By Region, 2023 – Volume (36,921,657 Units):



SOLAR INVERTER MARKET ANALYSIS, 2011-2023, TOTAL DEMAND OF SOLAR INVERTERS, BY REGION (UNITS) (2/2)

Global Solar Inverter Market Volume (Units) Analysis and Forecast, By Region, 2011-2023

Region	2011 H	2012 H	2013 H	2014 H	2015 H	2016 H	2017 H	2018 H	2019 H	2020 H	2021 H	2022 H	2023 A
North America	4,799,702	5,222,562	5,676,838	6,182,207	6,737,479	7,346,839	8,017,498	8,756,799	9,576,594	9,443,870	10,255,661	11,181,262	12,257,990
Europe	3,292,103	3,520,096	3,759,555	4,022,335	4,306,067	4,611,842	4,942,464	5,300,524	5,691,009	5,508,924	5,871,522	6,281,703	6,756,663
Asia Pacific	5,738,105	6,262,080	6,826,608	7,455,703	8,148,403	8,910,240	9,750,473	10,678,605	11,709,741	11,578,127	12,606,350	13,779,693	15,145,264
Latin America	639,960	673,772	708,105	744,985	783,690	824,130	866,487	910,851	957,659	906,843	944,436	986,117	1,033,806
Middle East and Africa	913,789	971,530	1,031,552	1,097,000	1,167,078	1,241,929	1,322,140	1,408,212	1,501,249	1,442,573	1,525,868	1,619,647	1,727,934
Total	15,383,660	16,650,039	18,002,658	19,502,231	21,142,717	22,934,981	24,899,062	27,054,992	29,436,251	28,880,336	31,203,836	33,848,423	36,921,657

SOLAR INVERTER MARKET ANALYSIS, 2011-2023, TYPES OF SOLAR INVERTER INSTALLED (UNITS)

Global Solar Inverter Market Volume (Units) Analysis and Forecast, By Type, 2011-2023

Type	2011 H	2012 H	2013 H	2014 H	2015 H	2016 H	2017 H	2018 H	2019 H	2020 H	2021 H	2022 H	2023 A
Central	2,719,406	2,863,480	3,017,045	3,181,549	3,354,024	3,536,259	3,729,673	3,937,687	4,159,789	3,974,493	4,181,509	4,420,005	4,691,968
String	3,589,824	3,879,606	4,186,389	4,523,171	4,887,532	5,283,812	5,716,107	6,191,939	6,713,087	6,583,916	7,111,252	7,717,447	8,410,753
Micro	9,074,429	9,906,954	10,799,224	11,797,511	12,901,162	14,114,910	15,453,282	16,925,367	18,563,375	18,321,928	19,911,075	21,710,970	23,818,936
Total	15,383,660	16,650,039	18,002,658	19,502,231	21,142,717	22,934,981	24,899,062	27,054,992	29,436,251	28,880,336	31,203,836	33,848,423	36,921,657

SOLAR MICRO INVERTER MARKET ECOSYSTEM

These are companies that design and manufacture solar micro inverters. They focus on technology innovation, product efficiency, and integration with solar modules.



These entities ensure the optimal performance and longevity of solar installations.



OEM

SYSTEM
INTEGRATOR/ EPC
CONTRACTORS

STAKEHOLDERS

OPERATION AND
MAINTENANCE
OPERATORS

END-USERS

These companies design, procure, and install solar power systems, including microinverter-based systems. They ensure the optimal performance of the installed systems by integrating microinverters into larger solar setups.



- Utilities and Energy Companies
- Commercial and Industrial
- Independent Power Producers
- Government and Public Sector Entities

When it comes to managing solar inverters, organizations often face a choice between operating them in-house (Own Operator) or outsourcing the management to an Original Equipment Manufacturer (OEM) or a third-party service provider. Each approach has its own set of advantages and disadvantages, which can significantly impact the efficiency, cost-effectiveness, and overall performance of solar energy systems. Below is a detailed comparison of these two management strategies.

01

Cost Considerations

- In-house Management:** Managing solar inverters internally can lead to significant cost savings over time. Organizations can avoid ongoing service fees associated with third-party providers. However, initial investments in training personnel and purchasing diagnostic tools may be necessary. Additionally, there are costs related to hiring skilled technicians who understand the intricacies of inverter technology.
- OEM/Third-party Management:** While outsourcing management may incur higher upfront costs due to service contracts and fees, it can also provide predictable budgeting for maintenance and repairs. Third-party providers often have established relationships with manufacturers, potentially leading to better pricing on parts and services.

02

Expertise and Technical Knowledge

- **In-house Management:** An internal team can develop specialized knowledge about the specific solar inverter models used within the organization. This familiarity can lead to quicker troubleshooting and repairs since staff members are trained specifically on those systems. However, maintaining up-to-date knowledge on evolving technologies requires continuous training.
- **OEM/Third-party Management:** Third-party providers typically have extensive experience across various brands and models of solar inverters. Their technicians are often trained by manufacturers and stay current with industry trends and technological advancements, which may result in more efficient problem resolution.

03

Response Time and Availability

- **In-house Management:** Having an internal team allows for immediate response times during operational hours since staff is readily available on-site. This can minimize downtime during critical periods when solar generation is needed most.
- **OEM/Third-party Management:** Response times may vary depending on the contract terms with the service provider. Some companies offer 24/7 support, while others may only provide assistance during business hours. Delays in response could lead to longer downtimes if issues arise outside of regular hours.

04

Maintenance Practices

- **In-house Management:** Organizations that manage their own solar inverters can implement tailored maintenance schedules based on their specific operational needs and usage patterns. This flexibility allows for proactive measures that align closely with organizational goals.
- **OEM/Third-party Management:** Third-party providers often have standardized maintenance practices based on best practices across multiple installations. While this can ensure thoroughness, it may not always align perfectly with an individual organization's unique requirements or schedules.

05

Risk Management

- **In-house Management:** By managing operations internally, organizations retain full control over their assets and decision-making processes regarding risk management strategies such as insurance coverage or compliance with regulations.
- **OEM/Third-party Management:** Outsourcing risk management responsibilities to a third party may relieve some burden from internal teams but could also introduce risks related to reliance on external entities for compliance and safety standards.

06

Scalability

- **In-house Management:** As organizations grow or expand their solar installations, scaling up internal operations might require additional hiring or training efforts which could slow down growth if not managed effectively.
- **OEM/Third-party Management:** Third-party providers usually have the resources necessary to scale operations quickly without requiring significant investment from the organization itself, allowing for faster adaptation to changing energy demands or expansion projects.

07

Data Monitoring and Analytics

- **In-house Management:** Internal teams can develop customized monitoring solutions tailored specifically for their operational needs; however, they must invest time into developing data analytics capabilities that provide actionable insights into system performance.
- **OEM/Third-party Management:** Many third-party service providers offer advanced monitoring solutions as part of their service packages that include analytics tools designed for optimal performance tracking across multiple installations—providing valuable insights without requiring extensive internal development efforts.

SOLAR INVERTER MANAGEMENT: OWN OPERATOR/IN-HOUSE VS. OEM COMPANY/THIRD-PARTY SERVICE PROVIDER (5/5)

Conclusion:

The decision between managing solar inverters through an Own Operator/In-house model versus utilizing an OEM Company or Third-party Service Provider involves careful consideration of various factors including cost implications, expertise availability, response times, maintenance practices, risk management strategies, scalability options, and data analytics capabilities. Each approach has its merits depending on organizational priorities such as budget constraints versus desired levels of control over operations. Ultimately, organizations should assess their specific circumstances—including size, complexity of installations, technical expertise available internally—and weigh these against potential benefits offered by external partners before making a decision regarding inverter management strategy.



SECTION 4

GLOBAL SOLAR MICRO INVERTER MARKET

Impact of COVID-19

- The COVID-19 pandemic significantly disrupted the global solar micro inverter market, creating both challenges and opportunities. During the initial phases of the pandemic, strict lockdowns, travel restrictions, and supply chain disruptions slowed down manufacturing and distribution activities. Key components required for solar micro inverters, such as semiconductors, faced supply shortages, leading to delays in production and increased costs. This impacted project timelines and created uncertainty among stakeholders.
- The economic slowdown further affected demand, as many residential and commercial projects were postponed or canceled due to budget constraints. The shift in focus from renewable energy investments to managing immediate economic challenges temporarily diverted resources from solar initiatives. Additionally, limited workforce availability due to health and safety measures hindered on-site installations and maintenance activities.
- However, the pandemic also highlighted the importance of renewable energy as part of a resilient and sustainable energy infrastructure. Governments worldwide introduced stimulus packages and incentives to promote clean energy adoption, creating opportunities for the solar micro inverter market. Homeowners and businesses increasingly recognized the benefits of energy independence during periods of uncertainty, driving interest in solar solutions.
- The shift toward remote work and digital tools also accelerated the adoption of virtual sales, marketing, and installation services within the solar industry. Companies adapted by leveraging digital platforms to educate customers, provide remote consultations, and streamline the sales process. As economies began to recover, the focus on sustainability and the global push toward achieving net-zero emissions revitalized demand for solar technologies, including micro inverters.

SECTION 5 **GLOBAL SOLAR MICRO INVERTER** **MARKET**

Technology

GLOBAL SOLAR MICRO INVERTER MARKET, BY TECHNOLOGY

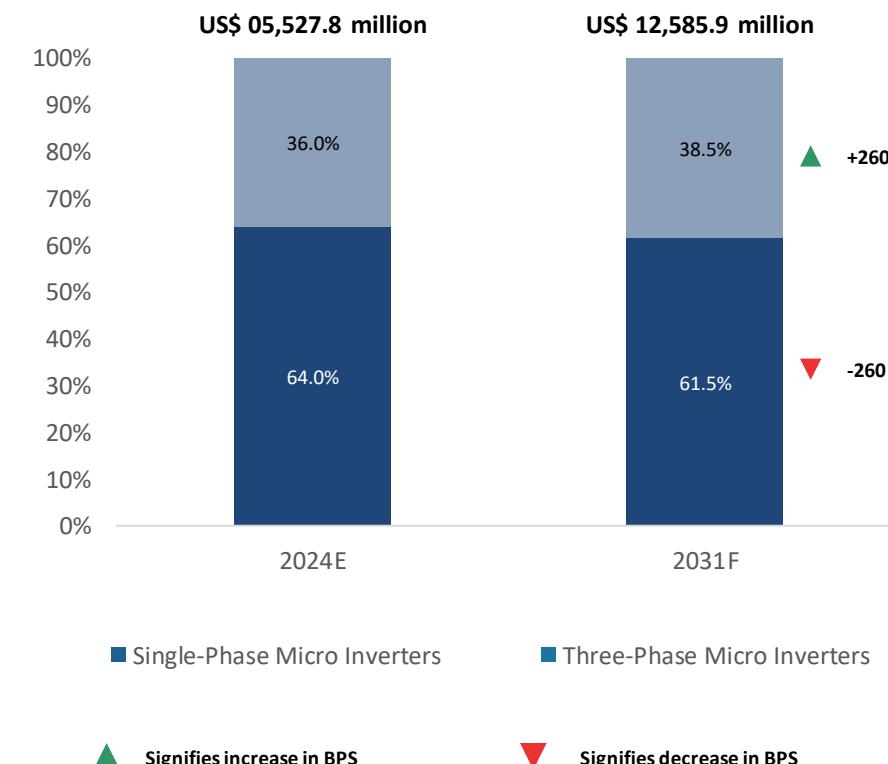
TABLE 5.1

Global Solar Micro Inverter Market Share (%) Analysis,
Technology, 2024, 2027 & 2031.

Technology	2024E	2027F	2031F
Single-Phase Micro Inverters	64.0%	62.9%	61.5%
Three-Phase Micro Inverters	36.0%	37.1%	38.5%
Total	100.0%	100.0%	100.0%

Figure 5.1

Global Solar Micro Inverter Market Share (%) and BPS
Analysis, By Technology, 2024 - 2031



*Basis Point Share depicts change in market share of each segment across two different period. It is result of difference of market share for each segment across two different period. It is calculated by multiplying the percentage change in market share by 100. this measurement quantifies shifts in market dynamics and performance.

GLOBAL SOLAR MICRO INVERTER MARKET, BY TECHNOLOGY

TABLE 5.2

Global Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast, Technology, 2019 - 2031

Technology	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Single-Phase Micro Inverters	2,422.1	2,401.1	2,624.0	2,881.1	3,187.6	3,540.4	3,937.8	4,389.2	4,900.0	5,476.6	6,132.5	6,876.2	7,734.1	11.8%
Three-Phase Micro Inverters	1,248.5	1,259.5	1,400.4	1,564.1	1,759.9	1,987.4	2,247.2	2,545.8	2,888.0	3,279.4	3,730.2	4,248.0	4,851.8	13.6%
Total	3,670.7	3,660.6	4,024.4	4,445.1	4,947.4	5,527.8	6,185.0	6,935.0	7,788.0	8,756.0	9,862.8	11,124.2	12,585.9	12.5%

GLOBAL SOLAR MICRO INVERTER MARKET, BY TECHNOLOGY

TABLE 5.3

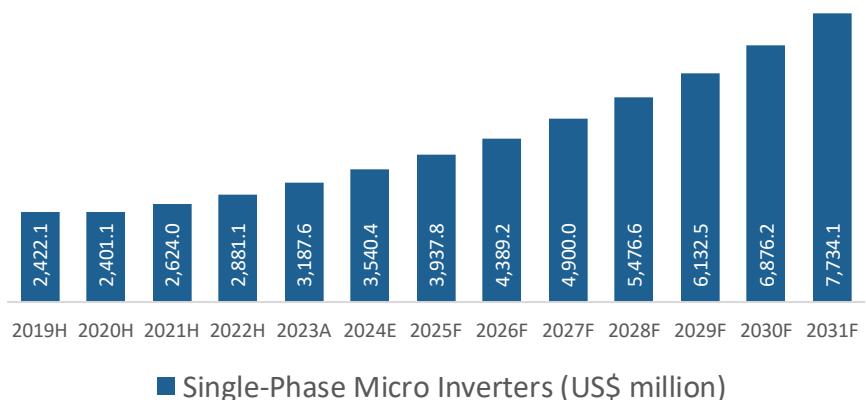
Global Solar Micro Inverter Market Volume (Units) Analysis and Forecast, Technology, 2019 - 2031

Technology	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Single-Phase Micro Inverters	1,12,37,341	1,10,55,946	1,19,73,118	1,30,04,017	1,42,00,805	1,55,30,900	1,70,25,856	1,87,04,649	2,05,81,681	2,26,73,871	2,50,03,756	2,76,35,441	3,06,40,546	10.2%
Three-Phase Micro Inverters	71,58,875	71,53,722	78,67,319	86,75,817	96,18,131	1,06,77,074	1,18,78,919	1,32,42,368	1,47,83,666	1,65,21,543	1,84,79,636	2,07,13,743	2,32,88,134	11.8%
Total	1,83,96,216	1,82,09,668	1,98,40,437	2,16,79,833	2,38,18,936	2,62,07,975	2,89,04,775	3,19,47,016	3,53,65,347	3,91,95,414	4,34,83,392	4,83,49,184	5,39,28,680	10.9%

Single-Phase Micro Inverters segment is expected to generate an incremental opportunity of US\$ 4,193.79 million for the forecasted year.

FIGURE 5.2

Global Solar Micro Inverter Market Value (US\$ million)
Analysis, by Single-Phase Micro Inverters



Projected growth of the **Single-phase Micro Inverters** during 2024-2031

2.2X

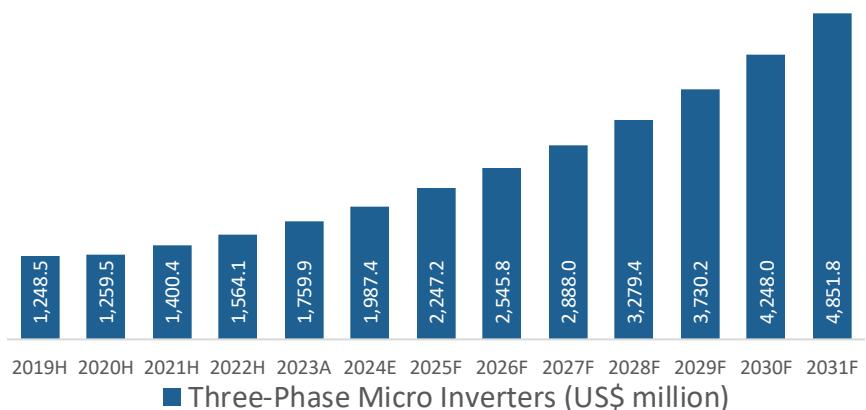
- Single-Phase Micro Inverters segment in Global Solar Micro Inverter Market is estimated to be valued at US\$ 3,540.40 million in 2024, and is expected to reach US\$ 7,734.10 million by 2031, exhibiting a CAGR of 11.8% over the forecast period 2024-2031
- Single-Phase Micro Inverters segment is estimated to account for 64% market share in 2024 and is expected to account for 61.5% market share by 2031
- Single-phase micro inverters are compact devices used in solar energy systems to convert direct current (DC) from individual solar panels into alternating current (AC) for residential and small commercial applications. Unlike traditional string inverters that handle multiple panels at once, single-phase micro inverters are installed on each panel, enabling independent operation. This technology enhances overall system efficiency, reliability, and energy yield by optimizing the performance of each panel, even in cases of shading, dirt, or varying sunlight conditions.
- The segment growth is driven by increasing demand for rooftop solar installations, especially in residential areas, due to rising energy costs, supportive government policies, and growing awareness about renewable energy. Single-phase micro inverters are particularly favored for their simplicity, easy installation, and suitability for low-power systems.

- Technological advancements, such as the integration of advanced monitoring systems, smart grid compatibility, and IoT-enabled inverters, are further propelling the adoption of these devices. Additionally, their capability to provide real-time performance data and rapid shutdown in emergencies aligns with evolving safety standards in the solar industry.
- For instance, in November 2023, Fenice Energy, a clean energy solutions provider formerly known as SunEdison, launched new single-phase and three-phase micro-inverters for residential and commercial solar installations. These micro-inverters can handle a maximum input current of 20A and support PV modules with power outputs of up to 670 Wp+.

Three-Phase Micro Inverters segment is expected to generate an incremental opportunity of US\$ 2,864.36 million for the forecasted year.

FIGURE 5.3

Global Solar Micro Inverter Market Value (US\$ million) Analysis, by Three-Phase Micro Inverters



2.4X

Projected growth of the **Three-phase Micro Inverters** during 2024-2031

- Three-Phase Micro Inverters segment in Global Solar Micro Inverter Market is estimated to be valued at US\$ 1,987.40 million in 2024, and is expected to reach US\$ 4,851.80 million by 2031, exhibiting a CAGR of 13.6% over the forecast period 2024-2031
- Three-Phase Micro Inverters segment is estimated to account for 36% market share in 2024 and is expected to account for 38.5% market share by 2031
- The role of the three-phase micro inverters segment in the global market is significant, particularly for commercial and industrial solar installations requiring balanced power distribution across three-phase grids. Growth in this sub-segment is driven by increasing demand for renewable energy in urban areas, advancements in smart grid infrastructure, and rising investments in large-scale solar projects.
- Technological innovations, such as grid-friendly designs, integrated monitoring systems, and improved heat management, are boosting the adoption of these inverters. Additionally, manufacturers are incorporating AI-driven analytics and IoT-enabled features to optimize energy output and facilitate real-time performance tracking.

With benefits such as higher energy yield, enhanced safety, and modular scalability, the three-phase micro inverter segment is expected to grow rapidly, especially in regions with high industrial and commercial energy demand, such as North America, Europe, and Asia Pacific.

- For instance, in November 2023, Enphase Energy, a global provider of microinverter-based solar and battery systems, launched its new three-phase IQ8 Commercial Microinverters, specifically designed for the small commercial solar market in North America. The IQ8P-3P Microinverter offers a peak output power of up to 480 watts, making it suitable for small three-phase commercial applications and compatible with the latest high-powered solar panels.



SECTION 6 **GLOBAL SOLAR MICRO INVERTER** **MARKET**

Power Rating

GLOBAL SOLAR MICRO INVERTER MARKET, BY POWER RATING

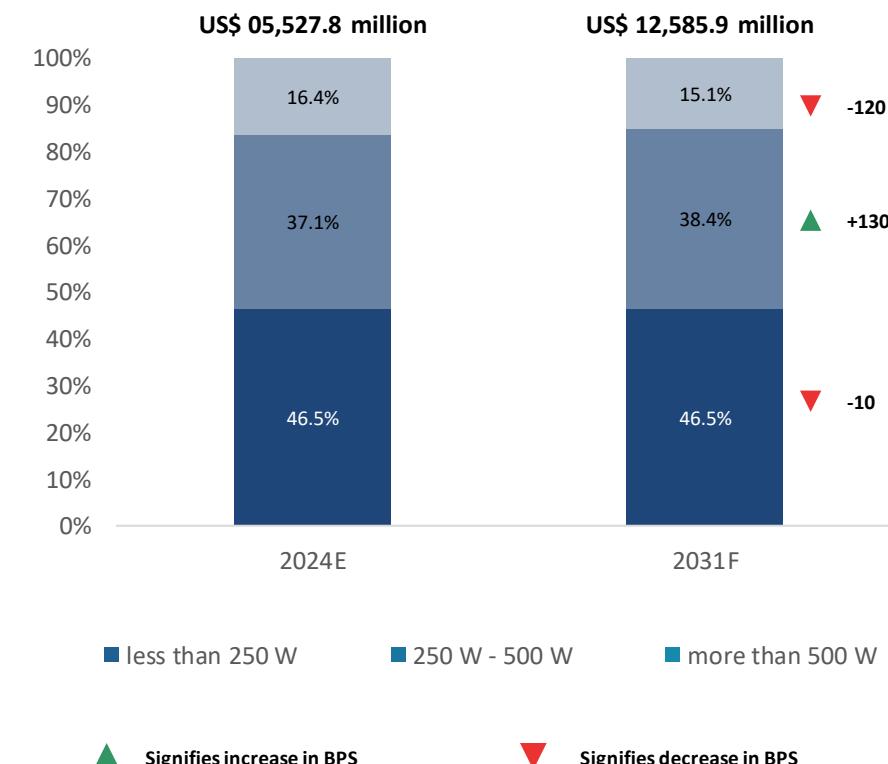
TABLE 6.1

Global Solar Micro Inverter Market Share (%) Analysis, Power Rating, 2024, 2027 & 2031.

Power Rating	2024E	2027F	2031F
Less than 250 W	46.5%	46.5%	46.5%
250 W - 500 W	37.1%	37.7%	38.4%
More than 500 W	16.4%	15.8%	15.1%
Total	100.0%	100.0%	100.0%

Figure 6.1

Global Solar Micro Inverter Market Share (%) and BPS Analysis, By Power Rating, 2024 - 2031



*Basis Point Share depicts change in market share of each segment across two different period. It is result of difference of market share for each segment across two different period. It is calculated by multiplying the percentage change in market share by 100. this measurement quantifies shifts in market dynamics and performance.

GLOBAL SOLAR MICRO INVERTER MARKET, BY POWER RATING

TABLE 6.2

Global Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast, Power Rating, 2019 - 2031

Power Rating	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Less than 250 W	1,710.9	1,705.6	1,874.5	2,069.8	2,302.9	2,572.3	2,877.2	3,225.2	3,621.0	4,070.0	4,583.4	5,168.4	5,846.4	12.4%
250 W - 500 W	1,328.6	1,331.7	1,471.4	1,633.4	1,827.1	2,051.6	2,306.9	2,599.5	2,933.6	3,314.5	3,751.8	4,252.4	4,834.6	13.0%
More than 500 W	631.1	623.3	678.5	742.0	817.5	903.9	1,000.8	1,110.3	1,233.4	1,371.4	1,527.5	1,703.4	1,904.9	11.2%
Total	3,670.7	3,660.6	4,024.4	4,445.1	4,947.4	5,527.8	6,185.0	6,935.0	7,788.0	8,756.0	9,862.8	11,124.2	12,585.9	12.5%

GLOBAL SOLAR MICRO INVERTER MARKET, BY POWER RATING

TABLE 6.3

Global Solar Micro Inverter Market Volume (Units) Analysis and Forecast, Power Rating, 2019 - 2031

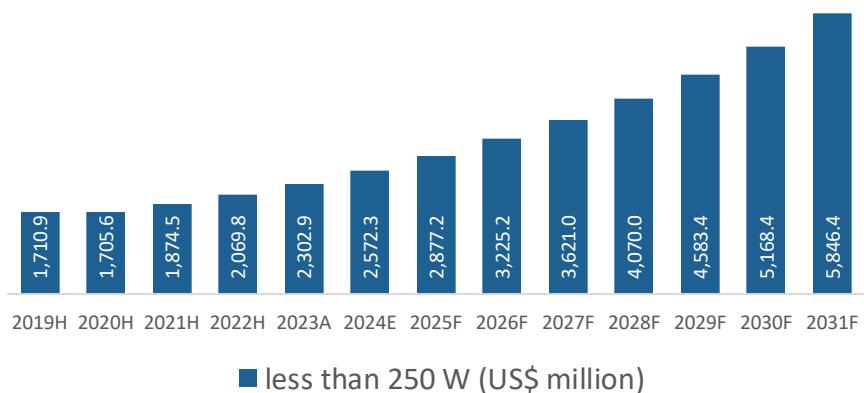
Power Rating	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Less than 250 W	95,20,114	94,21,922	1,02,64,036	1,12,13,934	1,23,18,712	1,35,52,617	1,49,45,552	1,65,17,006	1,82,82,842	2,02,61,516	2,24,76,942	2,49,91,158	2,78,74,485	10.9%
250 W - 500 W	62,76,384	62,44,229	68,37,826	75,09,429	82,91,851	91,69,268	1,01,63,347	1,12,89,042	1,25,59,085	1,39,88,211	1,55,95,186	1,74,25,686	1,95,32,028	11.4%
More than 500 W	25,99,717	25,43,517	27,38,575	29,56,471	32,08,373	34,86,090	37,95,877	41,40,968	45,23,420	49,45,688	54,11,264	59,32,340	65,22,167	9.4%
Total	1,83,96,216	1,82,09,668	1,98,40,437	2,16,79,833	2,38,18,936	2,62,07,975	2,89,04,775	3,19,47,016	3,53,65,347	3,91,95,414	4,34,83,392	4,83,49,184	5,39,28,680	10.9%

GLOBAL SOLAR MICRO INVERTER MARKET, BY POWER RATING

Less than 250 W segment is expected to generate an incremental opportunity of US\$ 3,274.10 million for the forecasted year.

FIGURE 6.2

**Global Solar Micro Inverter Market Value (US\$ million)
Analysis, by Less than 250 W**



Projected growth of the **Less Than 250 W** during 2024-2031

2.3X

- Less than 250 W segment in Global Solar Micro Inverter Market is estimated to be valued at US\$ 2,572.30 million in 2024, and is expected to reach US\$ 5,846.40 million by 2031, exhibiting a CAGR of 12.4% over the forecast period 2024-2031
- Less than 250 W segment is estimated to account for 46.5% market share in 2024 and is expected to account for 46.5% market share by 2031
- The <250 W segment in the global solar micro inverter market refers to micro inverters designed for solar panels with a power output of less than 250 watts. These inverters are widely used in residential solar systems and small-scale installations where compact, efficient, and cost-effective solutions are needed.
- This sub-segment plays a crucial role in the market by enabling efficient energy conversion for lower-capacity solar panels, ensuring optimal power output even under partial shading or variable environmental conditions. The growth of this segment is driven by the increasing adoption of rooftop solar systems, rising awareness of renewable energy benefits, and supportive government policies.

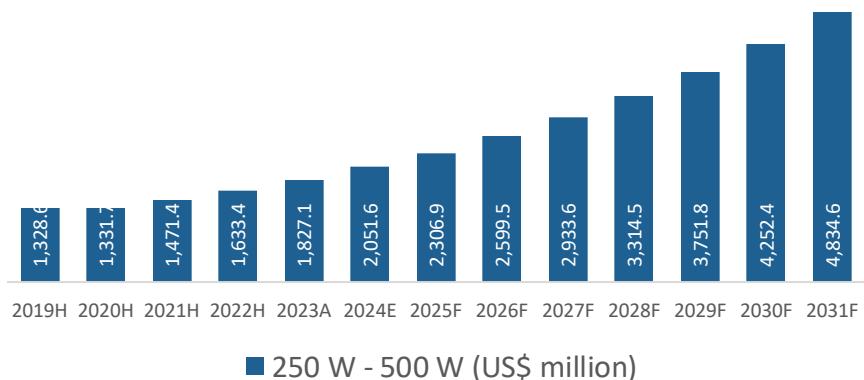
- Advances in semiconductor technologies and the integration of IoT (Internet of Things) features have enhanced the performance and monitoring capabilities of these micro inverters. Innovations like wireless communication and energy storage compatibility are also boosting demand. The market is further fueled by declining prices of solar equipment, advancements in micro inverter efficiency, and a growing focus on decentralized energy systems.
- For instance, on July 9, 2024, Enphase Energy, Inc., specializes in solar energy and battery storage systems introduced its fourth-generation microinverter system in Europe, featuring the new M250 Microinverter, which provides a rated AC output of 250 watts. This system also includes the Envoy Communications Gateway, equipped with a Wi-Fi option that connects to the Enlighten software platform, improving the intelligence and reliability of solar systems.

GLOBAL SOLAR MICRO INVERTER MARKET, BY POWER RATING

250 W - 500 W segment is expected to generate an incremental opportunity of US\$ 2,783.05 million for the forecasted year.

FIGURE 6.3

Global Solar Micro Inverter Market Value (US\$ million)
Analysis, by 250 W - 500 W



Projected growth of the **250 W - 500 W** during 2024-2031

2.4X

- 250 W - 500 W segment in Global Solar Micro Inverter Market is estimated to be valued at US\$ 2,051.60 million in 2024, and is expected to reach US\$ 4,834.60 million by 2031, exhibiting a CAGR of 13.0% over the forecast period 2024-2031
- 250 W - 500 W segment is estimated to account for 37.1% market share in 2024 and is expected to account for 38.4% market share by 2031
- 250 W - 500 W microinverters are highly efficient and commonly used in residential and small-scale commercial solar installations. They play a vital role in optimizing energy production by converting direct current (DC) generated by solar panels into usable alternating current (AC) for household or grid use.
- Rising demand for solar energy in urban areas, where space-efficient systems are prioritized, is driving the segment growth. Key factors driving this growth include the increasing awareness of renewable energy benefits, supportive government policies, and declining costs of solar components. Recent advancements in microinverter technology, such as integrated smart monitoring systems, improved thermal management, and higher reliability, have further boosted adoption.

These innovations enhance energy efficiency, allow real-time performance tracking, and ensure longer operational lifespans, making these microinverters an attractive choice for end users.

- For instance, on August 12, 2024, Skycorp, a prominent player in the solar energy sector, launched an advanced 400W microinverter as part of its range of PV accessories and new energy equipment. This innovative product aims to transform the way solar energy is captured and used, enhancing efficiency and cost-effectiveness. The microinverter is designed to optimize the power output of solar panels, making it an excellent choice for both residential and commercial solar energy systems.

GLOBAL SOLAR MICRO INVERTER MARKET, BY POWER RATING

More than 500 W segment is expected to generate an incremental opportunity of US\$ 1,001.00 million for the forecasted year.

FIGURE 6.4

Global Solar Micro Inverter Market Value (US\$ million)
Analysis, by More than 500 W



- More than 500 W segment in Global Solar Micro Inverter Market is estimated to be valued at US\$ 903.90 million in 2024, and is expected to reach US\$ 1,904.90 million by 2031, exhibiting a CAGR of 11.2% over the forecast period 2024-2031
- More than 500 W segment is estimated to account for 16.4% market share in 2024 and is expected to account for 15.1% market share by 2031
- High-capacity microinverters are ideal for large-scale residential, commercial, and industrial solar installations, where robust energy conversion and efficiency are essential. Their role in the market is significant as they cater to systems requiring higher power output, ensuring optimized energy generation, superior grid compatibility, and better system reliability.
- The growth of this sub-segment is fueled by increasing global energy demands, the rising adoption of renewable energy solutions, and government incentives promoting solar energy adoption. Technological advancements, such as improved power electronics, enhanced heat dissipation mechanisms, and AI-enabled monitoring systems, have boosted the efficiency, durability, and operational intelligence of these devices.

2.1X

Projected growth of the **More Than 500 W** during 2024-2031

- Moreover, the development of advanced grid-tied and hybrid systems further expands the application scope of >500 W microinverters, making them a preferred choice for modern solar systems. The segment's growth is also supported by innovations like integrated storage solutions and real-time energy analytics, which maximize energy harvest and enable seamless integration into smart energy ecosystems.
- For instance, in June 2023, Hoymiles Power Electronics Inc., a leading provider of clean energy solutions based in China, launched its HMS-1000W microinverter series, designed for miniature PV systems like balcony solar setups. These products feature an industry-grade Wi-Fi module that allows the microinverter to connect to nearby devices and record data remotely.

SECTION 7

GLOBAL SOLAR MICRO INVERTER MARKET

Provider

GLOBAL SOLAR MICRO INVERTER MARKET, BY PROVIDER

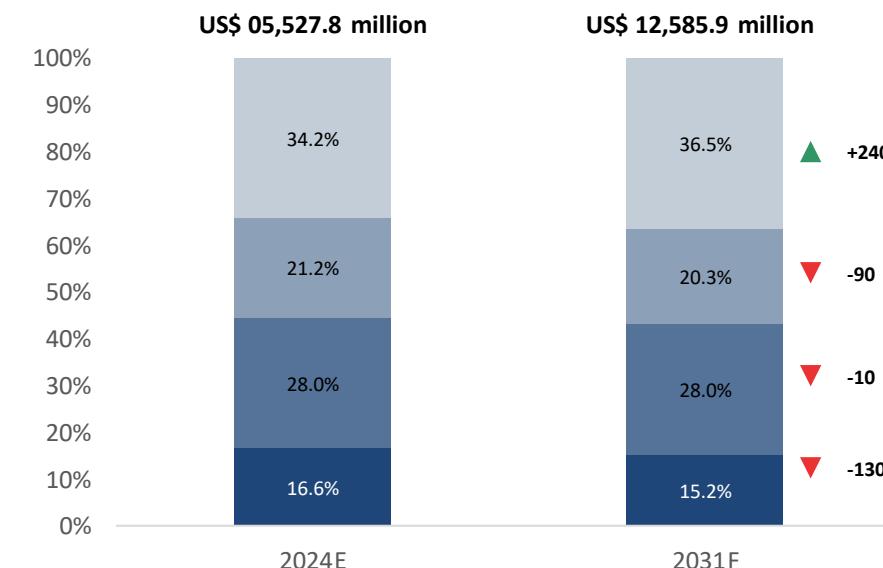
TABLE 7.1

Global Solar Micro Inverter Market Share (%) Analysis,
Provider, 2024, 2027 & 2031.

Provider	2024E	2027F	2031F
Direct Sales through OEM	16.6%	16.0%	15.2%
Distributors and Wholesalers	28.0%	28.0%	28.0%
Retailers	21.2%	20.8%	20.3%
Solar Installers and Contractors	34.2%	35.2%	36.5%
Total	100.0%	100.0%	100.0%

Figure 7.1

Global Solar Micro Inverter Market Share (%) and BPS
Analysis, By Provider, 2024 - 2031



*Basis Point Share depicts change in market share of each segment across two different period. It is result of difference of market share for each segment across two different period. It is calculated by multiplying the percentage change in market share by 100. this measurement quantifies shifts in market dynamics and performance.

1



Signifies increase in BPS



Signifies decrease in BPS

GLOBAL SOLAR MICRO INVERTER MARKET, BY PROVIDER

TABLE 7.2

Global Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast, Provider, 2019 - 2031

Provider	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Direct Sales through OEM	646.2	636.5	691.3	754.3	829.4	915.5	1,012.0	1,121.1	1,244.0	1,382.0	1,538.2	1,714.4	1,916.8	11.1%
Distributors and Wholesalers	1,030.2	1,027.2	1,129.0	1,246.8	1,387.3	1,549.6	1,733.3	1,942.7	2,180.9	2,450.9	2,759.5	3,111.0	3,518.1	12.4%
Retailers	806.3	798.7	872.3	957.1	1,058.2	1,174.5	1,305.6	1,454.3	1,622.6	1,812.5	2,028.4	2,273.1	2,555.4	11.7%
Solar Installers and Contractors	1,188.0	1,198.1	1,331.8	1,487.0	1,672.6	1,888.2	2,134.2	2,416.8	2,740.5	3,110.6	3,536.6	4,025.6	4,595.7	13.5%
Total	3,670.7	3,660.6	4,024.4	4,445.1	4,947.4	5,527.8	6,185.0	6,935.0	7,788.0	8,756.0	9,862.8	11,124.2	12,585.9	12.5%

GLOBAL SOLAR MICRO INVERTER MARKET, BY PROVIDER

TABLE 7.3

Global Solar Micro Inverter Market Volume (Units) Analysis and Forecast, Provider, 2019 - 2031

Provider	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Direct Sales through OEM	29,63,345	28,98,036	31,19,714	33,68,182	36,56,392	39,75,297	43,32,384	47,31,780	51,76,370	56,69,598	62,16,226	68,31,186	75,30,914	9.6%
Distributors and Wholesalers	55,58,285	55,00,805	59,92,073	65,45,954	71,89,851	79,08,619	87,19,574	96,33,923	1,06,60,716	1,18,10,479	1,30,96,868	1,45,55,686	1,62,27,452	10.8%
Retailers	35,41,635	34,83,009	37,70,421	40,93,453	44,68,491	48,85,247	53,53,618	58,79,539	64,67,508	71,22,811	78,52,504	86,76,691	96,17,828	10.2%
Solar Installers and Contractors	63,32,951	63,27,818	69,58,229	76,72,244	85,04,202	94,38,812	1,04,99,200	1,17,01,774	1,30,60,753	1,45,92,526	1,63,17,794	1,82,85,621	2,05,52,486	11.8%
Total	1,83,96,216	1,82,09,668	1,98,40,437	2,16,79,833	2,38,18,936	2,62,07,975	2,89,04,775	3,19,47,016	3,53,65,347	3,91,95,414	4,34,83,392	4,83,49,184	5,39,28,680	10.9%

GLOBAL SOLAR MICRO INVERTER MARKET, BY PROVIDER

Direct Sales through OEM segment is expected to generate an incremental opportunity of US\$ 1,001.33 million for the forecasted year.

FIGURE 7.2

Global Solar Micro Inverter Market Value (US\$ million)
Analysis, by Direct Sales through OEM



Projected growth of the **Direct Sales Through OEM** during 2024-2031

2.1X

- Direct Sales through OEM segment in Global Solar Micro Inverter Market is estimated to be valued at US\$ 915.50 million in 2024, and is expected to reach US\$ 1,916.80 million by 2031, exhibiting a CAGR of 11.1% over the forecast period 2024-2031
- Direct Sales through OEM segment is estimated to account for 16.6% market share in 2024 and is expected to account for 15.2% market share by 2031
- OEMs directly manufacture and supply solar micro inverters to integrators, installers, and end users, eliminating intermediaries. This approach enhances efficiency in the supply chain and ensures cost-effectiveness. OEMs contribute significantly to the market by providing custom-designed micro inverters tailored to specific customer needs, including residential, commercial, and industrial applications.
- Additionally, OEMs often leverage advanced technologies like artificial intelligence (AI)-enabled monitoring systems, improved power electronics, and high-efficiency semiconductor materials (such as silicon carbide) to enhance inverter performance. These innovations improve energy conversion efficiency, durability, and compatibility with smart energy management systems.

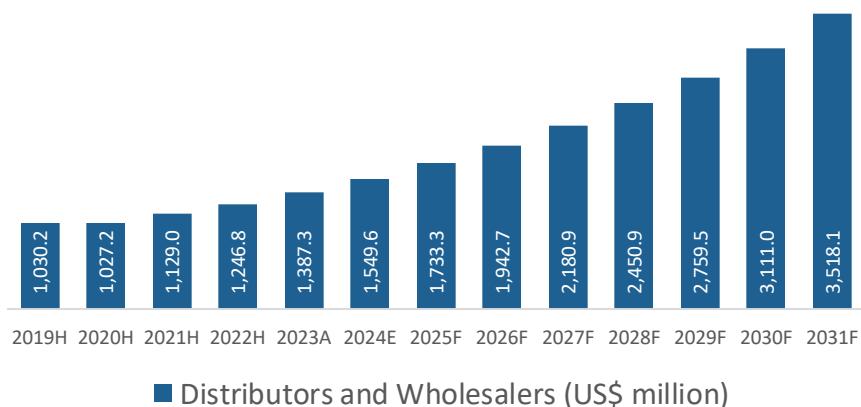
- Furthermore, the integration of Internet of Things (IoT) capabilities in OEM-designed micro inverters has enabled real-time monitoring, predictive maintenance, and seamless connectivity with grid systems, supporting the transition to smart solar energy solutions.
- For instance, in October 2021, Enphase Energy, Inc. introduced IQ8 solar microinverters. The IQ8 is Enphase's most advanced microinverter, capable of creating a microgrid during power outages using only sunlight, which allows it to provide backup power even without a battery.

GLOBAL SOLAR MICRO INVERTER MARKET, BY PROVIDER

Distributors and Wholesalers segment is expected to generate an incremental opportunity of US\$ 1,968.48 million for the forecasted year.

FIGURE 7.3

Global Solar Micro Inverter Market Value (US\$ million)
Analysis, by Distributors and Wholesalers



Projected growth of the **Distributors And Wholesalers** during 2024-2031

2.3X

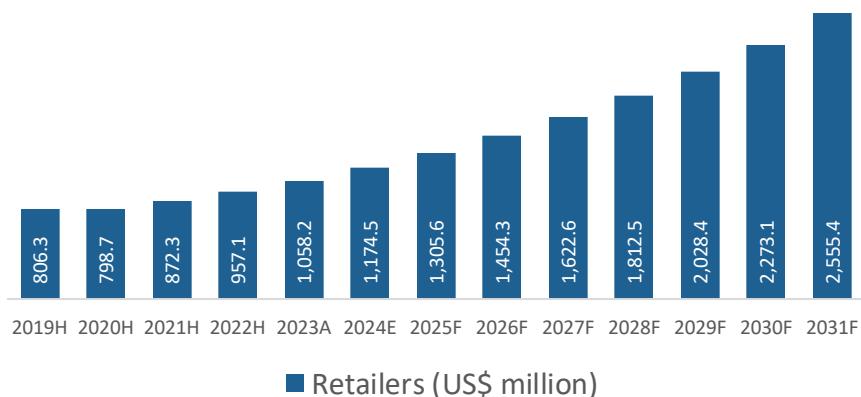
- Distributors and Wholesalers segment in Global Solar Micro Inverter Market is estimated to be valued at US\$ 1,549.60 million in 2024, and is expected to reach US\$ 3,518.10 million by 2031, exhibiting a CAGR of 12.4% over the forecast period 2024-2031
- Distributors and Wholesalers segment is estimated to account for 28% market share in 2024 and is expected to account for 28% market share by 2031
- Distributors and Wholesalers act as intermediaries between manufacturers and end users such as residential, commercial, and industrial consumers. They ensure the efficient distribution and availability of solar micro inverters across various regions, contributing to market penetration and scalability. This sub-segment benefits from growing demand for renewable energy solutions, government incentives for solar adoption, and increasing awareness of energy efficiency among consumers.
- Distributors and wholesalers also play a vital role in managing inventory, providing technical support, and offering competitive pricing, which collectively enhances the accessibility of these advanced inverters.

- Recent technological advancements, such as improved inverter efficiency, real-time monitoring systems, and integration with smart grids, have enhanced the appeal of solar micro inverters, further fueling demand. Additionally, the trend of distributors offering value-added services, such as installation support and maintenance, has created opportunities for market expansion.
- For instance, on February 16, 2024, SPARQ Systems, a Canada-based manufacturer specializing in single-phase microinverters for solar applications, signed a manufacturing and supply agreement with Jio Things, a subsidiary of Jio Platforms. This partnership aims to develop, collaborate on, and distribute microinverters in India. The long-term agreement will also allow SPARQ to integrate its microinverters, commonly used in solar photovoltaic technology, into Jio Things' solutions worldwide. This collaboration establishes a framework for both companies to work together on innovative product development.

Retailers segment is expected to generate an incremental opportunity of US\$ 1,380.85 million for the forecasted year.

FIGURE 7.4

Global Solar Micro Inverter Market Value (US\$ million) Analysis, by Retailers



Projected growth of the **Retailers** during 2024-2031

2.2X

- Retailers segment in Global Solar Micro Inverter Market is estimated to be valued at US\$ 1,174.50 million in 2024, and is expected to reach US\$ 2,555.40 million by 2031, exhibiting a CAGR of 11.7% over the forecast period 2024-2031
- Retailers segment is estimated to account for 21.2% market share in 2024 and is expected to account for 20.3% market share by 2031
- Retailers are responsible for distributing and selling solar micro inverters, which are essential components in solar energy systems. The Retailers sub-segment thrives on the rising demand for solar energy solutions, driven by increasing global emphasis on renewable energy adoption, government incentives, and the need for energy-efficient solutions.
- The segment benefits from technological advancements such as improved micro inverter efficiency, integration with smart grid systems, and enhanced durability to withstand harsh environmental conditions. Retailers often leverage e-commerce platforms to expand their reach, providing consumers with easy access to a wide range of products.

GLOBAL SOLAR MICRO INVERTER MARKET, BY PROVIDER

Solar Installers and Contractors segment is expected to generate an incremental opportunity of US\$ 2,707.49 million for the forecasted year.

FIGURE 7.5

Global Solar Micro Inverter Market Value (US\$ million) Analysis, by Solar Installers and Contractors



Projected growth of the **Solar Installers And Contractors** during 2024-2031

2.4X

- Solar Installers and Contractors segment in Global Solar Micro Inverter Market is estimated to be valued at US\$ 1,888.20 million in 2024, and is expected to reach US\$ 4,595.70 million by 2031, exhibiting a CAGR of 13.5% over the forecast period 2024-2031
- Solar Installers and Contractors segment is estimated to account for 34.2% market share in 2024 and is expected to account for 36.5% market share by 2031
- Solar installers and contractors are responsible for designing, installing, and maintaining solar power systems, ensuring optimal energy efficiency and performance. This sub-segment serves between manufacturers and end users, enabling the seamless integration of advanced solar technologies.
- Technological advancements have further propelled this segment's growth, including the development of smart micro inverters with real-time monitoring and AI-driven diagnostics. Features such as compatibility with battery storage systems, integration with IoT-enabled energy management platforms, and plug-and-play designs have simplified installation processes and reduced labor costs.

- Solar installers and contractors are also embracing training programs and certifications to meet evolving industry standards and customer expectations. The increasing trend of rooftop solar installations and the rising demand for clean energy in emerging markets are expected to boost this segment's prominence in the global solar micro inverter market.
- For instance, in April 2023, Hoymiles Power Electronics Inc., a leading provider of solar energy solutions, launched the world's first innovative microinverter installation solution, the HMS Cable System. This system is designed for both multi-microinverter and single-microinverter PV setups, reducing installation time by 70%. The Hoymiles installation solution includes two sets of accessories specifically tailored for PV systems using the HMS series of microinverters: one set for systems with multiple microinverters and another for smaller systems that utilize a single microinverter.

SECTION 8 **GLOBAL SOLAR MICRO INVERTER** **MARKET**

End User

GLOBAL SOLAR MICRO INVERTER MARKET, BY END USER

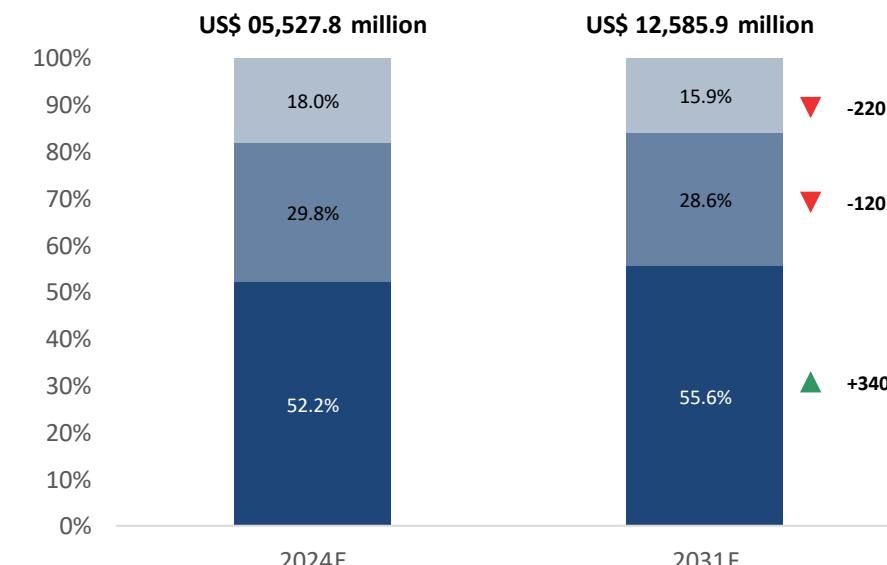
TABLE 8.1

Global Solar Micro Inverter Market Share (%) Analysis, End User, 2024, 2027 & 2031.

End User	2024E	2027F	2031F
Residential	52.2%	53.6%	55.6%
Commercial and Industrial	29.8%	29.2%	28.6%
Utility-scale	18.0%	17.1%	15.9%
Total	100.0%	100.0%	100.0%

Figure 8.1

Global Solar Micro Inverter Market Share (%) and BPS Analysis, By End User, 2024 - 2031



*Basis Point Share depicts change in market share of each segment across two different period. It is result of difference of market share for each segment across two different period. It is calculated by multiplying the percentage change in market share by 100. this measurement quantifies shifts in market dynamics and performance.

■ Residential

■ Commercial and Industrial

■ Utility-scale

▲ Signifies increase in BPS

▼ Signifies decrease in BPS

GLOBAL SOLAR MICRO INVERTER MARKET, BY END USER

TABLE 8.2

Global Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast, End User, 2019 - 2031

End User	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Residential	1,833.0	1,844.2	2,045.4	2,279.3	2,559.4	2,885.1	3,257.0	3,684.6	4,174.9	4,735.9	5,382.6	6,125.7	6,993.2	13.5%
Commercial and Industrial	1,125.0	1,115.3	1,219.0	1,338.6	1,481.2	1,645.3	1,830.2	2,040.1	2,277.6	2,545.8	2,850.7	3,196.5	3,595.3	11.8%
Utility-scale	712.7	701.1	760.0	827.2	906.8	997.3	1,097.8	1,210.3	1,335.5	1,474.3	1,629.5	1,802.0	1,997.5	10.4%
Total	3,670.7	3,660.6	4,024.4	4,445.1	4,947.4	5,527.8	6,185.0	6,935.0	7,788.0	8,756.0	9,862.8	11,124.2	12,585.9	12.5%

GLOBAL SOLAR MICRO INVERTER MARKET, BY END USER

TABLE 8.3

Global Solar Micro Inverter Market Volume (Units) Analysis and Forecast, End User, 2019 - 2031

End User	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Residential	98,20,473	98,06,702	1,07,79,484	1,18,83,303	1,31,71,856	1,46,22,122	1,62,70,762	1,81,44,250	2,02,65,918	2,26,62,745	2,53,68,743	2,84,62,456	3,20,34,670	11.9%
Commercial and Industrial	58,99,862	58,04,066	62,84,939	68,25,390	74,52,764	81,49,919	89,33,369	98,13,014	1,07,96,346	1,18,92,161	1,31,12,190	1,44,89,937	1,60,62,813	10.2%
Utility-scale	26,75,881	25,98,900	27,76,014	29,71,140	31,94,316	34,35,934	37,00,645	39,89,752	43,03,083	46,40,507	50,02,460	53,96,791	58,31,196	7.8%
Total	1,83,96,216	1,82,09,668	1,98,40,437	2,16,79,833	2,38,18,936	2,62,07,975	2,89,04,775	3,19,47,016	3,53,65,347	3,91,95,414	4,34,83,392	4,83,49,184	5,39,28,680	10.9%

GLOBAL SOLAR MICRO INVERTER MARKET, BY END USER

Residential segment is expected to generate an incremental opportunity of US\$ 4,108.06 million for the forecasted year.

FIGURE 8.2

Global Solar Micro Inverter Market Value (US\$ million)
Analysis, by Residential



Projected growth of the **Residential** during 2024-2031

2.4X

- Residential segment in Global Solar Micro Inverter Market is estimated to be valued at US\$ 2,885.10 million in 2024, and is expected to reach US\$ 6,993.20 million by 2031, exhibiting a CAGR of 13.5% over the forecast period 2024-2031
- Residential segment is estimated to account for 52.2% market share in 2024 and is expected to account for 55.6% market share by 2031
- The residential segment of the global solar micro inverter market focuses on the adoption of micro inverters in homes for rooftop solar systems. This segment driving the market growth due to the rising demand for clean, renewable energy in urban and suburban households. Factors like increasing electricity costs, government incentives, and tax benefits for residential solar installations are fueling adoption.
- The growing trend of smart homes and energy storage systems, coupled with advancements in micro inverter technology such as enhanced efficiency, real-time monitoring, and integration with IoT platforms, are propelling the segment growth further. Recent innovations include the development of high-power micro inverters compatible with modern high-capacity panels and hybrid systems combining solar energy with battery storage.

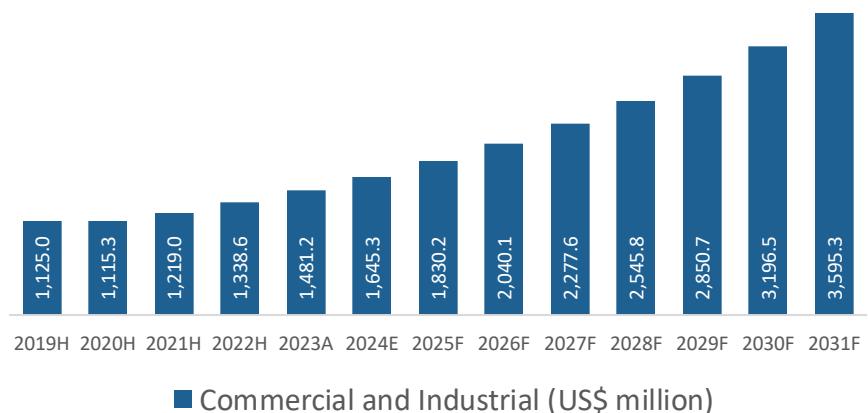
- For instance, in December 2023, Spitzer Energy, a company recognized for providing affordable solar energy solutions for residential and commercial use, launched a new line of microinverters. These microinverters feature enhanced AC production capacity, which minimizes power loss, extends daytime energy production, and improves the efficiency of converting DC to AC power.

GLOBAL SOLAR MICRO INVERTER MARKET, BY END USER

Commercial and Industrial segment is expected to generate an incremental opportunity of US\$ 1,949.97 million for the forecasted year.

FIGURE 8.3

Global Solar Micro Inverter Market Value (US\$ million)
Analysis, by Commercial and Industrial



■ Commercial and Industrial (US\$ million)

Projected growth of the **Commercial And Industrial**
during 2024-2031

- Commercial and Industrial segment in Global Solar Micro Inverter Market is estimated to be valued at US\$ 1,645.30 million in 2024, and is expected to reach US\$ 3,595.30 million by 2031, exhibiting a CAGR of 11.8% over the forecast period 2024-2031
- Commercial and Industrial segment is estimated to account for 29.8% market share in 2024 and is expected to account for 28.6% market share by 2031
- The Commercial and Industrial segment within the global solar microinverter market represents businesses, factories, warehouses, and office complexes adopting solar energy systems for sustainable power generation. In the Commercial and Industrial segment, these inverters enhance energy output by individually optimizing each solar panel, reducing power losses caused by shading, dirt, or aging panels.
- The segment growth is fueled by increasing electricity demand, rising energy prices, and supportive government policies such as tax incentives and renewable energy mandates. The shift towards decentralized energy systems, which provide energy security and independence, is another driving factor.

2.2X

- Technological advancements like grid-forming microinverters, smart monitoring systems, and integration with battery storage solutions have further accelerated adoption. Innovations such as higher power capacity microinverters and improved thermal management systems enhance performance and reliability, making them ideal for larger commercial installations.
- For instance, in November 2023, Enphase Energy, a leading provider of solar microinverters, announced its expansion into the commercial scale market with the introduction of its new IQ8 Commercial Microinverters. Known as IQ8P-3P, these inverters are specifically designed for small-scale commercial installations. Each microinverter supports a peak output power of up to 480 watts, making them suitable for three-phase commercial setups and the latest high-powered solar panels.

GLOBAL SOLAR MICRO INVERTER MARKET, BY END USER

Utility-scale segment is expected to generate an incremental opportunity of US\$ 1,000.13 million for the forecasted year.

FIGURE 8.4

**Global Solar Micro Inverter Market Value (US\$ million)
Analysis, by Utility-scale**



■ Utility-scale (US\$ million)

Projected growth of the **Utility-scale** during 2024-2031



- Utility-scale segment in Global Solar Micro Inverter Market is estimated to be valued at US\$ 997.30 million in 2024, and is expected to reach US\$ 1,997.50 million by 2031, exhibiting a CAGR of 10.4% over the forecast period 2024-2031
- Utility-scale segment is estimated to account for 18% market share in 2024 and is expected to account for 15.9% market share by 2031
- The utility-scale segment refers to large-scale solar energy systems designed to generate electricity for utilities and power grids. Unlike residential or commercial installations, utility-scale systems are deployed over vast areas, often in solar farms, with capacities typically exceeding 1 MW. The adoption of solar micro inverters in utility-scale projects has surged due to their ability to enhance energy yield, improve system reliability, and simplify maintenance by enabling module-level monitoring and optimization.
- Technological advancements, such as higher-efficiency micro inverters, robust power-handling capacities, and integration with advanced software for real-time data analytics and grid management, are further accelerating the market growth.

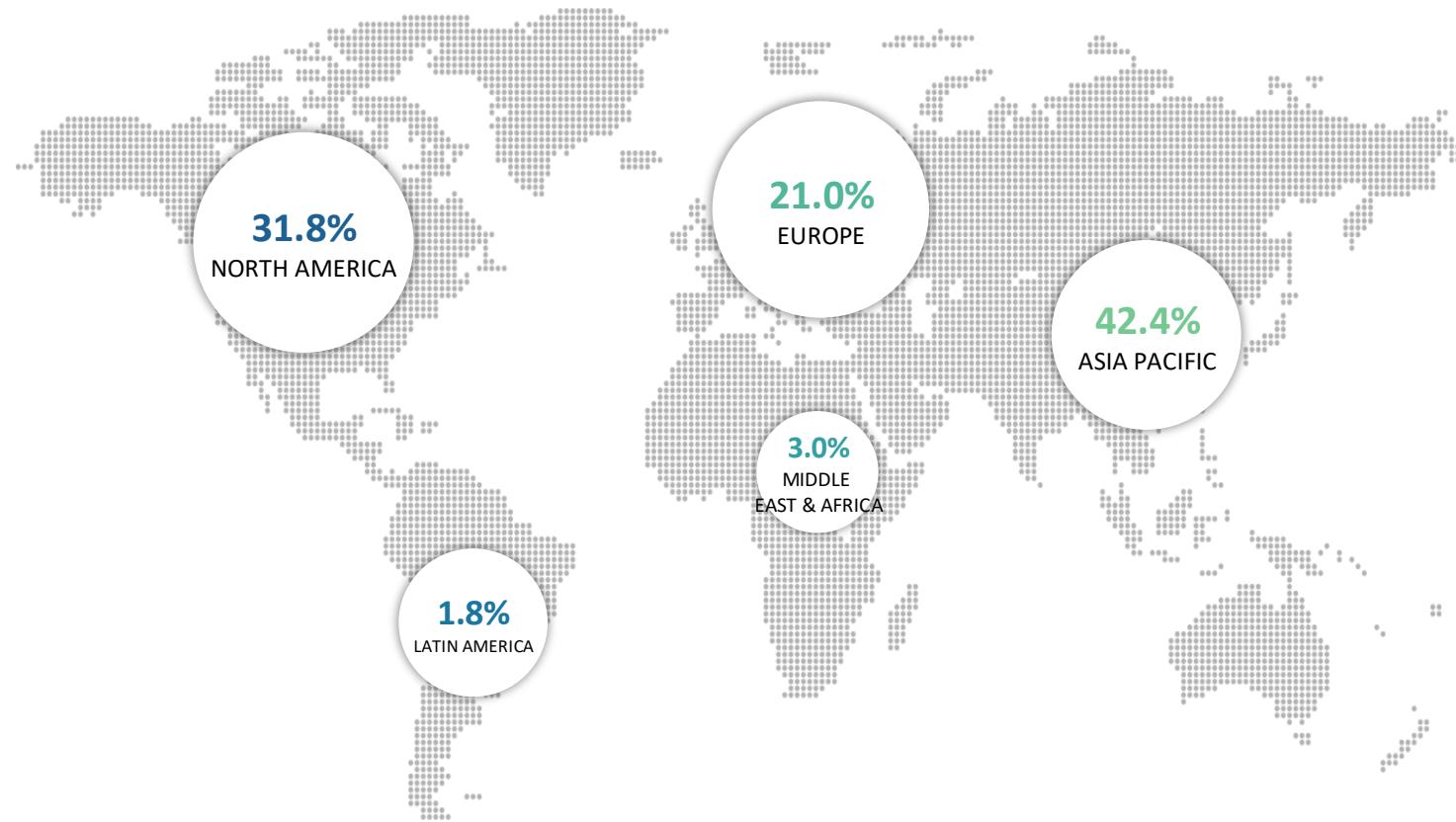
- Innovations like smart grid compatibility and enhanced cooling technologies for inverters are improving their durability and performance in large-scale installations. The utility-scale segment is also benefiting from decreasing solar installation costs, which are making large-scale projects more economically viable.

SECTION 9

GLOBAL SOLAR MICRO INVERTER MARKET

Region Analysis

GLOBAL SOLAR MICRO INVERTER MARKET OUTLOOK - 2024



GLOBAL SOLAR MICRO INVERTER MARKET, BY REGION

TABLE 9.1

Global Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast, By Region, 2019 - 2031

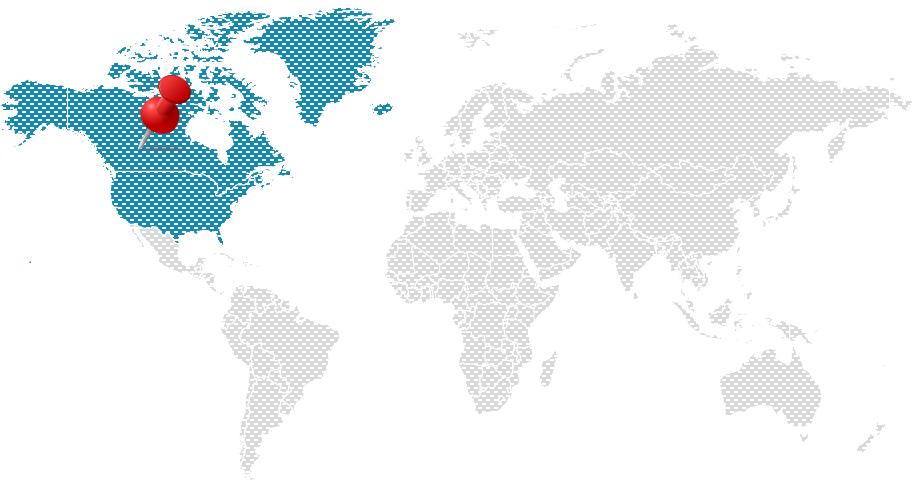
Region	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
North America	1,154.1	1,153.3	1,270.4	1,406.0	1,568.1	1,755.5	1,968.1	2,211.2	2,488.1	2,803.0	3,163.6	3,575.4	4,053.3	12.7%
Europe	801.8	793.6	865.9	949.3	1,048.7	1,162.9	1,291.4	1,437.1	1,601.8	1,787.4	1,998.2	2,236.8	2,511.8	11.6%
Asia Pacific	1,501.5	1,507.9	1,669.3	1,856.8	2,081.0	2,341.4	2,638.2	2,978.8	3,368.6	3,813.8	4,325.9	4,913.3	5,597.9	13.3%
Middle East & Africa	122.4	120.6	130.4	141.1	153.3	166.5	180.4	195.0	210.0	225.3	240.7	255.9	270.8	7.2%
Latin America	90.8	85.3	88.3	91.9	96.4	101.4	106.9	112.9	119.5	126.6	134.3	142.7	152.1	6.0%
Total	3,670.7	3,660.6	4,024.4	4,445.1	4,947.4	5,527.8	6,185.0	6,935.0	7,788.0	8,756.0	9,862.8	11,124.2	12,585.9	12.5%

SECTION 9.1

NORTH AMERICA SOLAR MICRO INVERTER MARKET

- Region and Segment Analysis
- Market Share Analysis
- Market Growth Analysis

NORTH AMERICA



- North America Solar Micro Inverter Market is estimated to be valued at US\$ 1,755.49 million in 2024, and is expected to reach US\$ 4,053.30 million by 2031, exhibiting a CAGR of 12.7% over the forecast period 2024-2031
- North America is estimated to account for 31.8% market share in 2024 and is expected to account for 32.2% market share by 2031
- The North America solar micro inverter market growth is driven by rising investments in renewable energy and increasing adoption of distributed solar power systems. Solar micro inverters, which convert direct current (DC) from solar panels to alternating current (AC) for home and grid use, offer several advantages, such as improved energy efficiency, enhanced system performance, and ease of installation.
- The market is benefiting from supportive government policies, including tax credits and incentives, aimed at promoting solar energy adoption. New advancements in technology, such as the integration of artificial intelligence (AI) for real-time performance monitoring and the development of highly efficient silicon carbide (SiC)-based inverters, are further propelling the market growth.

- Additionally, the increasing demand for residential solar installations and the shift toward smart energy solutions are fueling the adoption of solar micro inverters. Companies like Apsystems, Chilicon Power, SPARQ Systems, NEP (Northern Electric), etc. are also leveraging advanced manufacturing techniques to produce compact, durable, and cost-effective inverters. The growing focus on sustainability and energy independence across the region is expected to sustain this upward trajectory. North America, with a particular emphasis on the U.S. and Canada, remains a significant contributor to global solar energy initiatives.
- For instance, on July 9, 2024, Enphase Energy, a company focused on creating home energy solutions, announced that it is now shipping its IQ8P-3P microinverters made in the U.S. These microinverters are tailored for small-scale commercial use. This initiative aligns with the US Inflation Reduction Act, which has motivated many manufacturers, including Enphase, to produce locally. In April 2024, the company reported that it had shipped around 506,000 microinverters from its U.S. manufacturing sites, making them eligible for the 45X production tax credit.

NORTH AMERICA SOLAR MICRO INVERTER MARKET

NORTH AMERICA

FIGURE 9.3

North America Solar Micro Inverter Market Value (US\$ million) Analysis

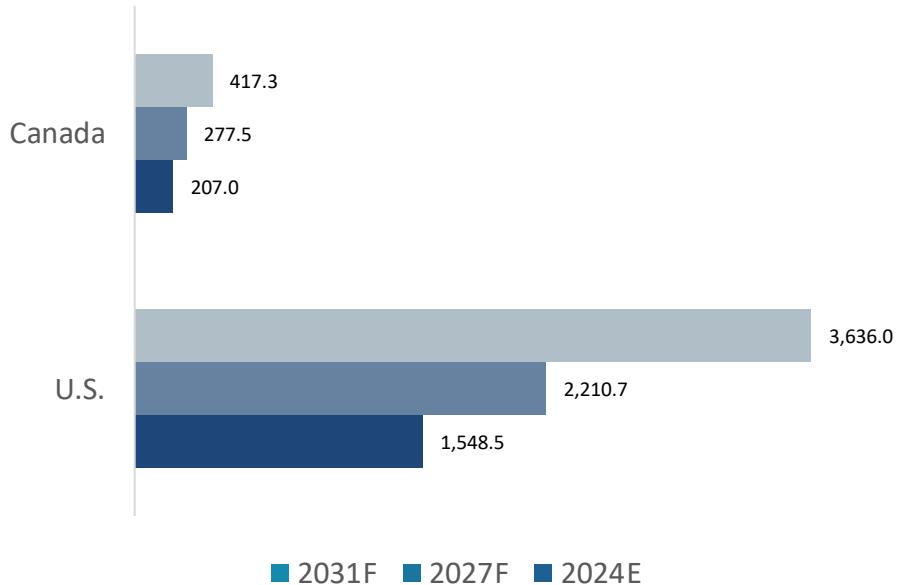


2.3X

Projected growth of the **North America Solar Micro Inverter Market** between 2024-2031

FIGURE 9.4

North America Solar Micro Inverter Market Value (US\$ million) Analysis



NORTH AMERICA SOLAR MICRO INVERTER MARKET ANALYSIS, BY TECHNOLOGY

TABLE 9.2

North America Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast By Technology 2019-2031

Technology	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Single-Phase Micro Inverters	769.4	764.3	837.0	920.8	1,020.9	1,136.2	1,266.3	1,414.3	1,582.0	1,771.7	1,987.9	2,233.4	2,517.0	12.0%
Three-Phase Micro Inverters	384.7	389.0	433.5	485.2	547.2	619.3	701.9	796.9	906.1	1,031.3	1,175.8	1,342.0	1,536.3	13.9%
Total	1,154.1	1,153.3	1,270.4	1,406.0	1,568.1	1,755.5	1,968.1	2,211.2	2,488.1	2,803.0	3,163.6	3,575.4	4,053.3	12.7%

NORTH AMERICA SOLAR MICRO INVERTER MARKET ANALYSIS, BY TECHNOLOGY

TABLE 9.3

North America Solar Micro Inverter Market Volume (Units) Analysis and Forecast By Technology 2019-2031

Technology	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Single-Phase Micro Inverters	38,33,367	37,80,163	41,03,155	44,66,655	48,88,888	53,59,004	58,88,229	64,83,528	71,50,338	78,95,018	87,25,936	96,66,073	1,07,41,245	10.4%
Three-Phase Micro Inverters	23,93,752	23,97,370	26,42,415	29,20,510	32,45,008	36,10,411	40,25,902	44,98,177	50,33,154	56,37,653	63,20,238	71,00,573	80,01,415	12.0%
Total	62,27,119	61,77,533	67,45,571	73,87,165	81,33,896	89,69,415	99,14,131	1,09,81,705	1,21,83,492	1,35,32,671	1,50,46,174	1,67,66,646	1,87,42,661	11.1%

NORTH AMERICA SOLAR MICRO INVERTER MARKET ANALYSIS, BY POWER RATING

TABLE 9.4

North America Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast By Power Rating 2019-2031

Power Rating	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Less than 250 W	539.3	538.9	593.6	656.9	732.6	820.1	919.5	1,033.0	1,162.4	1,309.5	1,478.0	1,670.4	1,893.8	12.7%
250 W - 500 W	413.7	415.3	459.6	511.1	572.6	644.0	725.3	818.6	925.3	1,047.2	1,187.3	1,347.9	1,535.0	13.2%
More than 500 W	201.1	199.1	217.2	238.1	262.9	291.4	323.4	359.6	400.4	446.3	498.3	557.0	624.5	11.5%
Total	1,154.1	1,153.3	1,270.4	1,406.0	1,568.1	1,755.5	1,968.1	2,211.2	2,488.1	2,803.0	3,163.6	3,575.4	4,053.3	12.7%

NORTH AMERICA SOLAR MICRO INVERTER MARKET ANALYSIS, BY POWER RATING

TABLE 9.5

North America Solar Micro Inverter Market Volume (Units) Analysis and Forecast By Power Rating 2019-2031

Power Rating	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Less than 250 W	32,46,404	32,20,705	35,17,043	38,51,792	42,41,432	46,77,457	51,70,528	57,27,794	63,55,207	70,59,673	78,50,064	87,48,673	97,80,904	11.1%
250 W - 500 W	21,06,079	20,98,995	23,02,614	25,33,283	28,02,238	31,04,334	34,47,100	38,35,846	42,75,162	47,70,356	53,28,156	59,64,552	66,97,931	11.6%
More than 500 W	8,74,636	8,57,833	9,25,913	10,02,090	10,90,225	11,87,625	12,96,503	14,18,064	15,53,123	17,02,642	18,67,954	20,53,422	22,63,826	9.7%
Total	62,27,119	61,77,533	67,45,571	73,87,165	81,33,896	89,69,415	99,14,131	1,09,81,705	1,21,83,492	1,35,32,671	1,50,46,174	1,67,66,646	1,87,42,661	11.1%

NORTH AMERICA SOLAR MICRO INVERTER MARKET ANALYSIS, BY PROVIDER

TABLE 9.6

North America Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast By Provider 2019-2031

Provider	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Direct Sales through OEM	205.5	202.9	220.9	241.6	266.3	294.6	326.4	362.4	403.0	448.7	500.6	559.2	626.6	11.4%
Distributors and Wholesalers	321.4	320.9	353.1	390.5	435.1	486.7	545.1	611.9	687.9	774.2	872.9	985.5	1,116.1	12.6%
Retailers	256.3	254.5	278.5	306.2	339.3	377.3	420.3	469.2	524.5	587.1	658.4	739.3	832.8	12.0%
Solar Installers and Contractors	370.9	375.0	417.9	467.8	527.4	596.9	676.3	767.8	872.7	993.0	1,131.8	1,291.4	1,477.8	13.8%
Total	1,154.1	1,153.3	1,270.4	1,406.0	1,568.1	1,755.5	1,968.1	2,211.2	2,488.1	2,803.0	3,163.6	3,575.4	4,053.3	12.7%

NORTH AMERICA SOLAR MICRO INVERTER MARKET ANALYSIS, BY PROVIDER

TABLE 9.7

North America Solar Micro Inverter Market Volume (Units) Analysis and Forecast By Provider 2019-2031

Provider	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Direct Sales through OEM	10,19,108	9,99,104	10,78,170	11,66,892	12,69,832	13,83,941	15,11,905	16,55,263	18,15,126	19,92,815	21,90,123	24,12,450	26,65,774	9.8%
Distributors and Wholesalers	18,67,253	18,50,832	20,19,296	22,09,438	24,30,629	26,77,896	29,57,242	32,72,637	36,27,346	40,25,156	44,70,956	49,77,240	55,58,205	11.0%
Retailers	12,18,484	12,00,972	13,02,954	14,17,713	15,51,016	16,99,403	18,66,418	20,54,249	22,64,600	24,99,463	27,61,469	30,57,865	33,96,789	10.4%
Solar Installers and Contractors	21,22,274	21,26,626	23,45,151	25,93,123	28,82,418	32,08,175	35,78,566	39,99,556	44,76,421	50,15,236	56,23,625	63,19,091	71,21,892	12.1%
Total	62,27,119	61,77,533	67,45,571	73,87,165	81,33,896	89,69,415	99,14,131	1,09,81,705	1,21,83,492	1,35,32,671	1,50,46,174	1,67,66,646	1,87,42,661	11.1%

NORTH AMERICA SOLAR MICRO INVERTER MARKET ANALYSIS, BY END USER

TABLE 9.8

North America Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast By End User 2019-2031

End User	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Residential	568.8	573.5	637.5	711.9	801.2	905.1	1,024.0	1,161.0	1,318.3	1,498.8	1,707.1	1,947.1	2,227.7	13.7%
Commercial and Industrial	357.2	354.9	388.7	427.8	474.3	527.9	588.4	657.3	735.3	823.5	924.0	1,038.1	1,169.9	12.0%
Utility-scale	228.1	224.9	244.2	266.4	292.6	322.5	355.7	393.0	434.5	480.8	532.5	590.2	655.7	10.7%
Total	1,154.1	1,153.3	1,270.4	1,406.0	1,568.1	1,755.5	1,968.1	2,211.2	2,488.1	2,803.0	3,163.6	3,575.4	4,053.3	12.7%

NORTH AMERICA SOLAR MICRO INVERTER MARKET ANALYSIS, BY END USER

TABLE 9.9

North America Solar Micro Inverter Market Volume (Units) Analysis and Forecast By End User 2019-2031

End User	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Residential	32,96,135	32,99,807	36,36,250	40,18,653	44,65,549	49,69,583	55,43,653	61,97,302	69,39,085	77,78,886	87,29,100	98,17,594	1,10,76,730	12.1%
Commercial and Industrial	20,13,522	19,86,005	21,56,122	23,47,552	25,69,877	28,17,393	30,95,999	34,09,353	37,60,306	41,52,189	45,89,390	50,83,974	56,49,493	10.5%
Utility-scale	9,17,462	8,91,722	9,53,199	10,20,960	10,98,470	11,82,439	12,74,479	13,75,050	14,84,102	16,01,595	17,27,684	18,65,078	20,16,438	7.9%
Total	62,27,119	61,77,533	67,45,571	73,87,165	81,33,896	89,69,415	99,14,131	1,09,81,705	1,21,83,492	1,35,32,671	1,50,46,174	1,67,66,646	1,87,42,661	11.1%

NORTH AMERICA SOLAR MICRO INVERTER MARKET, BY COUNTRY

TABLE 9.10

North America Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast By Country 2019-2031

Country	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
U.S.	1,005.9	1,007.6	1,112.6	1,234.4	1,379.9	1,548.5	1,740.3	1,959.9	2,210.7	2,496.4	2,824.3	3,199.6	3,636.0	13.0%
Canada	148.2	145.7	157.8	171.7	188.2	207.0	227.9	251.3	277.5	306.6	339.3	375.8	417.3	10.5%
Total	1,154.1	1,153.3	1,270.4	1,406.0	1,568.1	1,755.5	1,968.1	2,211.2	2,488.1	2,803.0	3,163.6	3,575.4	4,053.3	12.7%

NORTH AMERICA SOLAR MICRO INVERTER MARKET, BY COUNTRY

TABLE 9.11

North America Solar Micro Inverter Market Volume (Units) Analysis and Forecast By Country 2019-2031

Country	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
U.S.	54,27,557	53,97,260	59,07,695	64,85,123	71,57,808	79,12,007	87,66,338	97,33,620	1,08,24,740	1,20,52,309	1,34,32,408	1,50,04,277	1,68,12,843	11.4%
Canada	7,99,562	7,80,273	8,37,876	9,02,042	9,76,088	10,57,409	11,47,793	12,48,085	13,58,752	14,80,362	16,13,766	17,62,370	19,29,818	9.0%
Total	62,27,119	61,77,533	67,45,571	73,87,165	81,33,896	89,69,415	99,14,131	1,09,81,705	1,21,83,492	1,35,32,671	1,50,46,174	1,67,66,646	1,87,42,661	11.1%

SECTION 9.1.1 U.S. SOLAR MICRO INVERTER MARKET

- U.S. Segment Analysis
- Market Share Analysis
- Market Growth Analysis

U.S. SOLAR MICRO INVERTER MARKET ANALYSIS, TECHNOLOGY

TABLE 9.12

U.S. Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast Technology 2019-2031

Technology	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Single-Phase Micro Inverters	677.9	674.9	740.8	816.9	907.8	1,012.6	1,131.2	1,266.3	1,419.7	1,593.6	1,792.1	2,018.0	2,279.5	12.3%
Three-Phase Micro Inverters	328.1	332.7	371.8	417.4	472.1	535.9	609.1	693.6	791.0	902.8	1,032.2	1,181.6	1,356.5	14.2%
Total	1,005.9	1,007.6	1,112.6	1,234.4	1,379.9	1,548.5	1,740.3	1,959.9	2,210.7	2,496.4	2,824.3	3,199.6	3,636.0	13.0%

U.S. SOLAR MICRO INVERTER MARKET ANALYSIS, TECHNOLOGY

TABLE 9.13

U.S. Solar Micro Inverter Market Volume (Units) Analysis and Forecast Technology 2019-2031

Technology	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Single-Phase Micro Inverters	33,68,342	33,29,443	36,22,452	39,52,657	43,36,480	47,64,643	52,47,450	57,91,497	64,02,068	70,85,320	78,49,274	87,15,194	97,07,101	10.7%
Three-Phase Micro Inverters	20,59,215	20,67,818	22,85,243	25,32,466	28,21,328	31,47,364	35,18,888	39,42,123	44,22,671	49,66,989	55,83,134	62,89,083	71,05,742	12.3%
Total	54,27,557	53,97,260	59,07,695	64,85,123	71,57,808	79,12,007	87,66,338	97,33,620	1,08,24,740	1,20,52,309	1,34,32,408	1,50,04,277	1,68,12,843	11.4%

U.S. SOLAR MICRO INVERTER MARKET ANALYSIS, POWER RATING

TABLE 9.14

U.S. Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast Power Rating 2019-2031

Power Rating	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Less than 250 W	471.3	472.1	521.3	578.4	646.7	725.8	815.8	918.8	1,036.5	1,170.5	1,324.4	1,500.6	1,705.4	13.0%
250 W - 500 W	356.9	359.1	398.4	444.0	498.7	562.2	634.7	718.1	813.7	923.1	1,049.1	1,194.0	1,363.1	13.5%
More than 500 W	177.8	176.4	192.9	211.9	234.5	260.5	289.8	323.0	360.5	402.8	450.7	505.0	567.5	11.8%
Total	1,005.9	1,007.6	1,112.6	1,234.4	1,379.9	1,548.5	1,740.3	1,959.9	2,210.7	2,496.4	2,824.3	3,199.6	3,636.0	13.0%

U.S. SOLAR MICRO INVERTER MARKET ANALYSIS, POWER RATING

TABLE 9.15

U.S. Solar Micro Inverter Market Volume (Units) Analysis and Forecast Power Rating 2019-2031

Power Rating	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Less than 250 W	28,51,515	28,35,882	31,04,389	34,08,158	37,62,054	41,58,867	46,08,399	51,17,404	56,91,624	63,37,710	70,64,142	78,91,581	88,43,691	11.4%
250 W - 500 W	18,18,651	18,16,818	19,97,788	22,03,143	24,42,855	27,12,673	30,19,411	33,67,996	37,62,771	42,08,756	47,12,275	52,87,921	59,52,566	11.9%
More than 500 W	7,57,391	7,44,560	8,05,518	8,73,821	9,52,899	10,40,466	11,38,528	12,48,220	13,70,345	15,05,842	16,55,991	18,24,774	20,16,586	9.9%
Total	54,27,557	53,97,260	59,07,695	64,85,123	71,57,808	79,12,007	87,66,338	97,33,620	1,08,24,740	1,20,52,309	1,34,32,408	1,50,04,277	1,68,12,843	11.4%

U.S. SOLAR MICRO INVERTER MARKET ANALYSIS, PROVIDER

TABLE 9.16

U.S. Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast Provider 2019-2031

Provider	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Direct Sales through OEM	181.3	179.5	196.0	214.9	237.5	263.5	292.8	326.0	363.5	405.8	453.8	508.3	571.0	11.7%
Distributors and Wholesalers	277.7	277.9	306.5	339.6	379.2	425.0	477.1	536.6	604.5	681.9	770.5	871.8	989.5	12.8%
Retailers	226.0	225.0	246.9	272.1	302.3	337.1	376.5	421.3	472.2	529.9	595.8	670.7	757.3	12.3%
Solar Installers and Contractors	320.9	325.2	363.3	407.7	460.9	522.9	594.0	676.0	770.4	878.8	1,004.2	1,148.8	1,318.1	14.1%
Total	1,005.9	1,007.6	1,112.6	1,234.4	1,379.9	1,548.5	1,740.3	1,959.9	2,210.7	2,496.4	2,824.3	3,199.6	3,636.0	13.0%

U.S. SOLAR MICRO INVERTER MARKET ANALYSIS, PROVIDER

TABLE 9.17

U.S. Solar Micro Inverter Market Volume (Units) Analysis and Forecast Provider 2019-2031

Provider	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Direct Sales through OEM	9,02,997	8,87,720	9,60,597	10,42,467	11,37,482	12,43,002	13,61,520	14,94,517	16,43,102	18,08,581	19,92,701	22,00,513	24,37,646	10.1%
Distributors and Wholesalers	16,14,402	16,03,464	17,53,002	19,22,034	21,18,856	23,39,304	25,88,790	28,70,989	31,88,989	35,46,373	39,47,722	44,04,395	49,29,364	11.2%
Retailers	10,80,108	10,67,313	11,60,891	12,66,331	13,88,878	15,25,549	16,79,627	18,53,209	20,47,966	22,65,848	25,09,399	27,85,392	31,01,470	10.7%
Solar Installers and Contractors	18,30,049	18,38,763	20,33,204	22,54,291	25,12,591	28,04,152	31,36,401	35,14,906	39,44,683	44,31,507	49,82,586	56,13,977	63,44,363	12.4%
Total	54,27,557	53,97,260	59,07,695	64,85,123	71,57,808	79,12,007	87,66,338	97,33,620	1,08,24,740	1,20,52,309	1,34,32,408	1,50,04,277	1,68,12,843	11.4%

U.S. SOLAR MICRO INVERTER MARKET ANALYSIS, END USER

TABLE 9.18

U.S. Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast End User 2019-2031

End User	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Residential	488.7	494.3	551.1	617.3	696.8	789.6	896.0	1,018.8	1,160.3	1,323.0	1,511.3	1,728.7	1,983.5	14.1%
Commercial and Industrial	314.6	313.1	343.5	378.7	420.6	469.0	523.7	586.0	656.8	736.9	828.4	932.5	1,052.9	12.2%
Utility-scale	202.6	200.2	218.0	238.3	262.4	289.9	320.6	355.0	393.6	436.5	484.6	538.4	599.6	10.9%
Total	1,005.9	1,007.6	1,112.6	1,234.4	1,379.9	1,548.5	1,740.3	1,959.9	2,210.7	2,496.4	2,824.3	3,199.6	3,636.0	13.0%

U.S. SOLAR MICRO INVERTER MARKET ANALYSIS, END USER

TABLE 9.19

U.S. Solar Micro Inverter Market Volume (Units) Analysis and Forecast End User 2019-2031

End User	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Residential	28,47,050	28,58,620	31,59,319	35,01,756	39,02,475	43,55,511	48,72,625	54,62,753	61,34,045	68,95,918	77,60,114	87,52,289	99,02,391	12.4%
Commercial and Industrial	17,70,099	17,48,953	19,02,105	20,74,656	22,75,200	24,98,836	27,50,939	30,34,930	33,53,539	37,09,947	41,08,307	45,59,693	50,76,604	10.7%
Utility-scale	8,10,408	7,89,688	8,46,272	9,08,710	9,80,133	10,57,660	11,42,774	12,35,938	13,37,156	14,46,444	15,63,987	16,92,294	18,33,847	8.2%
Total	54,27,557	53,97,260	59,07,695	64,85,123	71,57,808	79,12,007	87,66,338	97,33,620	1,08,24,740	1,20,52,309	1,34,32,408	1,50,04,277	1,68,12,843	11.4%

SECTION 9.1.2 CANADA SOLAR MICRO INVERTER MARKET

- Canada Segment Analysis
- Market Share Analysis
- Market Growth Analysis

CANADA SOLAR MICRO INVERTER MARKET ANALYSIS, TECHNOLOGY

TABLE 9.20

Canada Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast Technology 2019-2031

Technology	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Single-Phase Micro Inverters	91.5	89.4	96.2	103.9	113.1	123.6	135.1	148.0	162.3	178.1	195.8	215.4	237.5	9.8%
Three-Phase Micro Inverters	56.6	56.3	61.6	67.8	75.1	83.4	92.7	103.3	115.2	128.5	143.5	160.4	179.8	11.6%
Total	148.2	145.7	157.8	171.7	188.2	207.0	227.9	251.3	277.5	306.6	339.3	375.8	417.3	10.5%

CANADA SOLAR MICRO INVERTER MARKET ANALYSIS, TECHNOLOGY

TABLE 9.21

Canada Solar Micro Inverter Market Volume (Units) Analysis and Forecast Technology 2019-2031

Technology	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Single-Phase Micro Inverters	4,65,025	4,50,721	4,80,704	5,13,998	5,52,408	5,94,362	6,40,779	6,92,031	7,48,270	8,09,697	8,76,662	9,50,879	10,34,144	8.2%
Three-Phase Micro Inverters	3,34,537	3,29,552	3,57,172	3,88,044	4,23,680	4,63,047	5,07,014	5,56,054	6,10,482	6,70,665	7,37,104	8,11,491	8,95,673	9.9%
Total	7,99,562	7,80,273	8,37,876	9,02,042	9,76,088	10,57,409	11,47,793	12,48,085	13,58,752	14,80,362	16,13,766	17,62,370	19,29,818	9.0%

CANADA SOLAR MICRO INVERTER MARKET ANALYSIS, POWER RATING

TABLE 9.22

Canada Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast Power Rating 2019-2031

Power Rating	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Less than 250 W	68.0	66.8	72.2	78.5	85.9	94.3	103.7	114.2	126.0	139.0	153.6	169.9	188.4	10.4%
250 W - 500 W	56.8	56.2	61.2	67.0	73.9	81.8	90.6	100.5	111.6	124.1	138.1	153.9	171.9	11.2%
More than 500 W	23.3	22.7	24.3	26.2	28.4	30.9	33.6	36.6	39.9	43.6	47.6	52.0	57.0	9.2%
Total	148.2	145.7	157.8	171.7	188.2	207.0	227.9	251.3	277.5	306.6	339.3	375.8	417.3	10.5%

CANADA SOLAR MICRO INVERTER MARKET ANALYSIS, POWER RATING



TABLE 9.23

Canada Solar Micro Inverter Market Volume (Units) Analysis and Forecast Power Rating 2019-2031

Power Rating	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Less than 250 W	3,94,889	3,84,823	4,12,654	4,43,634	4,79,378	5,18,589	5,62,129	6,10,391	6,63,584	7,21,963	7,85,921	8,57,092	9,37,212	8.8%
250 W - 500 W	2,87,428	2,82,177	3,04,826	3,30,140	3,59,383	3,91,660	4,27,689	4,67,850	5,12,390	5,61,599	6,15,882	6,76,631	7,45,365	9.6%
More than 500 W	1,17,245	1,13,273	1,20,396	1,28,269	1,37,327	1,47,159	1,57,975	1,69,844	1,82,778	1,96,799	2,11,963	2,28,647	2,47,240	7.7%
Total	7,99,562	7,80,273	8,37,876	9,02,042	9,76,088	10,57,409	11,47,793	12,48,085	13,58,752	14,80,362	16,13,766	17,62,370	19,29,818	9.0%

CANADA SOLAR MICRO INVERTER MARKET ANALYSIS, PROVIDER



TABLE 9.24

Canada Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast Provider 2019-2031

Provider	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Direct Sales through OEM	24.2	23.4	24.9	26.7	28.7	31.1	33.6	36.4	39.6	43.0	46.7	50.9	55.5	8.7%
Distributors and Wholesalers	43.6	43.0	46.7	50.9	55.9	61.7	68.1	75.3	83.3	92.3	102.4	113.7	126.6	10.8%
Retailers	30.3	29.5	31.6	34.1	36.9	40.2	43.8	47.8	52.3	57.2	62.6	68.7	75.5	9.4%
Solar Installers and Contractors	50.0	49.8	54.6	60.1	66.6	74.0	82.3	91.7	102.3	114.2	127.5	142.6	159.7	11.6%
Total	148.2	145.7	157.8	171.7	188.2	207.0	227.9	251.3	277.5	306.6	339.3	375.8	417.3	10.5%

CANADA SOLAR MICRO INVERTER MARKET ANALYSIS, PROVIDER

TABLE 9.25

Canada Solar Micro Inverter Market Volume (Units) Analysis and Forecast Provider 2019-2031

Provider	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Direct Sales through OEM	1,16,111	1,11,384	1,17,573	1,24,425	1,32,350	1,40,939	1,50,385	1,60,746	1,72,024	1,84,234	1,97,423	2,11,937	2,28,128	7.1%
Distributors and Wholesalers	2,52,851	2,47,368	2,66,293	2,87,403	3,11,773	3,38,592	3,68,453	4,01,649	4,38,356	4,78,783	5,23,234	5,72,845	6,28,841	9.2%
Retailers	1,38,375	1,33,659	1,42,063	1,51,382	1,62,138	1,73,854	1,86,790	2,01,040	2,16,634	2,33,615	2,52,070	2,72,474	2,95,319	7.9%
Solar Installers and Contractors	2,92,225	2,87,862	3,11,947	3,38,831	3,69,827	4,04,023	4,42,165	4,84,650	5,31,738	5,83,729	6,41,039	7,05,114	7,77,529	9.8%
Total	7,99,562	7,80,273	8,37,876	9,02,042	9,76,088	10,57,409	11,47,793	12,48,085	13,58,752	14,80,362	16,13,766	17,62,370	19,29,818	9.0%

CANADA SOLAR MICRO INVERTER MARKET ANALYSIS, END USER

TABLE 9.26

Canada Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast End User 2019-2031

End User	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Residential	80.0	79.2	86.3	94.6	104.3	115.5	128.1	142.2	158.0	175.8	195.9	218.4	244.1	11.3%
Commercial and Industrial	42.6	41.8	45.2	49.1	53.7	58.9	64.7	71.2	78.5	86.5	95.6	105.6	117.0	10.3%
Utility-scale	25.6	24.7	26.3	28.0	30.2	32.5	35.1	37.9	41.0	44.3	47.9	51.8	56.2	8.1%
Total	148.2	145.7	157.8	171.7	188.2	207.0	227.9	251.3	277.5	306.6	339.3	375.8	417.3	10.5%

CANADA SOLAR MICRO INVERTER MARKET ANALYSIS, END USER

TABLE 9.27

Canada Solar Micro Inverter Market Volume (Units) Analysis and Forecast End User 2019-2031

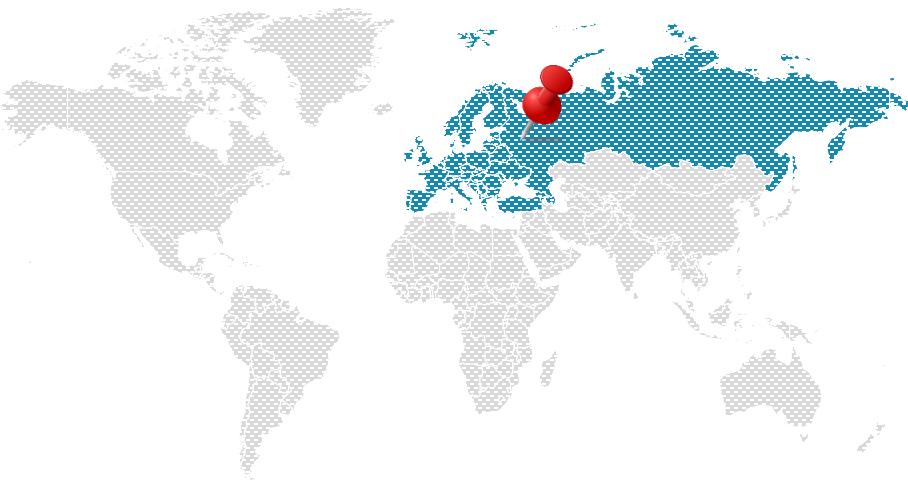
End User	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Residential	4,49,085	4,41,187	4,76,932	5,16,896	5,63,074	6,14,072	6,71,027	7,34,549	8,05,039	8,82,968	9,68,986	10,65,305	11,74,339	9.7%
Commercial and Industrial	2,43,423	2,37,052	2,54,017	2,72,896	2,94,677	3,18,557	3,45,060	3,74,423	4,06,767	4,42,243	4,81,083	5,24,281	5,72,888	8.7%
Utility-scale	1,07,054	1,02,034	1,06,927	1,12,250	1,18,337	1,24,779	1,31,705	1,39,112	1,46,946	1,55,152	1,63,697	1,72,784	1,82,590	5.6%
Total	7,99,562	7,80,273	8,37,876	9,02,042	9,76,088	10,57,409	11,47,793	12,48,085	13,58,752	14,80,362	16,13,766	17,62,370	19,29,818	9.0%

SECTION 9.2

EUROPE SOLAR MICRO INVERTER MARKET

- Region and Segment Analysis
- Market Share Analysis
- Market Growth Analysis

EUROPE



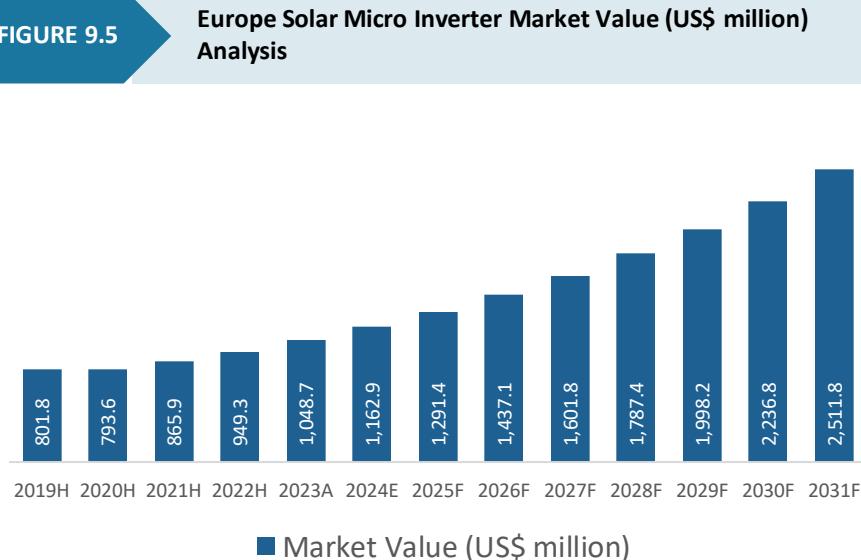
- Europe Solar Micro Inverter Market is estimated to be valued at US\$ 1,162.88 million in 2024, and is expected to reach US\$ 2,511.79 million by 2031, exhibiting a CAGR of 11.6% over the forecast period 2024-2031
- Europe is estimated to account for 21% market share in 2024 and is expected to account for 20% market share by 2031
- The Europe solar micro inverter market growth is driven by the increasing adoption of renewable energy solutions across the region. Key players like Trackers FEINA S.L, AE Conversion, and STMicroelectronics are contributing significantly to this expansion by offering innovative and efficient solutions.
- Recent technological advancements, such as the integration of IoT for real-time monitoring, enhanced grid connectivity features, and smart energy management systems, are further propelling their adoption. Additionally, the shift towards residential rooftop installations and the growing trend of decentralized power generation are key drivers for the market growth. Countries like Germany, France, and the U.K. are at the forefront of this transition, supported by robust policies and investments in solar infrastructure.

EUROPE SOLAR MICRO INVERTER MARKET

- Europe's focus on achieving carbon neutrality by 2050 are driving demand. Furthermore, innovations like higher wattage micro inverters, improved durability, and compatibility with advanced solar panel designs are expanding application possibilities, making solar energy solutions more accessible and efficient for end users.
- For instance, on July 9, 2024, Enphase Energy, Inc. launched its fourth-generation microinverter system in Europe, featuring the new M250 Microinverter, which delivers a rated AC output power of 250 watts. This system also includes the Envoy Communications Gateway, equipped with a Wi-Fi option that connects to the Enlighten software platform, enhancing solar system intelligence and reliability. The M250 is optimized for high-power solar modules in Europe and can pair with modules up to 310 watts. It boasts an EU efficiency rating of 95.7% and is designed to endure harsh environmental conditions, achieving an IP67 rating. Enphase Energy has been experiencing strong growth in international markets, particularly in the U.K., France, and the Netherlands.

EUROPE SOLAR MICRO INVERTER MARKET

FIGURE 9.5

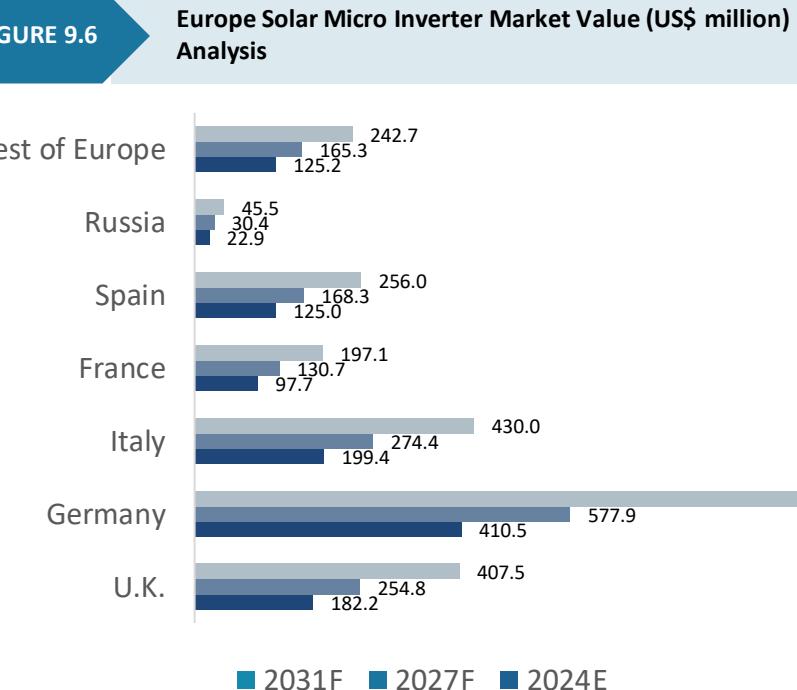


2.2X

Projected growth of the **Europe Solar Micro Inverter Market** between 2024-2031

EUROPE

FIGURE 9.6



EUROPE SOLAR MICRO INVERTER MARKET VALUE (US\$ MILLION)

MONTHLY REVENUE (2023 AND 2024) US\$ Mn

Year	2023	2024
January	105.6	119.6
February	100.3	113.8
March	106.6	116.1
April	111.5	126.9
May	118.5	129.1
June	120.0	127.9
July	90.5	101.1
August	99.3	114.1
September	88.1	95.9
October	63.3	69.4
November	24.5	26.6
December	20.6	22.4
Total	1,048.7	1,162.9

QUARTERLY REVENUE (2023 AND 2024) US\$ Mn

Year	2023	2024
Q1 (Jan to Mar)	312.5	349.4
Q2 (Apr to Jun)	350.0	383.9
Q3 (Jul to Sept)	277.9	311.1
Q4 (Oct to Dec)	108.3	118.4
Total	1,048.7	1,162.9

EUROPE SOLAR MICRO INVERTER MARKET ANALYSIS, BY TECHNOLOGY

TABLE 9.28

Europe Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast By Technology 2019-2031

Technology	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Single-Phase Micro Inverters	518.5	509.9	552.7	602.0	660.7	728.0	803.2	888.1	983.5	1,090.4	1,211.2	1,347.1	1,503.0	10.9%
Three-Phase Micro Inverters	283.3	283.8	313.2	347.3	387.9	434.9	488.2	549.0	618.3	697.0	787.0	889.7	1,008.8	12.8%
Total	801.8	793.6	865.9	949.3	1,048.7	1,162.9	1,291.4	1,437.1	1,601.8	1,787.4	1,998.2	2,236.8	2,511.8	11.6%

EUROPE SOLAR MICRO INVERTER MARKET ANALYSIS, BY TECHNOLOGY

TABLE 9.29

Europe Solar Micro Inverter Market Volume (Units) Analysis and Forecast By Technology 2019-2031

Technology	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Single-Phase Micro Inverters	21,47,338	21,02,377	22,65,686	24,48,768	26,61,097	28,96,154	31,59,446	34,54,047	37,82,124	41,46,258	45,49,997	50,04,340	55,21,420	9.7%
Three-Phase Micro Inverters	14,21,528	14,14,755	15,49,562	17,01,846	18,78,985	20,77,318	23,01,660	25,55,286	28,40,937	31,61,783	35,21,871	39,31,279	44,01,516	11.3%
Total	35,68,866	35,17,132	38,15,248	41,50,614	45,40,081	49,73,471	54,61,107	60,09,333	66,23,061	73,08,041	80,71,868	89,35,619	99,22,936	10.4%

EUROPE SOLAR MICRO INVERTER MARKET ANALYSIS, BY POWER RATING

TABLE 9.30

Europe Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast By Power Rating 2019-2031

Power Rating	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Less than 250 W	372.0	367.8	400.9	439.1	484.6	536.9	595.7	662.3	737.5	822.2	918.4	1,027.2	1,152.4	11.5%
250 W - 500 W	295.6	294.4	323.1	356.3	395.9	441.6	493.3	552.2	619.1	694.8	781.3	879.7	993.5	12.3%
More than 500 W	134.2	131.5	141.9	153.9	168.2	184.4	202.4	222.7	245.2	270.3	298.5	330.0	365.8	10.3%
Total	801.8	793.6	865.9	949.3	1,048.7	1,162.9	1,291.4	1,437.1	1,601.8	1,787.4	1,998.2	2,236.8	2,511.8	11.6%

EUROPE SOLAR MICRO INVERTER MARKET ANALYSIS, BY POWER RATING

TABLE 9.31

Europe Solar Micro Inverter Market Volume (Units) Analysis and Forecast By Power Rating 2019-2031

Power Rating	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Less than 250 W	18,20,489	17,92,523	19,42,772	21,11,734	23,07,933	25,26,136	27,71,535	30,47,287	33,55,818	36,99,969	40,83,510	45,17,019	50,12,335	10.3%
250 W - 500 W	12,38,085	12,27,423	13,39,390	14,65,781	16,12,820	17,77,220	19,62,976	21,72,735	24,08,679	26,73,340	29,69,983	33,06,928	36,93,634	11.0%
More than 500 W	5,10,292	4,97,186	5,33,086	5,73,100	6,19,328	6,70,115	7,26,596	7,89,311	8,58,565	9,34,732	10,18,375	11,11,673	12,16,966	8.9%
Total	35,68,866	35,17,132	38,15,248	41,50,614	45,40,081	49,73,471	54,61,107	60,09,333	66,23,061	73,08,041	80,71,868	89,35,619	99,22,936	10.4%

EUROPE SOLAR MICRO INVERTER MARKET ANALYSIS, BY PROVIDER

TABLE 9.32

Europe Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast By Provider 2019-2031

Provider	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Direct Sales through OEM	138.0	134.7	144.9	156.6	170.6	186.5	204.2	224.1	246.3	271.1	298.8	329.9	365.4	10.1%
Distributors and Wholesalers	228.5	226.4	247.4	271.6	300.4	333.5	370.8	413.1	461.0	515.0	576.4	645.9	726.1	11.8%
Retailers	172.3	169.2	183.2	199.2	218.3	240.2	264.6	292.1	323.0	357.7	396.7	440.6	490.9	10.8%
Solar Installers and Contractors	263.0	263.3	290.5	322.0	359.4	402.7	451.8	507.7	571.4	643.7	726.3	820.4	929.4	12.7%
Total	801.8	793.6	865.9	949.3	1,048.7	1,162.9	1,291.4	1,437.1	1,601.8	1,787.4	1,998.2	2,236.8	2,511.8	11.6%

EUROPE SOLAR MICRO INVERTER MARKET ANALYSIS, BY PROVIDER

TABLE 9.33

Europe Solar Micro Inverter Market Volume (Units) Analysis and Forecast By Provider 2019-2031

Provider	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Direct Sales through OEM	5,57,148	5,41,407	5,79,113	6,21,252	6,70,108	7,23,897	7,83,872	8,50,646	9,24,594	10,06,177	10,96,076	11,96,730	13,10,777	8.9%
Distributors and Wholesalers	10,94,066	10,79,617	11,72,638	12,77,337	13,98,945	15,34,377	16,86,865	18,58,425	20,50,634	22,65,335	25,04,949	27,76,096	30,86,215	10.5%
Retailers	6,65,322	6,50,530	7,00,138	7,55,720	8,20,174	8,91,460	9,71,245	10,60,442	11,59,680	12,69,714	13,91,590	15,28,627	16,84,471	9.5%
Solar Installers and Contractors	12,52,329	12,45,577	13,63,359	14,96,305	16,50,855	18,23,737	20,19,124	22,39,820	24,88,153	27,66,815	30,79,252	34,34,167	38,41,473	11.2%
Total	35,68,866	35,17,132	38,15,248	41,50,614	45,40,081	49,73,471	54,61,107	60,09,333	66,23,061	73,08,041	80,71,868	89,35,619	99,22,936	10.4%

EUROPE SOLAR MICRO INVERTER MARKET ANALYSIS, BY END USER

TABLE 9.34

Europe Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast By End User 2019-2031

End User	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Residential	410.6	409.9	451.1	498.7	555.6	621.4	696.0	781.2	878.1	988.3	1,114.3	1,258.1	1,424.9	12.6%
Commercial and Industrial	241.0	237.3	257.6	281.0	308.8	340.7	376.4	416.8	462.2	513.2	570.9	635.9	710.5	11.1%
Utility-scale	150.2	146.4	157.3	169.6	184.3	200.8	219.0	239.2	261.4	285.9	313.0	342.9	376.4	9.4%
Total	801.8	793.6	865.9	949.3	1,048.7	1,162.9	1,291.4	1,437.1	1,601.8	1,787.4	1,998.2	2,236.8	2,511.8	11.6%

EUROPE SOLAR MICRO INVERTER MARKET ANALYSIS, BY END USER

TABLE 9.35

Europe Solar Micro Inverter Market Volume (Units) Analysis and Forecast By End User 2019-2031

End User	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Residential	19,36,293	19,23,883	21,04,096	23,07,871	25,45,206	28,11,144	31,12,235	34,52,952	38,37,074	42,68,980	47,54,268	53,06,715	59,42,072	11.3%
Commercial and Industrial	11,26,386	11,03,563	11,90,127	12,87,226	13,99,870	15,24,666	16,64,547	18,21,169	19,95,722	21,89,613	24,04,768	26,47,062	29,22,987	9.7%
Utility-scale	5,06,187	4,89,685	5,21,025	5,55,517	5,95,005	6,37,661	6,84,325	7,35,211	7,90,266	8,49,449	9,12,832	9,81,843	10,57,877	7.5%
Total	35,68,866	35,17,132	38,15,248	41,50,614	45,40,081	49,73,471	54,61,107	60,09,333	66,23,061	73,08,041	80,71,868	89,35,619	99,22,936	10.4%

EUROPE SOLAR MICRO INVERTER MARKET, BY COUNTRY

TABLE 9.36

Europe Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast By Country 2019-2031

Country	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
U.K.	122.5	121.9	133.7	147.3	163.5	182.2	203.4	227.4	254.8	285.7	321.0	361.1	407.5	12.2%
Germany	272.9	272.1	299.1	330.2	367.5	410.5	459.2	514.7	577.9	649.5	731.4	824.8	932.9	12.4%
Italy	137.6	136.2	148.5	162.8	179.8	199.4	221.4	246.3	274.4	306.2	342.2	383.0	430.0	11.6%
France	70.7	69.3	74.9	81.3	89.0	97.7	107.4	118.4	130.7	144.4	159.9	177.3	197.1	10.5%
Spain	89.6	88.0	95.2	103.6	113.6	125.0	137.8	152.2	168.3	186.4	206.8	229.7	256.0	10.8%
Russia	16.7	16.4	17.7	19.1	20.9	22.9	25.1	27.6	30.4	33.6	37.1	41.0	45.5	10.3%
Rest of Europe	91.7	89.8	96.8	104.9	114.4	125.2	137.2	150.5	165.3	181.6	199.8	219.9	242.7	9.9%
Total	801.8	793.6	865.9	949.3	1,048.7	1,162.9	1,291.4	1,437.1	1,601.8	1,787.4	1,998.2	2,236.8	2,511.8	11.6%

EUROPE SOLAR MICRO INVERTER MARKET, BY COUNTRY

TABLE 9.37

Europe Solar Micro Inverter Market Volume (Units) Analysis and Forecast By Country 2019-2031

Country	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
U.K.	5,45,418	5,40,199	5,88,917	6,43,887	7,07,827	7,79,272	8,59,956	9,51,016	10,53,383	11,68,139	12,96,683	14,42,615	16,10,022	10.9%
Germany	12,14,750	12,05,880	13,17,641	14,43,928	15,90,947	17,55,539	19,41,737	21,52,260	23,89,385	26,55,750	29,54,739	32,94,796	36,85,555	11.2%
Italy	6,12,460	6,03,461	6,54,480	7,11,868	7,78,509	8,52,654	9,36,067	10,29,831	11,34,779	12,51,892	13,82,461	15,30,089	16,98,812	10.3%
France	3,14,825	3,07,252	3,30,062	3,55,592	3,85,186	4,17,862	4,54,382	4,95,146	5,40,421	5,90,529	6,45,924	7,08,107	7,78,719	9.3%
Spain	3,98,585	3,89,822	4,19,650	4,53,068	4,91,814	5,34,668	5,82,629	6,36,245	6,95,894	7,62,030	8,35,280	9,17,634	10,11,281	9.5%
Russia	74,527	72,587	77,819	83,669	90,449	97,924	1,06,267	1,15,566	1,25,879	1,37,272	1,49,846	1,63,940	1,79,924	9.1%
Rest of Europe	4,08,301	3,97,930	4,26,679	4,58,603	4,95,350	5,35,553	5,80,070	6,29,269	6,83,319	7,42,428	8,06,935	8,78,438	9,58,621	8.7%
Total	35,68,866	35,17,132	38,15,248	41,50,614	45,40,081	49,73,471	54,61,107	60,09,333	66,23,061	73,08,041	80,71,868	89,35,619	99,22,936	10.4%

SECTION 9.2.1

U.K. SOLAR MICRO INVERTER MARKET

- U.K. Segment Analysis
- Market Share Analysis
- Market Growth Analysis

U.K. SOLAR MICRO INVERTER MARKET ANALYSIS, TECHNOLOGY

TABLE 9.38

U.K. Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast Technology 2019-2031

Technology	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Single-Phase Micro Inverters	79.4	78.4	85.4	93.5	103.1	114.1	126.5	140.5	156.3	174.1	194.3	217.1	243.3	11.4%
Three-Phase Micro Inverters	43.1	43.4	48.2	53.8	60.4	68.1	76.9	86.9	98.5	111.6	126.7	144.0	164.2	13.4%
Total	122.5	121.9	133.7	147.3	163.5	182.2	203.4	227.4	254.8	285.7	321.0	361.1	407.5	12.2%

U.K. SOLAR MICRO INVERTER MARKET ANALYSIS, TECHNOLOGY

TABLE 9.39

U.K. Solar Micro Inverter Market Volume (Units) Analysis and Forecast Technology 2019-2031

Technology	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Single-Phase Micro Inverters	3,28,669	3,23,310	3,50,071	3,80,145	4,15,052	4,53,839	4,97,423	5,46,354	6,01,048	6,61,994	7,29,844	8,06,461	8,93,926	10.2%
Three-Phase Micro Inverters	2,16,749	2,16,889	2,38,845	2,63,742	2,92,774	3,25,433	3,62,533	4,04,662	4,52,335	5,06,145	5,66,839	6,36,154	7,16,096	11.9%
Total	5,45,418	5,40,199	5,88,917	6,43,887	7,07,827	7,79,272	8,59,956	9,51,016	10,53,383	11,68,139	12,96,683	14,42,615	16,10,022	10.9%

U.K. SOLAR MICRO INVERTER MARKET ANALYSIS, POWER RATING

TABLE 9.40

U.K. Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast Power Rating 2019-2031

Power Rating	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Less than 250 W	56.9	56.5	61.9	68.1	75.5	84.0	93.6	104.5	116.9	130.9	146.9	165.0	186.0	12.0%
250 W - 500 W	45.1	45.1	49.8	55.2	61.6	69.1	77.6	87.3	98.4	111.0	125.4	141.9	161.2	12.9%
More than 500 W	20.6	20.3	22.0	24.0	26.4	29.1	32.2	35.6	39.5	43.8	48.7	54.1	60.4	11.0%
Total	122.5	121.9	133.7	147.3	163.5	182.2	203.4	227.4	254.8	285.7	321.0	361.1	407.5	12.2%

U.K. SOLAR MICRO INVERTER MARKET ANALYSIS, POWER RATING

TABLE 9.41

U.K. Solar Micro Inverter Market Volume (Units) Analysis and Forecast Power Rating 2019-2031

Power Rating	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Less than 250 W	2,78,622	2,75,569	3,00,001	3,27,544	3,59,566	3,95,305	4,35,623	4,81,077	5,32,114	5,89,256	6,53,183	7,25,677	8,08,754	10.8%
250 W - 500 W	1,88,900	1,88,216	2,06,421	2,27,043	2,51,086	2,78,088	3,08,722	3,43,461	3,82,714	4,26,953	4,76,779	5,33,620	5,99,117	11.6%
More than 500 W	77,896	76,414	82,495	89,300	97,174	1,05,878	1,15,610	1,26,478	1,38,556	1,51,930	1,66,720	1,83,318	2,02,152	9.7%
Total	5,45,418	5,40,199	5,88,917	6,43,887	7,07,827	7,79,272	8,59,956	9,51,016	10,53,383	11,68,139	12,96,683	14,42,615	16,10,022	10.9%

U.K. SOLAR MICRO INVERTER MARKET ANALYSIS, PROVIDER

TABLE 9.42

U.K. Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast Provider 2019-2031

Provider	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Direct Sales through OEM	21.1	20.7	22.3	24.1	26.3	28.8	31.6	34.8	38.3	42.2	46.6	51.6	57.2	10.3%
Distributors and Wholesalers	34.9	34.8	38.2	42.2	47.0	52.5	58.7	65.9	73.9	83.1	93.6	105.6	119.5	12.5%
Retailers	26.4	26.0	28.2	30.8	33.8	37.3	41.2	45.6	50.5	56.1	62.4	69.5	77.6	11.0%
Solar Installers and Contractors	40.1	40.5	45.0	50.2	56.4	63.6	71.8	81.2	91.9	104.2	118.3	134.4	153.2	13.4%
Total	122.5	121.9	133.7	147.3	163.5	182.2	203.4	227.4	254.8	285.7	321.0	361.1	407.5	12.2%

U.K. SOLAR MICRO INVERTER MARKET ANALYSIS, PROVIDER

TABLE 9.43

U.K. Solar Micro Inverter Market Volume (Units) Analysis and Forecast Provider 2019-2031

Provider	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Direct Sales through OEM	85,417	83,162	89,121	95,783	1,03,504	1,12,014	1,21,511	1,32,093	1,43,824	1,56,781	1,71,075	1,87,092	2,05,254	9.0%
Distributors and Wholesalers	1,66,962	1,65,778	1,81,181	1,98,587	2,18,854	2,41,546	2,67,222	2,96,256	3,28,966	3,65,715	4,06,974	4,53,908	5,07,848	11.2%
Retailers	1,02,010	1,00,004	1,07,911	1,16,780	1,27,067	1,38,466	1,51,243	1,65,552	1,81,502	1,99,222	2,18,889	2,41,039	2,66,267	9.8%
Solar Installers and Contractors	1,91,028	1,91,255	2,10,705	2,32,737	2,58,402	2,87,246	3,19,980	3,57,114	3,99,091	4,46,421	4,99,745	5,60,575	6,30,654	11.9%
Total	5,45,418	5,40,199	5,88,917	6,43,887	7,07,827	7,79,272	8,59,956	9,51,016	10,53,383	11,68,139	12,96,683	14,42,615	16,10,022	10.9%

U.K. SOLAR MICRO INVERTER MARKET ANALYSIS, END USER

TABLE 9.44

U.K. Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast End User 2019-2031

End User	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Residential	62.6	62.7	69.2	76.7	85.8	96.2	108.1	121.7	137.3	155.0	175.3	198.5	225.5	12.9%
Commercial and Industrial	36.9	36.6	40.1	44.1	48.8	54.3	60.5	67.5	75.4	84.4	94.7	106.3	119.7	12.0%
Utility-scale	23.0	22.6	24.4	26.4	28.9	31.7	34.8	38.2	42.0	46.3	51.0	56.3	62.3	10.2%
Total	122.5	121.9	133.7	147.3	163.5	182.2	203.4	227.4	254.8	285.7	321.0	361.1	407.5	12.2%

U.K. SOLAR MICRO INVERTER MARKET ANALYSIS, END USER

TABLE 9.45

U.K. Solar Micro Inverter Market Volume (Units) Analysis and Forecast End User 2019-2031

End User	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Residential	2,95,443	2,94,576	3,23,294	3,55,839	3,93,796	4,36,449	4,84,865	5,39,799	6,01,909	6,71,954	7,50,894	8,40,999	9,44,881	11.7%
Commercial and Industrial	1,72,419	1,70,411	1,85,389	2,02,268	2,21,886	2,43,770	2,68,444	2,96,246	3,27,445	3,62,354	4,01,384	4,45,619	4,96,286	10.7%
Utility-scale	77,556	75,212	80,233	85,780	92,144	99,053	1,06,647	1,14,970	1,24,029	1,33,831	1,44,405	1,55,997	1,68,856	7.9%
Total	5,45,418	5,40,199	5,88,917	6,43,887	7,07,827	7,79,272	8,59,956	9,51,016	10,53,383	11,68,139	12,96,683	14,42,615	16,10,022	10.9%

SECTION 9.2.2 GERMANY SOLAR MICRO INVERTER MARKET

- Germany Segment Analysis
- Market Share Analysis
- Market Growth Analysis

GERMANY SOLAR MICRO INVERTER MARKET ANALYSIS, TECHNOLOGY

TABLE 9.46

Germany Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast Technology 2019-2031

Technology	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Single-Phase Micro Inverters	181.6	179.9	196.6	215.8	238.6	265.0	294.6	328.3	366.4	409.3	458.2	513.5	577.4	11.8%
Three-Phase Micro Inverters	91.4	92.2	102.5	114.5	128.8	145.5	164.5	186.4	211.5	240.2	273.3	311.2	355.5	13.6%
Total	272.9	272.1	299.1	330.2	367.5	410.5	459.2	514.7	577.9	649.5	731.4	824.8	932.9	12.4%

GERMANY SOLAR MICRO INVERTER MARKET ANALYSIS, TECHNOLOGY

TABLE 9.47

Germany Solar Micro Inverter Market Volume (Units) Analysis and Forecast Technology 2019-2031

Technology	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Single-Phase Micro Inverters	7,46,585	7,36,687	8,00,134	8,71,560	9,54,539	10,46,972	11,51,069	12,68,213	13,99,490	15,46,170	17,09,919	18,95,271	21,07,328	10.5%
Three-Phase Micro Inverters	4,68,165	4,69,193	5,17,508	5,72,368	6,36,408	7,08,567	7,90,668	8,84,048	9,89,895	11,09,580	12,44,820	13,99,525	15,78,227	12.1%
Total	12,14,750	12,05,880	13,17,641	14,43,928	15,90,947	17,55,539	19,41,737	21,52,260	23,89,385	26,55,750	29,54,739	32,94,796	36,85,555	11.2%

GERMANY SOLAR MICRO INVERTER MARKET ANALYSIS, POWER RATING

TABLE 9.48

Germany Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast Power Rating 2019-2031

Power Rating	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Less than 250 W	127.5	127.1	139.7	154.3	171.7	191.8	214.6	240.5	270.1	303.6	341.9	385.6	436.2	12.5%
250 W - 500 W	98.0	98.2	108.4	120.3	134.4	150.9	169.5	190.9	215.3	243.2	275.1	311.6	354.1	13.0%
More than 500 W	47.4	46.8	50.9	55.7	61.3	67.8	75.1	83.2	92.4	102.8	114.4	127.6	142.6	11.2%
Total	272.9	272.1	299.1	330.2	367.5	410.5	459.2	514.7	577.9	649.5	731.4	824.8	932.9	12.4%

GERMANY SOLAR MICRO INVERTER MARKET ANALYSIS, POWER RATING

TABLE 9.49

Germany Solar Micro Inverter Market Volume (Units) Analysis and Forecast Power Rating 2019-2031

Power Rating	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Less than 250 W	6,32,316	6,27,762	6,86,011	7,51,836	8,28,470	9,14,271	10,11,342	11,21,105	12,44,746	13,83,647	15,39,574	17,16,934	19,20,752	11.2%
250 W - 500 W	4,11,596	4,10,470	4,50,576	4,96,032	5,49,051	6,08,640	6,76,291	7,53,063	8,39,877	9,37,799	10,48,178	11,74,188	13,19,487	11.7%
More than 500 W	1,70,838	1,67,648	1,81,054	1,96,061	2,13,426	2,32,628	2,54,103	2,78,093	3,04,762	3,34,304	3,66,987	4,03,674	4,45,316	9.7%
Total	12,14,750	12,05,880	13,17,641	14,43,928	15,90,947	17,55,539	19,41,737	21,52,260	23,89,385	26,55,750	29,54,739	32,94,796	36,85,555	11.2%

GERMANY SOLAR MICRO INVERTER MARKET ANALYSIS, PROVIDER

TABLE 9.50

Germany Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast Provider 2019-2031

Provider	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Direct Sales through OEM	48.5	47.8	51.9	56.7	62.4	68.9	76.1	84.4	93.7	104.1	115.9	129.2	144.4	11.2%
Distributors and Wholesalers	76.1	75.8	83.2	91.8	102.0	113.8	127.1	142.4	159.6	179.2	201.6	227.0	256.5	12.3%
Retailers	60.5	59.9	65.4	71.8	79.4	88.1	98.0	109.1	121.7	136.0	152.2	170.5	191.6	11.7%
Solar Installers and Contractors	87.8	88.6	98.5	110.0	123.7	139.7	157.9	178.8	202.8	230.3	261.9	298.1	340.4	13.6%
Total	272.9	272.1	299.1	330.2	367.5	410.5	459.2	514.7	577.9	649.5	731.4	824.8	932.9	12.4%

GERMANY SOLAR MICRO INVERTER MARKET ANALYSIS, PROVIDER

TABLE 9.51

Germany Solar Micro Inverter Market Volume (Units) Analysis and Forecast Provider 2019-2031

Provider	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Direct Sales through OEM	1,98,148	1,94,459	2,10,059	2,27,567	2,47,879	2,70,406	2,95,676	3,23,997	3,55,593	3,90,728	4,29,762	4,73,759	5,23,905	9.9%
Distributors and Wholesalers	3,64,834	3,61,735	3,94,786	4,32,105	4,75,530	5,24,096	5,78,988	6,40,992	7,10,759	7,89,045	8,76,824	9,76,563	10,91,072	11.0%
Retailers	2,36,893	2,33,682	2,53,731	2,76,297	3,02,511	3,31,705	3,64,575	4,01,557	4,42,990	4,89,271	5,40,925	5,99,379	6,66,241	10.5%
Solar Installers and Contractors	4,14,876	4,16,005	4,59,066	5,07,959	5,65,026	6,29,332	7,02,498	7,85,715	8,80,044	9,86,705	11,07,229	12,45,095	14,04,338	12.1%
Total	12,14,750	12,05,880	13,17,641	14,43,928	15,90,947	17,55,539	19,41,737	21,52,260	23,89,385	26,55,750	29,54,739	32,94,796	36,85,555	11.2%

GERMANY SOLAR MICRO INVERTER MARKET ANALYSIS, END USER

TABLE 9.52

Germany Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast End User 2019-2031

End User	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Residential	134.9	135.8	150.7	168.0	188.7	212.9	240.4	272.1	308.5	350.1	398.1	453.3	517.7	13.5%
Commercial and Industrial	84.3	83.5	91.2	100.1	110.6	122.8	136.5	152.0	169.6	189.4	211.9	237.4	266.8	11.7%
Utility-scale	53.7	52.8	57.2	62.2	68.1	74.8	82.3	90.6	99.8	110.0	121.5	134.1	148.5	10.3%
Total	272.9	272.1	299.1	330.2	367.5	410.5	459.2	514.7	577.9	649.5	731.4	824.8	932.9	12.4%

GERMANY SOLAR MICRO INVERTER MARKET ANALYSIS, END USER

TABLE 9.53

Germany Solar Micro Inverter Market Volume (Units) Analysis and Forecast End User 2019-2031

End User	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Residential	6,44,138	6,45,637	7,12,318	7,88,160	8,76,833	9,76,932	10,91,029	12,21,049	13,68,727	15,36,067	17,25,578	19,42,837	21,94,336	12.3%
Commercial and Industrial	3,92,116	3,86,372	4,19,057	4,55,823	4,98,517	5,46,021	5,99,464	6,59,542	7,26,788	8,01,831	8,85,501	9,80,106	10,88,232	10.4%
Utility-scale	1,78,496	1,73,871	1,86,266	1,99,945	2,15,597	2,32,587	2,51,243	2,71,670	2,93,870	3,17,851	3,43,660	3,71,854	4,02,987	8.2%
Total	12,14,750	12,05,880	13,17,641	14,43,928	15,90,947	17,55,539	19,41,737	21,52,260	23,89,385	26,55,750	29,54,739	32,94,796	36,85,555	11.2%

SECTION 9.2.3

ITALY SOLAR MICRO INVERTER MARKET

- Italy Segment Analysis
- Market Share Analysis
- Market Growth Analysis

ITALY SOLAR MICRO INVERTER MARKET ANALYSIS, TECHNOLOGY

TABLE 9.54

Italy Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast Technology 2019-2031

Technology	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Single-Phase Micro Inverters	89.8	88.2	95.6	104.1	114.1	125.7	138.6	153.2	169.5	187.8	208.5	231.8	258.4	10.8%
Three-Phase Micro Inverters	47.8	48.0	53.0	58.8	65.7	73.7	82.8	93.1	104.9	118.4	133.7	151.2	171.6	12.8%
Total	137.6	136.2	148.5	162.8	179.8	199.4	221.4	246.3	274.4	306.2	342.2	383.0	430.0	11.6%

ITALY SOLAR MICRO INVERTER MARKET ANALYSIS, TECHNOLOGY

TABLE 9.55

Italy Solar Micro Inverter Market Volume (Units) Analysis and Forecast Technology 2019-2031

Technology	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Single-Phase Micro Inverters	3,70,906	3,62,971	3,90,981	4,22,372	4,58,772	4,99,048	5,44,143	5,94,578	6,50,715	7,12,989	7,81,999	8,59,620	9,47,920	9.6%
Three-Phase Micro Inverters	2,41,554	2,40,490	2,63,499	2,89,496	3,19,738	3,53,606	3,91,924	4,35,253	4,84,064	5,38,902	6,00,463	6,70,469	7,50,892	11.4%
Total	6,12,460	6,03,461	6,54,480	7,11,868	7,78,509	8,52,654	9,36,067	10,29,831	11,34,779	12,51,892	13,82,461	15,30,089	16,98,812	10.3%

ITALY SOLAR MICRO INVERTER MARKET ANALYSIS, POWER RATING

TABLE 9.56

Italy Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast Power Rating 2019-2031

Power Rating	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Less than 250 W	64.0	63.2	68.9	75.4	83.1	92.0	102.0	113.4	126.1	140.5	156.9	175.3	196.6	11.5%
250 W - 500 W	50.3	50.1	55.0	60.6	67.4	75.1	83.9	93.9	105.3	118.2	132.9	149.7	169.0	12.3%
More than 500 W	23.3	22.8	24.7	26.8	29.3	32.2	35.4	39.0	43.0	47.4	52.4	58.1	64.4	10.4%
Total	137.6	136.2	148.5	162.8	179.8	199.4	221.4	246.3	274.4	306.2	342.2	383.0	430.0	11.6%

ITALY SOLAR MICRO INVERTER MARKET ANALYSIS, POWER RATING

TABLE 9.57

Italy Solar Micro Inverter Market Volume (Units) Analysis and Forecast Power Rating 2019-2031

Power Rating	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Less than 250 W	3,14,354	3,09,301	3,34,981	3,63,843	3,97,348	4,34,582	4,76,428	5,23,416	5,75,950	6,34,500	6,99,696	7,73,329	8,57,402	10.2%
250 W - 500 W	2,10,970	2,09,118	2,28,158	2,49,653	2,74,662	3,02,626	3,34,225	3,69,909	4,10,052	4,55,084	5,05,564	5,62,909	6,28,731	11.0%
More than 500 W	87,136	85,042	91,341	98,371	1,06,499	1,15,447	1,25,415	1,36,505	1,48,778	1,62,308	1,77,202	1,93,851	2,12,680	9.1%
Total	6,12,460	6,03,461	6,54,480	7,11,868	7,78,509	8,52,654	9,36,067	10,29,831	11,34,779	12,51,892	13,82,461	15,30,089	16,98,812	10.3%

ITALY SOLAR MICRO INVERTER MARKET ANALYSIS, PROVIDER

TABLE 9.58

Italy Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast Provider 2019-2031

Provider	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Direct Sales through OEM	23.9	23.3	24.9	26.9	29.2	31.8	34.7	38.0	41.6	45.6	50.1	55.1	60.8	9.7%
Distributors and Wholesalers	39.0	38.6	42.3	46.4	51.4	57.2	63.6	71.0	79.3	88.7	99.3	111.5	125.5	11.9%
Retailers	29.9	29.2	31.6	34.3	37.4	41.1	45.2	49.7	54.8	60.6	67.0	74.2	82.5	10.5%
Solar Installers and Contractors	44.9	45.0	49.8	55.2	61.8	69.3	77.9	87.6	98.7	111.4	125.8	142.2	161.2	12.8%
Total	137.6	136.2	148.5	162.8	179.8	199.4	221.4	246.3	274.4	306.2	342.2	383.0	430.0	11.6%

ITALY SOLAR MICRO INVERTER MARKET ANALYSIS, PROVIDER

TABLE 9.59

Italy Solar Micro Inverter Market Volume (Units) Analysis and Forecast Provider 2019-2031

Provider	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Direct Sales through OEM	96,913	93,866	1,00,071	1,06,996	1,15,023	1,23,836	1,33,639	1,44,526	1,56,547	1,69,768	1,84,287	2,00,499	2,18,823	8.5%
Distributors and Wholesalers	1,86,600	1,84,318	2,00,401	2,18,517	2,39,571	2,63,044	2,89,499	3,19,294	3,52,712	3,90,086	4,31,848	4,79,158	5,33,325	10.6%
Retailers	1,15,772	1,12,907	1,21,204	1,30,487	1,41,247	1,53,121	1,66,386	1,81,185	1,97,613	2,15,784	2,35,859	2,58,383	2,83,948	9.2%
Solar Installers and Contractors	2,13,175	2,12,370	2,32,805	2,55,868	2,82,668	3,12,653	3,46,543	3,84,826	4,27,907	4,76,255	5,30,468	5,92,050	6,62,716	11.3%
Total	6,12,460	6,03,461	6,54,480	7,11,868	7,78,509	8,52,654	9,36,067	10,29,831	11,34,779	12,51,892	13,82,461	15,30,089	16,98,812	10.3%

ITALY SOLAR MICRO INVERTER MARKET ANALYSIS, END USER

TABLE 9.60

Italy Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast End User 2019-2031

End User	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Residential	69.7	69.5	76.3	84.2	93.6	104.4	116.7	130.7	146.7	164.7	185.4	208.9	236.0	12.4%
Commercial and Industrial	41.7	41.2	44.8	49.0	54.0	59.8	66.2	73.6	81.8	91.1	101.6	113.4	127.1	11.4%
Utility-scale	26.2	25.5	27.4	29.6	32.2	35.1	38.4	42.0	46.0	50.4	55.3	60.7	66.9	9.6%
Total	137.6	136.2	148.5	162.8	179.8	199.4	221.4	246.3	274.4	306.2	342.2	383.0	430.0	11.6%

ITALY SOLAR MICRO INVERTER MARKET ANALYSIS, END USER

TABLE 9.61

Italy Solar Micro Inverter Market Volume (Units) Analysis and Forecast End User 2019-2031

End User	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Residential	3,30,010	3,27,340	3,57,393	3,91,335	4,30,838	4,75,032	5,24,997	5,81,455	6,45,003	7,16,336	7,96,349	8,87,293	9,91,735	11.1%
Commercial and Industrial	1,94,634	1,91,372	2,07,115	2,24,803	2,45,332	2,68,133	2,93,745	3,22,490	3,54,608	3,90,384	4,30,194	4,75,133	5,26,419	10.1%
Utility-scale	87,816	84,750	89,972	95,730	1,02,340	1,09,490	1,17,325	1,25,886	1,35,168	1,45,172	1,55,918	1,67,663	1,80,658	7.4%
Total	6,12,460	6,03,461	6,54,480	7,11,868	7,78,509	8,52,654	9,36,067	10,29,831	11,34,779	12,51,892	13,82,461	15,30,089	16,98,812	10.3%

SECTION 9.2.4 FRANCE SOLAR MICRO INVERTER MARKET

- France Segment Analysis
- Market Share Analysis
- Market Growth Analysis

FRANCE SOLAR MICRO INVERTER MARKET ANALYSIS, TECHNOLOGY

TABLE 9.62

France Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast Technology 2019-2031

Technology	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Single-Phase Micro Inverters	44.0	42.8	45.9	49.4	53.7	58.5	63.8	69.8	76.5	83.9	92.2	101.4	111.9	9.7%
Three-Phase Micro Inverters	26.7	26.5	29.0	31.9	35.3	39.2	43.6	48.6	54.2	60.5	67.7	75.9	85.2	11.7%
Total	70.7	69.3	74.9	81.3	89.0	97.7	107.4	118.4	130.7	144.4	159.9	177.3	197.1	10.5%

FRANCE SOLAR MICRO INVERTER MARKET ANALYSIS, TECHNOLOGY

TABLE 9.63

France Solar Micro Inverter Market Volume (Units) Analysis and Forecast Technology 2019-2031

Technology	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Single-Phase Micro Inverters	1,84,047	1,78,254	1,90,033	2,03,175	2,18,412	2,35,139	2,53,747	2,74,410	2,97,225	3,22,315	3,49,871	3,80,638	4,15,414	8.5%
Three-Phase Micro Inverters	1,30,778	1,28,998	1,40,030	1,52,417	1,66,774	1,82,723	2,00,635	2,20,736	2,43,196	2,68,214	2,96,053	3,27,469	3,63,306	10.3%
Total	3,14,825	3,07,252	3,30,062	3,55,592	3,85,186	4,17,862	4,54,382	4,95,146	5,40,421	5,90,529	6,45,924	7,08,107	7,78,719	9.3%

FRANCE SOLAR MICRO INVERTER MARKET ANALYSIS, POWER RATING

TABLE 9.64

France Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast Power Rating 2019-2031

Power Rating	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Less than 250 W	32.5	31.8	34.3	37.2	40.6	44.4	48.8	53.6	59.1	65.2	72.0	79.6	88.4	10.3%
250 W - 500 W	27.0	26.7	29.1	31.8	35.1	38.9	43.2	48.0	53.5	59.6	66.6	74.5	83.6	11.5%
More than 500 W	11.2	10.9	11.5	12.3	13.3	14.3	15.5	16.7	18.1	19.6	21.3	23.1	25.2	8.4%
Total	70.7	69.3	74.9	81.3	89.0	97.7	107.4	118.4	130.7	144.4	159.9	177.3	197.1	10.5%

FRANCE SOLAR MICRO INVERTER MARKET ANALYSIS, POWER RATING

TABLE 9.65

France Solar Micro Inverter Market Volume (Units) Analysis and Forecast Power Rating 2019-2031

Power Rating	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Less than 250 W	1,56,249	1,52,170	1,63,124	1,75,372	1,89,569	2,05,218	2,22,685	2,42,153	2,63,741	2,87,589	3,13,906	3,43,403	3,76,854	9.1%
250 W - 500 W	1,12,583	1,10,853	1,20,142	1,30,587	1,42,714	1,56,198	1,71,361	1,88,397	2,07,453	2,28,706	2,52,386	2,79,146	3,09,714	10.3%
More than 500 W	45,993	44,229	46,796	49,633	52,903	56,445	60,335	64,596	69,227	74,234	79,632	85,558	92,151	7.3%
Total	3,14,825	3,07,252	3,30,062	3,55,592	3,85,186	4,17,862	4,54,382	4,95,146	5,40,421	5,90,529	6,45,924	7,08,107	7,78,719	9.3%

FRANCE SOLAR MICRO INVERTER MARKET ANALYSIS, PROVIDER

TABLE 9.66

France Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast Provider 2019-2031

Provider	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Direct Sales through OEM	11.7	11.3	12.0	12.9	13.9	15.1	16.4	17.8	19.4	21.2	23.1	25.3	27.8	9.1%
Distributors and Wholesalers	20.7	20.4	22.1	24.1	26.4	29.1	32.1	35.5	39.3	43.6	48.5	53.9	60.1	10.9%
Retailers	14.6	14.2	15.2	16.4	17.8	19.5	21.3	23.3	25.5	28.0	30.8	33.9	37.5	9.8%
Solar Installers and Contractors	23.8	23.5	25.6	27.9	30.8	34.0	37.7	41.8	46.4	51.6	57.5	64.1	71.7	11.2%
Total	70.7	69.3	74.9	81.3	89.0	97.7	107.4	118.4	130.7	144.4	159.9	177.3	197.1	10.5%

FRANCE SOLAR MICRO INVERTER MARKET ANALYSIS, PROVIDER

TABLE 9.67

France Solar Micro Inverter Market Volume (Units) Analysis and Forecast Provider 2019-2031

Provider	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Direct Sales through OEM	46,231	44,532	47,216	50,207	53,678	57,475	61,686	66,346	71,471	77,083	83,217	90,043	97,734	7.9%
Distributors and Wholesalers	99,104	97,049	1,04,608	1,13,083	1,22,910	1,33,791	1,45,978	1,59,615	1,74,802	1,91,660	2,10,351	2,31,385	2,55,324	9.7%
Retailers	55,113	53,427	57,009	61,007	65,641	70,733	76,399	82,695	89,652	97,308	1,05,723	1,15,125	1,25,757	8.6%
Solar Installers and Contractors	1,14,377	1,12,244	1,21,229	1,31,296	1,42,956	1,55,864	1,70,319	1,86,490	2,04,496	2,24,479	2,46,632	2,71,554	2,99,904	9.8%
Total	3,14,825	3,07,252	3,30,062	3,55,592	3,85,186	4,17,862	4,54,382	4,95,146	5,40,421	5,90,529	6,45,924	7,08,107	7,78,719	9.3%

FRANCE SOLAR MICRO INVERTER MARKET ANALYSIS, END USER

TABLE 9.68

France Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast End User 2019-2031

End User	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Residential	37.9	37.6	41.1	45.2	50.0	55.6	61.8	69.0	77.0	86.1	96.5	108.3	121.9	11.9%
Commercial and Industrial	20.5	19.9	21.2	22.8	24.6	26.8	29.1	31.7	34.6	37.9	41.4	45.4	50.0	9.3%
Utility-scale	12.4	11.9	12.6	13.4	14.3	15.4	16.5	17.7	19.0	20.4	21.9	23.5	25.3	7.4%
Total	70.7	69.3	74.9	81.3	89.0	97.7	107.4	118.4	130.7	144.4	159.9	177.3	197.1	10.5%

FRANCE SOLAR MICRO INVERTER MARKET ANALYSIS, END USER

TABLE 9.69

France Solar Micro Inverter Market Volume (Units) Analysis and Forecast End User 2019-2031

End User	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Residential	1,75,927	1,73,412	1,88,149	2,04,729	2,23,985	2,45,416	2,69,533	2,96,651	3,27,014	3,60,909	3,98,711	4,41,466	4,90,344	10.4%
Commercial and Industrial	96,372	92,925	98,626	1,04,980	1,12,352	1,20,420	1,29,373	1,39,288	1,50,200	1,62,157	1,75,240	1,89,805	2,06,228	8.0%
Utility-scale	42,526	40,914	43,287	45,883	48,849	52,025	55,475	59,206	63,207	67,463	71,972	76,836	82,148	6.7%
Total	3,14,825	3,07,252	3,30,062	3,55,592	3,85,186	4,17,862	4,54,382	4,95,146	5,40,421	5,90,529	6,45,924	7,08,107	7,78,719	9.3%

SECTION 9.2.5 SPAIN SOLAR MICRO INVERTER MARKET

- Spain Segment Analysis
- Market Share Analysis
- Market Growth Analysis

SPAIN SOLAR MICRO INVERTER MARKET ANALYSIS, TECHNOLOGY

TABLE 9.70

Spain Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast Technology 2019-2031

Technology	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Single-Phase Micro Inverters	56.1	54.7	58.8	63.4	69.0	75.4	82.4	90.4	99.2	109.0	120.0	132.3	146.3	9.9%
Three-Phase Micro Inverters	33.5	33.3	36.5	40.2	44.6	49.6	55.3	61.8	69.1	77.4	86.8	97.4	109.7	12.0%
Total	89.6	88.0	95.2	103.6	113.6	125.0	137.8	152.2	168.3	186.4	206.8	229.7	256.0	10.8%

SPAIN SOLAR MICRO INVERTER MARKET ANALYSIS, TECHNOLOGY

TABLE 9.71

Spain Solar Micro Inverter Market Volume (Units) Analysis and Forecast Technology 2019-2031

Technology	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Single-Phase Micro Inverters	2,34,208	2,27,318	2,42,852	2,60,199	2,80,304	3,02,412	3,27,035	3,54,416	3,84,697	4,18,056	4,54,759	4,95,799	5,42,244	8.7%
Three-Phase Micro Inverters	1,64,376	1,62,503	1,76,797	1,92,869	2,11,510	2,32,255	2,55,594	2,81,829	3,11,197	3,43,974	3,80,521	4,21,835	4,69,037	10.6%
Total	3,98,585	3,89,822	4,19,650	4,53,068	4,91,814	5,34,668	5,82,629	6,36,245	6,95,894	7,62,030	8,35,280	9,17,634	10,11,281	9.5%

SPAIN SOLAR MICRO INVERTER MARKET ANALYSIS, POWER RATING

TABLE 9.72

Spain Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast Power Rating 2019-2031

Power Rating	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Less than 250 W	41.2	40.4	43.7	47.4	51.9	57.0	62.6	69.0	76.2	84.2	93.2	103.4	114.9	10.5%
250 W - 500 W	33.9	33.6	36.7	40.3	44.6	49.5	55.1	61.4	68.5	76.5	85.6	96.0	107.9	11.8%
More than 500 W	14.4	13.9	14.8	15.9	17.1	18.5	20.1	21.7	23.6	25.7	27.9	30.4	33.1	8.7%
Total	89.6	88.0	95.2	103.6	113.6	125.0	137.8	152.2	168.3	186.4	206.8	229.7	256.0	10.8%

SPAIN SOLAR MICRO INVERTER MARKET ANALYSIS, POWER RATING

TABLE 9.73

Spain Solar Micro Inverter Market Volume (Units) Analysis and Forecast Power Rating 2019-2031

Power Rating	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Less than 250 W	1,98,785	1,94,006	2,08,413	2,24,537	2,43,227	2,63,865	2,86,931	3,12,677	3,41,274	3,72,923	4,07,911	4,47,188	4,91,789	9.3%
250 W - 500 W	1,41,787	1,39,904	1,51,950	1,65,510	1,81,264	1,98,812	2,18,574	2,40,812	2,65,733	2,93,577	3,24,661	3,59,845	4,00,098	10.5%
More than 500 W	58,012	55,911	59,287	63,021	67,323	71,991	77,124	82,755	88,888	95,531	1,02,708	1,10,601	1,19,393	7.5%
Total	3,98,585	3,89,822	4,19,650	4,53,068	4,91,814	5,34,668	5,82,629	6,36,245	6,95,894	7,62,030	8,35,280	9,17,634	10,11,281	9.5%

SPAIN SOLAR MICRO INVERTER MARKET ANALYSIS, PROVIDER

TABLE 9.74

Spain Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast Provider 2019-2031

Provider	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Direct Sales through OEM	14.9	14.4	15.4	16.5	17.9	19.4	21.2	23.1	25.2	27.5	30.1	33.0	36.3	9.3%
Distributors and Wholesalers	26.1	25.7	28.0	30.5	33.6	37.1	41.0	45.4	50.4	56.0	62.4	69.5	77.7	11.2%
Retailers	18.6	18.1	19.5	21.1	23.0	25.1	27.5	30.1	33.1	36.4	40.1	44.3	49.0	10.0%
Solar Installers and Contractors	30.0	29.7	32.4	35.5	39.2	43.4	48.2	53.5	59.6	66.4	74.1	82.9	92.9	11.5%
Total	89.6	88.0	95.2	103.6	113.6	125.0	137.8	152.2	168.3	186.4	206.8	229.7	256.0	10.8%

SPAIN SOLAR MICRO INVERTER MARKET ANALYSIS, PROVIDER

TABLE 9.75

Spain Solar Micro Inverter Market Volume (Units) Analysis and Forecast Provider 2019-2031

Provider	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Direct Sales through OEM	59,179	57,125	60,697	64,679	69,297	74,356	79,973	86,197	93,052	1,00,571	1,08,805	1,17,979	1,28,329	8.1%
Distributors and Wholesalers	1,24,895	1,22,564	1,32,391	1,43,420	1,56,214	1,70,403	1,86,320	2,04,158	2,24,058	2,46,186	2,70,767	2,98,475	3,30,054	9.9%
Retailers	70,571	68,557	73,309	78,616	84,768	91,536	99,079	1,07,472	1,16,760	1,27,000	1,38,275	1,50,890	1,65,175	8.8%
Solar Installers and Contractors	1,43,940	1,41,575	1,53,253	1,66,353	1,81,535	1,98,372	2,17,257	2,38,418	2,62,025	2,88,274	3,17,432	3,50,290	3,87,724	10.0%
Total	3,98,585	3,89,822	4,19,650	4,53,068	4,91,814	5,34,668	5,82,629	6,36,245	6,95,894	7,62,030	8,35,280	9,17,634	10,11,281	9.5%

SPAIN SOLAR MICRO INVERTER MARKET ANALYSIS, END USER

TABLE 9.76

Spain Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast End User 2019-2031

End User	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Residential	47.6	47.3	51.9	57.1	63.3	70.5	78.7	87.9	98.4	110.3	123.8	139.2	157.0	12.1%
Commercial and Industrial	26.1	25.4	27.2	29.2	31.7	34.5	37.6	41.0	44.9	49.2	54.0	59.3	65.3	9.6%
Utility-scale	15.8	15.3	16.2	17.3	18.6	20.0	21.5	23.2	25.0	26.9	29.0	31.2	33.6	7.7%
Total	89.6	88.0	95.2	103.6	113.6	125.0	137.8	152.2	168.3	186.4	206.8	229.7	256.0	10.8%

SPAIN SOLAR MICRO INVERTER MARKET ANALYSIS, END USER

TABLE 9.77

Spain Solar Micro Inverter Market Volume (Units) Analysis and Forecast End User 2019-2031

End User	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Residential	2,21,595	2,19,107	2,38,467	2,60,289	2,85,657	3,13,963	3,45,890	3,81,875	4,22,272	4,67,490	5,18,063	5,75,402	6,41,099	10.7%
Commercial and Industrial	1,22,677	1,18,540	1,26,079	1,34,486	1,44,235	1,54,921	1,66,792	1,79,956	1,94,465	2,10,391	2,27,848	2,47,308	2,69,276	8.2%
Utility-scale	54,313	52,174	55,103	58,293	61,922	65,783	69,946	74,414	79,158	84,149	89,369	94,923	1,00,906	6.3%
Total	3,98,585	3,89,822	4,19,650	4,53,068	4,91,814	5,34,668	5,82,629	6,36,245	6,95,894	7,62,030	8,35,280	9,17,634	10,11,281	9.5%

SECTION 9.2.6 RUSSIA SOLAR MICRO INVERTER MARKET

- Russia Segment Analysis
- Market Share Analysis
- Market Growth Analysis

RUSSIA SOLAR MICRO INVERTER MARKET ANALYSIS, TECHNOLOGY

TABLE 9.78

Russia Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast Technology 2019-2031

Technology	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Single-Phase Micro Inverters	9.8	9.6	10.2	11.0	11.9	13.0	14.2	15.5	16.9	18.6	20.4	22.4	24.7	9.6%
Three-Phase Micro Inverters	6.9	6.8	7.4	8.1	8.9	9.9	11.0	12.2	13.5	15.0	16.7	18.7	20.9	11.3%
Total	16.7	16.4	17.7	19.1	20.9	22.9	25.1	27.6	30.4	33.6	37.1	41.0	45.5	10.3%

RUSSIA SOLAR MICRO INVERTER MARKET ANALYSIS, TECHNOLOGY

TABLE 9.79

Russia Solar Micro Inverter Market Volume (Units) Analysis and Forecast Technology 2019-2031

Technology	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Single-Phase Micro Inverters	41,780	40,416	43,034	45,954	49,340	53,055	57,183	61,765	66,819	72,371	78,463	85,259	92,936	8.3%
Three-Phase Micro Inverters	32,747	32,172	34,785	37,714	41,108	44,869	49,083	53,801	59,060	64,901	71,383	78,681	86,988	9.9%
Total	74,527	72,587	77,819	83,669	90,449	97,924	1,06,267	1,15,566	1,25,879	1,37,272	1,49,846	1,63,940	1,79,924	9.1%

RUSSIA SOLAR MICRO INVERTER MARKET ANALYSIS, POWER RATING

TABLE 9.80

Russia Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast Power Rating 2019-2031

Power Rating	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Less than 250 W	7.6	7.4	8.0	8.7	9.4	10.3	11.3	12.4	13.7	15.0	16.6	18.3	20.3	10.2%
250 W - 500 W	6.7	6.6	7.1	7.8	8.5	9.4	10.4	11.5	12.7	14.1	15.7	17.5	19.5	11.0%
More than 500 W	2.5	2.4	2.5	2.7	2.9	3.2	3.4	3.7	4.0	4.4	4.8	5.2	5.7	8.8%
Total	16.7	16.4	17.7	19.1	20.9	22.9	25.1	27.6	30.4	33.6	37.1	41.0	45.5	10.3%

RUSSIA SOLAR MICRO INVERTER MARKET ANALYSIS, POWER RATING

TABLE 9.81

Russia Solar Micro Inverter Market Volume (Units) Analysis and Forecast Power Rating 2019-2031

Power Rating	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Less than 250 W	35,544	34,570	37,010	39,736	42,896	46,376	50,257	54,578	59,365	64,648	70,471	76,991	84,379	8.9%
250 W - 500 W	27,770	27,210	29,346	31,741	34,519	37,596	41,044	44,904	49,205	53,980	59,278	65,243	72,033	9.7%
More than 500 W	11,213	10,807	11,463	12,191	13,033	13,951	14,965	16,084	17,309	18,644	20,097	21,706	23,511	7.7%
Total	74,527	72,587	77,819	83,669	90,449	97,924	1,06,267	1,15,566	1,25,879	1,37,272	1,49,846	1,63,940	1,79,924	9.1%

RUSSIA SOLAR MICRO INVERTER MARKET ANALYSIS, PROVIDER

TABLE 9.82

Russia Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast Provider 2019-2031

Provider	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Direct Sales through OEM	2.6	2.5	2.6	2.8	3.0	3.2	3.5	3.8	4.1	4.4	4.8	5.3	5.7	8.4%
Distributors and Wholesalers	5.1	5.0	5.4	5.9	6.4	7.1	7.8	8.6	9.4	10.4	11.6	12.8	14.3	10.6%
Retailers	3.2	3.1	3.4	3.6	3.9	4.2	4.6	5.0	5.4	5.9	6.5	7.1	7.8	9.2%
Solar Installers and Contractors	5.8	5.8	6.3	6.9	7.6	8.4	9.3	10.3	11.5	12.8	14.2	15.9	17.7	11.3%
Total	16.7	16.4	17.7	19.1	20.9	22.9	25.1	27.6	30.4	33.6	37.1	41.0	45.5	10.3%

RUSSIA SOLAR MICRO INVERTER MARKET ANALYSIS, PROVIDER

TABLE 9.83

Russia Solar Micro Inverter Market Volume (Units) Analysis and Forecast Provider 2019-2031

Provider	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Direct Sales through OEM	9,974	9,549	10,063	10,636	11,302	12,028	12,831	13,717	14,687	15,744	16,894	18,168	19,601	7.2%
Distributors and Wholesalers	24,322	23,748	25,524	27,511	29,815	32,359	35,204	38,381	41,910	45,818	50,139	54,992	60,505	9.4%
Retailers	11,857	11,431	12,129	12,908	13,812	14,801	15,898	17,113	18,450	19,914	21,517	23,300	25,311	8.0%
Solar Installers and Contractors	28,374	27,859	30,103	32,614	35,520	38,735	42,334	46,356	50,832	55,797	61,296	67,479	74,507	9.8%
Total	74,527	72,587	77,819	83,669	90,449	97,924	1,06,267	1,15,566	1,25,879	1,37,272	1,49,846	1,63,940	1,79,924	9.1%

RUSSIA SOLAR MICRO INVERTER MARKET ANALYSIS, END USER

TABLE 9.84

Russia Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast End User 2019-2031

End User	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Residential	9.5	9.4	10.2	11.1	12.2	13.5	14.9	16.5	18.3	20.3	22.6	25.1	28.1	11.1%
Commercial and Industrial	4.6	4.5	4.8	5.2	5.7	6.2	6.8	7.5	8.2	9.0	10.0	11.0	12.2	10.1%
Utility-scale	2.6	2.5	2.7	2.8	3.0	3.2	3.4	3.7	4.0	4.3	4.6	4.9	5.3	7.4%
Total	16.7	16.4	17.7	19.1	20.9	22.9	25.1	27.6	30.4	33.6	37.1	41.0	45.5	10.3%

RUSSIA SOLAR MICRO INVERTER MARKET ANALYSIS, END USER

TABLE 9.85

Russia Solar Micro Inverter Market Volume (Units) Analysis and Forecast End User 2019-2031

End User	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Residential	43,348	42,461	45,780	49,502	53,819	58,599	63,954	69,947	76,623	84,035	92,255	1,01,507	1,12,039	9.7%
Commercial and Industrial	21,819	21,185	22,642	24,268	26,154	28,227	30,537	33,107	35,949	39,082	42,529	46,385	50,750	8.7%
Utility-scale	9,360	8,941	9,397	9,898	10,476	11,098	11,776	12,513	13,307	14,156	15,062	16,048	17,136	6.4%
Total	74,527	72,587	77,819	83,669	90,449	97,924	1,06,267	1,15,566	1,25,879	1,37,272	1,49,846	1,63,940	1,79,924	9.1%

SECTION 9.2.7 REST OF EUROPE SOLAR MICRO INVERTER MARKET

- Rest of Europe Segment Analysis
- Market Share Analysis
- Market Growth Analysis

REST OF EUROPE SOLAR MICRO INVERTER MARKET ANALYSIS, TECHNOLOGY

TABLE 9.86

Rest of Europe Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast Technology 2019-2031

Technology	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Single-Phase Micro Inverters	57.9	56.2	60.3	64.8	70.2	76.3	83.0	90.5	98.7	107.7	117.7	128.7	141.0	9.2%
Three-Phase Micro Inverters	33.9	33.5	36.6	40.1	44.2	48.9	54.1	60.0	66.6	73.9	82.1	91.2	101.6	11.0%
Total	91.7	89.8	96.8	104.9	114.4	125.2	137.2	150.5	165.3	181.6	199.8	219.9	242.7	9.9%

REST OF EUROPE SOLAR MICRO INVERTER MARKET ANALYSIS, TECHNOLOGY

TABLE 9.87

Rest of Europe Solar Micro Inverter Market Volume (Units) Analysis and Forecast Technology 2019-2031

Technology	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Single-Phase Micro Inverters	2,41,142	2,33,419	2,48,581	2,65,363	2,84,677	3,05,689	3,28,847	3,54,313	3,82,130	4,12,361	4,45,142	4,81,292	5,21,652	7.9%
Three-Phase Micro Inverters	1,67,158	1,64,511	1,78,098	1,93,240	2,10,673	2,29,864	2,51,223	2,74,956	3,01,189	3,30,066	3,61,792	3,97,146	4,36,969	9.6%
Total	4,08,301	3,97,930	4,26,679	4,58,603	4,95,350	5,35,553	5,80,070	6,29,269	6,83,319	7,42,428	8,06,935	8,78,438	9,58,621	8.7%

REST OF EUROPE SOLAR MICRO INVERTER MARKET ANALYSIS, POWER RATING

TABLE 9.88

Rest of Europe Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast Power Rating 2019-2031

Power Rating	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Less than 250 W	42.3	41.4	44.5	48.2	52.5	57.3	62.7	68.7	75.4	82.7	90.8	99.9	110.0	9.8%
250 W - 500 W	34.6	34.0	36.9	40.2	44.2	48.6	53.6	59.1	65.3	72.2	79.9	88.5	98.3	10.6%
More than 500 W	14.9	14.4	15.4	16.5	17.8	19.2	20.9	22.6	24.6	26.7	29.0	31.5	34.4	8.6%
Total	91.7	89.8	96.8	104.9	114.4	125.2	137.2	150.5	165.3	181.6	199.8	219.9	242.7	9.9%

REST OF EUROPE SOLAR MICRO INVERTER MARKET ANALYSIS, POWER RATING

TABLE 9.89

Rest of Europe Solar Micro Inverter Market Volume (Units) Analysis and Forecast Power Rating 2019-2031

Power Rating	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Less than 250 W	2,04,620	1,99,143	2,13,232	2,28,865	2,46,857	2,66,519	2,88,269	3,12,281	3,38,629	3,67,406	3,98,769	4,33,497	4,72,404	8.5%
250 W - 500 W	1,44,477	1,41,652	1,52,798	1,65,215	1,79,524	1,95,259	2,12,759	2,32,189	2,53,645	2,77,240	3,03,136	3,31,977	3,64,453	9.3%
More than 500 W	59,204	57,134	60,650	64,523	68,968	73,775	79,042	84,800	91,045	97,782	1,05,029	1,12,964	1,21,764	7.4%
Total	4,08,301	3,97,930	4,26,679	4,58,603	4,95,350	5,35,553	5,80,070	6,29,269	6,83,319	7,42,428	8,06,935	8,78,438	9,58,621	8.7%

REST OF EUROPE SOLAR MICRO INVERTER MARKET ANALYSIS, PROVIDER

TABLE 9.90

Rest of Europe Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast Provider 2019-2031

Provider	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Direct Sales through OEM	15.4	14.8	15.7	16.7	17.9	19.2	20.7	22.3	24.1	26.0	28.2	30.5	33.1	8.0%
Distributors and Wholesalers	26.6	26.1	28.2	30.7	33.5	36.8	40.4	44.4	48.9	53.9	59.4	65.6	72.5	10.2%
Retailers	19.2	18.6	19.8	21.3	23.0	24.9	27.0	29.3	31.8	34.6	37.7	41.1	44.9	8.8%
Solar Installers and Contractors	30.6	30.3	33.1	36.3	40.0	44.3	49.1	54.4	60.4	67.0	74.5	82.8	92.2	11.0%
Total	91.7	89.8	96.8	104.9	114.4	125.2	137.2	150.5	165.3	181.6	199.8	219.9	242.7	9.9%

REST OF EUROPE SOLAR MICRO INVERTER MARKET ANALYSIS, PROVIDER

TABLE 9.91

Rest of Europe Solar Micro Inverter Market Volume (Units) Analysis and Forecast Provider 2019-2031

Provider	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Direct Sales through OEM	61,286	58,714	61,886	65,385	69,424	73,782	78,556	83,771	89,420	95,503	1,02,036	1,09,189	1,17,130	6.8%
Distributors and Wholesalers	1,27,349	1,24,425	1,33,747	1,44,114	1,56,050	1,69,137	1,83,655	1,99,730	2,17,427	2,36,826	2,58,046	2,81,614	3,08,088	8.9%
Retailers	73,106	70,523	74,846	79,626	85,129	91,099	97,665	1,04,868	1,12,714	1,21,215	1,30,403	1,40,510	1,51,772	7.6%
Solar Installers and Contractors	1,46,559	1,44,269	1,56,200	1,69,478	1,84,747	2,01,534	2,20,194	2,40,901	2,63,758	2,88,884	3,16,449	3,47,124	3,81,631	9.6%
Total	4,08,301	3,97,930	4,26,679	4,58,603	4,95,350	5,35,553	5,80,070	6,29,269	6,83,319	7,42,428	8,06,935	8,78,438	9,58,621	8.7%

REST OF EUROPE SOLAR MICRO INVERTER MARKET ANALYSIS, END USER

TABLE 9.92

Rest of Europe Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast End User 2019-2031

End User	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Residential	48.4	47.7	51.8	56.4	62.0	68.3	75.3	83.2	91.9	101.7	112.6	124.8	138.7	10.6%
Commercial and Industrial	26.9	26.3	28.3	30.6	33.3	36.4	39.7	43.5	47.7	52.3	57.4	63.0	69.4	9.7%
Utility-scale	16.4	15.8	16.8	17.9	19.1	20.6	22.1	23.8	25.6	27.6	29.7	32.0	34.6	7.7%
Total	91.7	89.8	96.8	104.9	114.4	125.2	137.2	150.5	165.3	181.6	199.8	219.9	242.7	9.9%

REST OF EUROPE SOLAR MICRO INVERTER MARKET ANALYSIS, END USER

TABLE 9.93

Rest of Europe Solar Micro Inverter Market Volume (Units) Analysis and Forecast End User 2019-2031

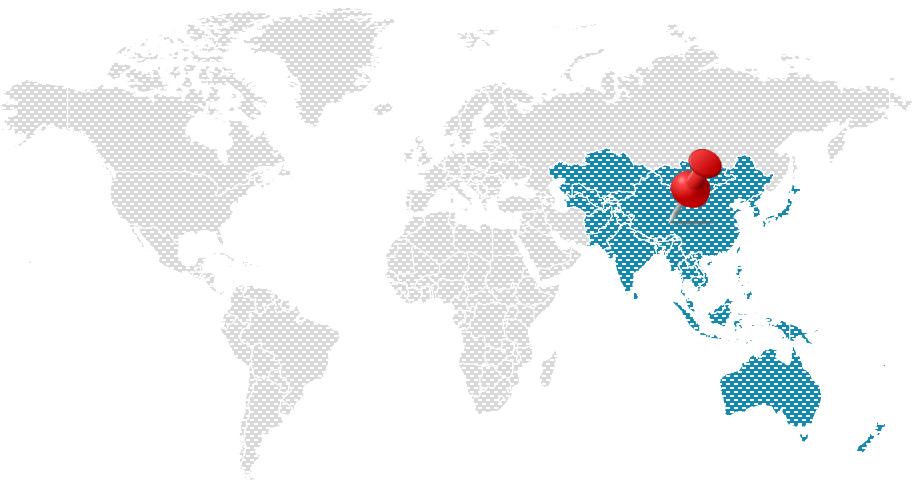
End User	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Residential	2,25,831	2,21,350	2,38,694	2,58,015	2,80,278	3,04,753	3,31,967	3,62,176	3,95,526	4,32,189	4,72,418	5,17,211	5,67,639	9.3%
Commercial and Industrial	1,26,349	1,22,758	1,31,218	1,40,599	1,51,394	1,63,174	1,76,190	1,90,541	2,06,266	2,23,413	2,42,072	2,62,706	2,85,796	8.3%
Utility-scale	56,121	53,823	56,766	59,988	63,677	67,626	71,913	76,553	81,528	86,825	92,444	98,522	1,05,186	6.5%
Total	4,08,301	3,97,930	4,26,679	4,58,603	4,95,350	5,35,553	5,80,070	6,29,269	6,83,319	7,42,428	8,06,935	8,78,438	9,58,621	8.7%

SECTION 9.3

ASIA PACIFIC SOLAR MICRO INVERTER MARKET

- Region and Segment Analysis
- Market Share Analysis
- Market Growth Analysis

ASIA PACIFIC



- Asia Pacific Solar Micro Inverter Market is estimated to be valued at US\$ 2,341.43 million in 2024, and is expected to reach US\$ 5,597.87 million by 2031, exhibiting a CAGR of 13.3% over the forecast period 2024-2031
- Asia Pacific is estimated to account for 42.4% market share in 2024 and is expected to account for 44.5% market share by 2031
- The Asia Pacific solar micro inverter market is experiencing growth due to the increasing adoption of renewable energy and government incentives promoting solar power installations. The rising demand for efficient energy conversion systems, especially in residential and commercial sectors, is driving the market growth.
- Advanced technologies such as grid-tied microinverters, smart monitoring systems, and AI-powered energy optimization tools are enhancing system efficiency and reliability. Innovations in semiconductor materials and miniaturization of components further boost the market expansion.
- Key companies contributing to this growth include GOODWE, Growatt New Energy, Hoymiles Power Electronics Inc.,

SUNGROW, and Sunrover Power Co., Ltd., offering cutting-edge solutions tailored for diverse consumer needs across the region.

- On November 4, 2024, Servotech Power Systems introduced a new line of solar products, which includes on-grid microinverters and inverters, hybrid inverters, battery energy storage systems, and solar pump controllers. These new offerings support Indian government programs like the PM Surya Ghar Muft Bijli Yojana and the PM-KUSUM Scheme. The Microsync series features two microinverter models, STMSI-800 and STMSI-1600, equipped with automatic power point tracking and a patented reverse AC power transmission technology. This technology ensures that power is prioritized for immediate use, while any excess is sent back to the grid.

FIGURE 9.7



2.4X

Projected growth of the **Asia Pacific Solar Micro Inverter Market** between 2024-2031

ASIA PACIFIC

FIGURE 9.8



ASIA PACIFIC SOLAR MICRO INVERTER MARKET ANALYSIS, BY TECHNOLOGY

TABLE 9.94

Asia Pacific Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast By Technology 2019-2031

Technology	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Single-Phase Micro Inverters	1,001.8	999.9	1,100.1	1,216.1	1,354.6	1,514.8	1,696.4	1,903.7	2,139.7	2,407.8	2,714.6	3,064.6	3,470.4	12.6%
Three-Phase Micro Inverters	499.7	508.0	569.2	640.7	726.4	826.6	941.8	1,075.1	1,228.8	1,406.0	1,611.3	1,848.8	2,127.4	14.5%
Total	1,501.5	1,507.9	1,669.3	1,856.8	2,081.0	2,341.4	2,638.2	2,978.8	3,368.6	3,813.8	4,325.9	4,913.3	5,597.9	13.3%

ASIA PACIFIC SOLAR MICRO INVERTER MARKET ANALYSIS, BY TECHNOLOGY

TABLE 9.95

Asia Pacific Solar Micro Inverter Market Volume (Units) Analysis and Forecast By Technology 2019-2031

Technology	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Single-Phase Micro Inverters	45,13,276	44,64,218	48,60,477	53,07,281	58,26,816	64,06,776	70,61,180	77,99,092	86,27,842	95,55,967	1,05,94,551	1,17,72,607	1,31,22,977	10.8%
Three-Phase Micro Inverters	28,13,937	28,28,583	31,29,136	34,71,061	38,70,711	43,22,098	48,36,776	54,23,456	60,90,023	68,45,558	77,01,379	86,82,525	98,18,163	12.4%
Total	73,27,213	72,92,802	79,89,612	87,78,341	96,97,526	1,07,28,874	1,18,97,956	1,32,22,547	1,47,17,865	1,64,01,525	1,82,95,929	2,04,55,132	2,29,41,140	11.5%

ASIA PACIFIC SOLAR MICRO INVERTER MARKET ANALYSIS, BY POWER RATING

TABLE 9.96

Asia Pacific Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast By Power Rating 2019-2031

Power Rating	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Less than 250 W	701.7	704.5	779.7	866.9	971.4	1,092.6	1,230.7	1,389.2	1,570.6	1,777.8	2,016.0	2,289.3	2,607.6	13.2%
250 W - 500 W	537.9	543.0	604.3	675.7	761.2	861.0	975.1	1,106.7	1,258.0	1,431.6	1,632.2	1,863.3	2,133.7	13.8%
More than 500 W	261.9	260.4	285.4	314.2	348.4	387.9	432.3	482.8	540.0	604.4	677.7	760.8	856.5	12.0%
Total	1,501.5	1,507.9	1,669.3	1,856.8	2,081.0	2,341.4	2,638.2	2,978.8	3,368.6	3,813.8	4,325.9	4,913.3	5,597.9	13.3%

ASIA PACIFIC SOLAR MICRO INVERTER MARKET ANALYSIS, BY POWER RATING

TABLE 9.97

Asia Pacific Solar Micro Inverter Market Volume (Units) Analysis and Forecast By Power Rating 2019-2031

Power Rating	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Less than 250 W	38,22,100	38,03,193	41,65,582	45,75,766	50,53,811	55,90,162	61,98,126	68,86,946	76,64,534	85,40,049	95,25,151	1,06,47,975	1,19,40,797	11.5%
250 W - 500 W	24,76,453	24,77,850	27,28,911	30,14,068	33,47,127	37,22,457	41,49,595	46,35,533	51,86,495	58,09,665	65,14,067	73,20,216	82,51,889	12.0%
More than 500 W	10,28,660	10,11,759	10,95,119	11,88,508	12,96,588	14,16,255	15,50,235	17,00,068	18,66,837	20,51,810	22,56,711	24,86,940	27,48,454	9.9%
Total	73,27,213	72,92,802	79,89,612	87,78,341	96,97,526	1,07,28,874	1,18,97,956	1,32,22,547	1,47,17,865	1,64,01,525	1,82,95,929	2,04,55,132	2,29,41,140	11.5%

ASIA PACIFIC SOLAR MICRO INVERTER MARKET ANALYSIS, BY PROVIDER

TABLE 9.98

Asia Pacific Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast By Provider 2019-2031

Provider	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Direct Sales through OEM	267.6	265.5	290.5	319.3	353.6	393.2	437.8	488.5	545.9	610.8	684.8	768.7	865.6	11.9%
Distributors and Wholesalers	417.8	419.5	464.3	516.2	578.4	650.6	732.7	827.0	934.9	1,058.0	1,199.5	1,361.7	1,550.7	13.2%
Retailers	333.8	333.0	366.3	404.8	450.8	503.9	564.1	632.9	711.1	800.0	901.7	1,017.6	1,152.1	12.5%
Solar Installers and Contractors	482.3	489.8	548.3	616.5	698.3	793.8	903.6	1,030.4	1,176.7	1,345.0	1,540.0	1,765.3	2,029.4	14.4%
Total	1,501.5	1,507.9	1,669.3	1,856.8	2,081.0	2,341.4	2,638.2	2,978.8	3,368.6	3,813.8	4,325.9	4,913.3	5,597.9	13.3%

ASIA PACIFIC SOLAR MICRO INVERTER MARKET ANALYSIS, BY PROVIDER

TABLE 9.99

Asia Pacific Solar Micro Inverter Market Volume (Units) Analysis and Forecast By Provider 2019-2031

Provider	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Direct Sales through OEM	12,00,610	11,80,844	12,78,406	13,88,070	15,15,397	16,56,905	18,15,958	19,94,575	21,94,292	24,16,913	26,64,844	29,44,922	32,64,784	10.2%
Distributors and Wholesalers	21,95,824	21,84,922	23,93,000	26,28,438	29,02,731	32,10,351	35,58,892	39,53,603	43,98,950	49,00,105	54,63,648	61,05,589	68,44,266	11.4%
Retailers	14,35,539	14,19,632	15,45,327	16,87,051	18,51,851	20,35,809	22,43,375	24,77,424	27,40,281	30,34,654	33,64,061	37,37,717	41,66,047	10.8%
Solar Installers and Contractors	24,95,240	25,07,404	27,72,879	30,74,782	34,27,547	38,25,809	42,79,731	47,96,946	53,84,343	60,49,853	68,03,375	76,66,904	86,66,042	12.4%
Total	73,27,213	72,92,802	79,89,612	87,78,341	96,97,526	1,07,28,874	1,18,97,956	1,32,22,547	1,47,17,865	1,64,01,525	1,82,95,929	2,04,55,132	2,29,41,140	11.5%

ASIA PACIFIC SOLAR MICRO INVERTER MARKET ANALYSIS, BY END USER

TABLE 9.100

Asia Pacific Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast By End User 2019-2031

End User	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Residential	739.2	749.5	837.7	940.8	1,064.5	1,209.3	1,375.6	1,568.1	1,790.4	2,046.5	2,343.6	2,687.4	3,091.2	14.3%
Commercial and Industrial	465.1	464.0	510.2	563.8	627.7	701.5	785.2	880.7	989.4	1,112.8	1,254.0	1,414.9	1,601.4	12.5%
Utility-scale	297.2	294.4	321.4	352.2	388.8	430.6	477.3	529.9	588.7	654.5	728.4	811.1	905.3	11.2%
Total	1,501.5	1,507.9	1,669.3	1,856.8	2,081.0	2,341.4	2,638.2	2,978.8	3,368.6	3,813.8	4,325.9	4,913.3	5,597.9	13.3%

ASIA PACIFIC SOLAR MICRO INVERTER MARKET ANALYSIS, BY END USER

TABLE 9.101

Asia Pacific Solar Micro Inverter Market Volume (Units) Analysis and Forecast By End User 2019-2031

End User	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Residential	38,75,867	38,94,263	43,06,821	47,76,873	53,27,123	59,49,591	66,60,514	74,72,301	83,96,337	94,45,770	1,06,36,980	1,20,05,492	1,35,92,830	12.5%
Commercial and Industrial	23,70,735	23,43,298	25,49,499	27,81,917	30,52,120	33,53,588	36,93,586	40,76,772	45,06,883	49,88,273	55,26,611	61,36,895	68,36,071	10.7%
Utility-scale	10,80,610	10,55,241	11,33,293	12,19,551	13,18,283	14,25,695	15,43,857	16,73,474	18,14,645	19,67,482	21,32,338	23,12,744	25,12,238	8.4%
Total	73,27,213	72,92,802	79,89,612	87,78,341	96,97,526	1,07,28,874	1,18,97,956	1,32,22,547	1,47,17,865	1,64,01,525	1,82,95,929	2,04,55,132	2,29,41,140	11.5%

ASIA PACIFIC SOLAR MICRO INVERTER MARKET, BY COUNTRY

TABLE 9.102

Asia Pacific Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast By Country 2019-2031

Country	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
China	785.9	795.5	887.8	995.3	1,124.5	1,275.3	1,448.4	1,648.5	1,879.2	2,144.5	2,452.0	2,807.2	3,223.9	14.2%
India	190.2	190.1	209.4	231.8	258.5	289.5	324.5	364.7	410.3	462.3	521.8	589.8	668.7	12.7%
Japan	253.5	252.6	277.5	306.2	340.6	380.2	425.1	476.3	534.5	600.5	675.9	761.8	861.2	12.4%
South Korea	48.5	48.1	52.6	57.9	64.1	71.2	79.3	88.5	98.9	110.6	124.0	139.1	156.6	11.9%
ASEAN	79.9	79.0	86.1	94.3	104.1	115.4	128.0	142.4	158.5	176.8	197.5	220.9	247.8	11.5%
Australia	108.0	106.5	115.9	126.7	139.5	154.2	170.7	189.4	210.5	234.1	261.0	291.2	326.0	11.3%
Rest of Asia Pacific	35.6	36.0	40.0	44.5	49.7	55.6	62.0	69.0	76.7	84.9	93.8	103.4	113.6	10.8%
Total	1,501.5	1,507.9	1,669.3	1,856.8	2,081.0	2,341.4	2,638.2	2,978.8	3,368.6	3,813.8	4,325.9	4,913.3	5,597.9	13.3%

ASIA PACIFIC SOLAR MICRO INVERTER MARKET, BY COUNTRY

TABLE 9.103

Asia Pacific Solar Micro Inverter Market Volume (Units) Analysis and Forecast By Country 2019-2031

Country	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
China	38,35,063	38,47,589	42,48,939	47,05,738	52,40,067	58,43,735	65,32,347	73,17,666	82,10,371	92,22,799	1,03,70,352	1,16,86,968	1,32,12,199	12.4%
India	9,28,358	9,19,470	10,02,388	10,95,946	12,04,771	13,26,369	14,63,691	16,18,672	17,92,897	19,88,206	22,06,980	24,55,347	27,40,263	10.9%
Japan	12,36,834	12,21,546	13,27,957	14,47,818	15,87,104	17,42,375	19,17,356	21,14,407	23,35,400	25,82,519	28,58,623	31,71,375	35,29,420	10.6%
South Korea	2,36,669	2,32,754	2,51,959	2,73,538	2,98,584	3,26,408	3,57,668	3,92,757	4,31,971	4,75,658	5,24,283	5,79,182	6,41,842	10.1%
ASEAN	3,89,808	3,82,080	4,12,224	4,46,034	4,85,249	5,28,696	5,77,394	6,31,921	6,92,693	7,60,201	8,35,115	9,19,480	10,15,554	9.8%
Australia	5,26,827	5,15,229	5,54,636	5,98,786	6,49,975	7,06,589	7,69,949	8,40,778	9,19,576	10,06,941	11,03,700	12,12,483	13,36,180	9.5%
Rest of Asia Pacific	1,73,655	1,74,134	1,91,509	2,10,481	2,31,776	2,54,702	2,79,551	3,06,347	3,34,958	3,65,201	3,96,876	4,30,297	4,65,681	9.0%
Total	73,27,213	72,92,802	79,89,612	87,78,341	96,97,526	1,07,28,874	1,18,97,956	1,32,22,547	1,47,17,865	1,64,01,525	1,82,95,929	2,04,55,132	2,29,41,140	11.5%

SECTION 9.3.1 CHINA SOLAR MICRO INVERTER MARKET

- China Segment Analysis
- Market Share Analysis
- Market Growth Analysis

CHINA SOLAR MICRO INVERTER MARKET ANALYSIS, TECHNOLOGY

TABLE 9.104

China Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast Technology 2019-2031

Technology	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Single-Phase Micro Inverters	533.0	536.3	594.9	663.0	744.5	839.3	947.5	1,071.9	1,214.5	1,377.7	1,565.8	1,781.9	2,034.1	13.5%
Three-Phase Micro Inverters	252.9	259.2	292.9	332.4	380.0	436.0	500.9	576.6	664.6	766.8	886.2	1,025.3	1,189.8	15.4%
Total	785.9	795.5	887.8	995.3	1,124.5	1,275.3	1,448.4	1,648.5	1,879.2	2,144.5	2,452.0	2,807.2	3,223.9	14.2%

CHINA SOLAR MICRO INVERTER MARKET ANALYSIS, TECHNOLOGY

TABLE 9.105

China Solar Micro Inverter Market Volume (Units) Analysis and Forecast Technology 2019-2031

Technology	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Single-Phase Micro Inverters	23,91,545	23,84,960	26,17,938	28,81,994	31,89,984	35,36,133	39,29,105	43,75,054	48,79,328	54,48,116	60,89,245	68,21,159	76,65,100	11.7%
Three-Phase Micro Inverters	14,43,518	14,62,629	16,31,001	18,23,745	20,50,083	23,07,602	26,03,242	29,42,612	33,31,044	37,74,683	42,81,107	48,65,809	55,47,099	13.3%
Total	38,35,063	38,47,589	42,48,939	47,05,738	52,40,067	58,43,735	65,32,347	73,17,666	82,10,371	92,22,799	1,03,70,352	1,16,86,968	1,32,12,199	12.4%

CHINA SOLAR MICRO INVERTER MARKET ANALYSIS, POWER RATING

TABLE 9.106

China Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast Power Rating 2019-2031

Power Rating	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Less than 250 W	368.7	373.3	416.6	467.2	527.8	598.7	680.0	774.0	882.4	1,007.1	1,151.6	1,318.6	1,514.5	14.2%
250 W - 500 W	277.1	281.8	315.9	355.8	403.8	460.1	525.0	600.2	687.4	788.1	905.2	1,041.1	1,201.1	14.7%
More than 500 W	140.0	140.4	155.2	172.4	192.8	216.5	243.4	274.2	309.4	349.4	395.2	447.5	508.3	13.0%
Total	785.9	795.5	887.8	995.3	1,124.5	1,275.3	1,448.4	1,648.5	1,879.2	2,144.5	2,452.0	2,807.2	3,223.9	14.2%

CHINA SOLAR MICRO INVERTER MARKET ANALYSIS, POWER RATING

TABLE 9.107

China Solar Micro Inverter Market Volume (Units) Analysis and Forecast Power Rating 2019-2031

Power Rating	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Less than 250 W	20,24,146	20,30,960	22,43,038	24,84,434	27,66,814	30,85,866	34,49,842	38,64,968	43,36,902	48,72,176	54,78,948	61,75,170	69,81,771	12.4%
250 W - 500 W	12,77,843	12,87,914	14,28,801	15,89,689	17,78,339	19,92,331	22,37,347	25,17,850	28,38,005	32,02,627	36,17,681	40,95,734	46,51,555	12.9%
More than 500 W	5,33,074	5,28,714	5,77,099	6,31,615	6,94,914	7,65,539	8,45,158	9,34,848	10,35,464	11,47,996	12,73,724	14,16,064	15,78,872	10.9%
Total	38,35,063	38,47,589	42,48,939	47,05,738	52,40,067	58,43,735	65,32,347	73,17,666	82,10,371	92,22,799	1,03,70,352	1,16,86,968	1,32,12,199	12.4%

CHINA SOLAR MICRO INVERTER MARKET ANALYSIS, PROVIDER

TABLE 9.108

China Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast Provider 2019-2031

Provider	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Direct Sales through OEM	142.6	142.7	157.5	174.5	194.9	218.6	245.4	276.1	311.2	351.1	396.8	449.1	509.9	12.9%
Distributors and Wholesalers	215.9	218.3	243.3	272.4	307.4	348.2	395.0	449.1	511.3	582.8	665.5	761.0	872.9	14.0%
Retailers	177.8	178.9	198.3	221.0	248.1	279.6	315.5	356.8	404.2	458.4	520.8	592.5	676.1	13.4%
Solar Installers and Contractors	249.6	255.7	288.7	327.4	374.1	428.9	492.5	566.5	652.5	752.3	868.8	1,004.6	1,164.9	15.3%
Total	785.9	795.5	887.8	995.3	1,124.5	1,275.3	1,448.4	1,648.5	1,879.2	2,144.5	2,452.0	2,807.2	3,223.9	14.2%

CHINA SOLAR MICRO INVERTER MARKET ANALYSIS, PROVIDER

TABLE 9.109

China Solar Micro Inverter Market Volume (Units) Analysis and Forecast Provider 2019-2031

Provider	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Direct Sales through OEM	6,44,291	6,39,026	6,97,639	7,63,834	8,40,869	9,27,049	10,24,477	11,34,556	12,58,453	13,97,518	15,53,491	17,30,764	19,34,335	11.1%
Distributors and Wholesalers	11,35,179	11,37,520	12,54,669	13,87,890	15,43,628	17,19,392	19,19,695	21,47,900	24,07,037	27,00,606	30,32,987	34,13,952	38,54,865	12.2%
Retailers	7,70,848	7,68,493	8,43,310	9,28,089	10,26,961	11,38,054	12,64,145	14,07,199	15,68,921	17,51,283	19,56,782	21,91,321	24,61,697	11.7%
Solar Installers and Contractors	12,84,746	13,02,550	14,53,320	16,25,925	18,28,608	20,59,239	23,24,030	26,28,010	29,75,960	33,73,391	38,27,092	43,50,930	49,61,301	13.4%
Total	38,35,063	38,47,589	42,48,939	47,05,738	52,40,067	58,43,735	65,32,347	73,17,666	82,10,371	92,22,799	1,03,70,352	1,16,86,968	1,32,12,199	12.4%

CHINA SOLAR MICRO INVERTER MARKET ANALYSIS, END USER

TABLE 9.110

China Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast End User 2019-2031

End User	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Residential	378.6	386.9	436.0	493.5	563.0	644.7	739.3	849.6	977.9	1,126.8	1,300.8	1,503.7	1,743.7	15.3%
Commercial and Industrial	247.3	248.8	275.8	307.3	344.9	388.7	438.6	496.0	561.8	637.0	723.7	823.2	939.3	13.4%
Utility-scale	160.0	159.9	176.0	194.5	216.6	242.0	270.5	302.9	339.5	380.8	427.5	480.3	540.9	12.2%
Total	785.9	795.5	887.8	995.3	1,124.5	1,275.3	1,448.4	1,648.5	1,879.2	2,144.5	2,452.0	2,807.2	3,223.9	14.2%

CHINA SOLAR MICRO INVERTER MARKET ANALYSIS, END USER

TABLE 9.111

China Solar Micro Inverter Market Volume (Units) Analysis and Forecast End User 2019-2031

End User	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Residential	20,00,752	20,26,758	22,59,883	25,27,119	28,41,365	31,99,434	36,11,139	40,84,509	46,27,245	52,48,253	59,58,513	67,80,139	77,39,345	13.4%
Commercial and Industrial	12,57,134	12,53,168	13,75,031	15,13,113	16,74,141	18,55,058	20,60,382	22,93,309	25,56,610	28,53,487	31,88,000	35,69,753	40,09,803	11.6%
Utility-scale	5,77,177	5,67,663	6,14,024	6,65,506	7,24,560	7,89,244	8,60,826	9,39,847	10,26,517	11,21,058	12,23,839	13,37,075	14,63,051	9.2%
Total	38,35,063	38,47,589	42,48,939	47,05,738	52,40,067	58,43,735	65,32,347	73,17,666	82,10,371	92,22,799	1,03,70,352	1,16,86,968	1,32,12,199	12.4%

SECTION 9.3.2 INDIA SOLAR MICRO INVERTER MARKET

- India Segment Analysis
- Market Share Analysis
- Market Growth Analysis

INDIA SOLAR MICRO INVERTER MARKET ANALYSIS, TECHNOLOGY

TABLE 9.112

India Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast Technology 2019-2031

Technology	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Single-Phase Micro Inverters	125.7	124.7	136.3	149.7	165.7	184.2	204.9	228.5	255.2	285.3	319.6	358.4	403.3	11.8%
Three-Phase Micro Inverters	64.5	65.4	73.1	82.1	92.8	105.3	119.6	136.2	155.2	177.0	202.3	231.4	265.4	14.1%
Total	190.2	190.1	209.4	231.8	258.5	289.5	324.5	364.7	410.3	462.3	521.8	589.8	668.7	12.7%

INDIA SOLAR MICRO INVERTER MARKET ANALYSIS, TECHNOLOGY

TABLE 9.113

India Solar Micro Inverter Market Volume (Units) Analysis and Forecast Technology 2019-2031

Technology	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Single-Phase Micro Inverters	5,67,784	5,58,074	6,03,777	6,55,114	7,14,692	7,80,846	8,55,140	9,38,499	10,31,613	11,35,297	12,50,643	13,80,812	15,29,329	10.1%
Three-Phase Micro Inverters	3,60,574	3,61,396	3,98,611	4,40,832	4,90,079	5,45,523	6,08,551	6,80,173	7,61,284	8,52,909	9,56,337	10,74,535	12,10,935	12.1%
Total	9,28,358	9,19,470	10,02,388	10,95,946	12,04,771	13,26,369	14,63,691	16,18,672	17,92,897	19,88,206	22,06,980	24,55,347	27,40,263	10.9%

INDIA SOLAR MICRO INVERTER MARKET ANALYSIS, POWER RATING

TABLE 9.114

India Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast Power Rating 2019-2031

Power Rating	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Less than 250 W	88.7	88.5	97.2	107.4	119.5	133.6	149.4	167.5	188.2	211.5	238.3	268.7	304.0	12.5%
250 W - 500 W	68.8	69.3	77.0	86.0	96.8	109.4	123.7	140.2	159.2	181.0	206.1	235.0	268.8	13.7%
More than 500 W	32.8	32.3	35.1	38.4	42.2	46.5	51.4	56.9	63.0	69.8	77.5	86.1	95.9	10.9%
Total	190.2	190.1	209.4	231.8	258.5	289.5	324.5	364.7	410.3	462.3	521.8	589.8	668.7	12.7%

INDIA SOLAR MICRO INVERTER MARKET ANALYSIS, POWER RATING

TABLE 9.115

India Solar Micro Inverter Market Volume (Units) Analysis and Forecast Power Rating 2019-2031

Power Rating	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Less than 250 W	4,80,991	4,75,386	5,17,167	5,64,250	6,18,976	6,80,018	7,48,846	8,26,398	9,13,424	10,10,801	11,19,669	12,43,058	13,84,388	10.7%
250 W - 500 W	3,16,300	3,16,060	3,47,629	3,83,458	4,25,286	4,72,377	5,25,923	5,86,786	6,55,728	7,33,632	8,21,605	9,22,202	10,38,373	11.9%
More than 500 W	1,31,067	1,28,025	1,37,592	1,48,239	1,60,509	1,73,974	1,88,922	2,05,488	2,23,744	2,43,773	2,65,705	2,90,087	3,17,502	9.0%
Total	9,28,358	9,19,470	10,02,388	10,95,946	12,04,771	13,26,369	14,63,691	16,18,672	17,92,897	19,88,206	22,06,980	24,55,347	27,40,263	10.9%

INDIA SOLAR MICRO INVERTER MARKET ANALYSIS, PROVIDER

TABLE 9.116

India Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast Provider 2019-2031

Provider	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Direct Sales through OEM	33.5	33.1	36.0	39.3	43.3	47.8	52.9	58.7	65.2	72.5	80.7	90.1	100.8	11.2%
Distributors and Wholesalers	53.3	53.5	59.1	65.6	73.5	82.5	92.8	104.7	118.2	133.6	151.3	171.6	195.2	13.1%
Retailers	41.9	41.6	45.5	50.0	55.4	61.6	68.6	76.5	85.6	95.8	107.4	120.5	135.7	12.0%
Solar Installers and Contractors	61.5	62.0	68.9	76.9	86.4	97.5	110.2	124.7	141.4	160.5	182.4	207.6	236.9	13.5%
Total	190.2	190.1	209.4	231.8	258.5	289.5	324.5	364.7	410.3	462.3	521.8	589.8	668.7	12.7%

INDIA SOLAR MICRO INVERTER MARKET ANALYSIS, PROVIDER

TABLE 9.117

India Solar Micro Inverter Market Volume (Units) Analysis and Forecast Provider 2019-2031

Provider	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Direct Sales through OEM	1,49,921	1,46,556	1,57,695	1,70,172	1,84,638	2,00,631	2,18,525	2,38,521	2,60,760	2,85,406	3,12,693	3,43,360	3,78,222	9.5%
Distributors and Wholesalers	2,80,162	2,78,423	3,04,563	3,34,122	3,68,548	4,07,125	4,50,803	5,00,231	5,55,957	6,18,616	6,89,021	7,69,168	8,61,340	11.3%
Retailers	1,79,190	1,76,285	1,90,895	2,07,314	2,26,373	2,47,551	2,71,350	2,98,071	3,27,942	3,61,230	3,98,291	4,40,145	4,87,928	10.2%
Solar Installers and Contractors	3,19,085	3,18,206	3,49,235	3,84,338	4,25,212	4,71,062	5,23,013	5,81,848	6,48,238	7,22,954	8,06,975	9,02,674	10,12,774	11.6%
Total	9,28,358	9,19,470	10,02,388	10,95,946	12,04,771	13,26,369	14,63,691	16,18,672	17,92,897	19,88,206	22,06,980	24,55,347	27,40,263	10.9%

INDIA SOLAR MICRO INVERTER MARKET ANALYSIS, END USER

TABLE 9.118

India Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast End User 2019-2031

End User	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Residential	94.8	95.9	106.9	119.7	135.1	153.1	173.7	197.5	225.0	256.5	293.0	335.1	384.5	14.1%
Commercial and Industrial	58.4	57.7	62.9	68.8	75.9	84.1	93.2	103.6	115.3	128.5	143.4	160.3	179.7	11.5%
Utility-scale	37.0	36.5	39.7	43.2	47.5	52.3	57.6	63.5	70.1	77.4	85.4	94.4	104.4	10.4%
Total	190.2	190.1	209.4	231.8	258.5	289.5	324.5	364.7	410.3	462.3	521.8	589.8	668.7	12.7%

INDIA SOLAR MICRO INVERTER MARKET ANALYSIS, END USER

TABLE 9.119

India Solar Micro Inverter Market Volume (Units) Analysis and Forecast End User 2019-2031

End User	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Residential	4,94,924	4,96,069	5,47,293	6,05,556	6,73,674	7,50,569	8,38,216	9,38,093	10,51,533	11,80,075	13,25,644	14,92,526	16,85,707	12.3%
Commercial and Industrial	2,98,121	2,92,019	3,14,851	3,40,452	3,70,141	4,03,017	4,39,850	4,81,072	5,26,990	5,77,970	6,34,510	6,98,151	7,70,593	9.7%
Utility-scale	1,35,312	1,31,383	1,40,243	1,49,939	1,60,956	1,72,784	1,85,625	1,99,507	2,14,373	2,30,161	2,46,826	2,64,670	2,83,964	7.4%
Total	9,28,358	9,19,470	10,02,388	10,95,946	12,04,771	13,26,369	14,63,691	16,18,672	17,92,897	19,88,206	22,06,980	24,55,347	27,40,263	10.9%

SECTION 9.3.3

JAPAN SOLAR MICRO INVERTER MARKET

- Japan Segment Analysis
- Market Share Analysis
- Market Growth Analysis

JAPAN SOLAR MICRO INVERTER MARKET ANALYSIS, TECHNOLOGY

TABLE 9.120

Japan Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast Technology 2019-2031

Technology	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Single-Phase Micro Inverters	169.7	168.1	183.6	201.4	222.6	247.1	274.6	305.8	341.1	380.9	426.1	477.4	536.5	11.7%
Three-Phase Micro Inverters	83.8	84.5	93.9	104.9	118.0	133.2	150.6	170.6	193.4	219.6	249.8	284.4	324.8	13.6%
Total	253.5	252.6	277.5	306.2	340.6	380.2	425.1	476.3	534.5	600.5	675.9	761.8	861.2	12.4%

JAPAN SOLAR MICRO INVERTER MARKET ANALYSIS, TECHNOLOGY

TABLE 9.121

Japan Solar Micro Inverter Market Volume (Units) Analysis and Forecast Technology 2019-2031

Technology	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Single-Phase Micro Inverters	7,63,868	7,49,900	8,10,334	8,78,174	9,56,882	10,44,193	11,42,164	12,51,989	13,74,547	15,10,874	16,62,371	18,33,180	20,27,903	9.9%
Three-Phase Micro Inverters	4,72,965	4,71,646	5,17,623	5,69,644	6,30,222	6,98,182	7,75,192	8,62,418	9,60,853	10,71,645	11,96,252	13,38,195	15,01,517	11.6%
Total	12,36,834	12,21,546	13,27,957	14,47,818	15,87,104	17,42,375	19,17,356	21,14,407	23,35,400	25,82,519	28,58,623	31,71,375	35,29,420	10.6%

JAPAN SOLAR MICRO INVERTER MARKET ANALYSIS, POWER RATING

TABLE 9.122

Japan Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast Power Rating 2019-2031

Power Rating	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Less than 250 W	118.6	118.2	129.8	143.3	159.4	177.9	199.0	223.0	250.2	281.1	316.5	356.7	403.3	12.4%
250 W - 500 W	90.5	90.6	100.0	110.8	123.8	138.9	156.0	175.6	198.0	223.4	252.6	286.0	324.9	12.9%
More than 500 W	44.4	43.8	47.7	52.1	57.4	63.4	70.1	77.8	86.3	95.9	106.8	119.0	133.0	11.2%
Total	253.5	252.6	277.5	306.2	340.6	380.2	425.1	476.3	534.5	600.5	675.9	761.8	861.2	12.4%

JAPAN SOLAR MICRO INVERTER MARKET ANALYSIS, POWER RATING

TABLE 9.123

Japan Solar Micro Inverter Market Volume (Units) Analysis and Forecast Power Rating 2019-2031

Power Rating	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Less than 250 W	6,46,808	6,38,877	6,94,600	7,57,370	8,30,315	9,11,638	10,03,292	11,06,513	12,22,285	13,51,756	14,96,425	16,60,310	18,47,942	10.6%
250 W - 500 W	4,16,757	4,13,499	4,51,587	4,94,612	5,44,690	6,00,729	6,64,099	7,35,719	8,16,353	9,06,888	10,08,463	11,23,942	12,56,588	11.1%
More than 500 W	1,73,269	1,69,170	1,81,770	1,95,836	2,12,099	2,30,007	2,49,965	2,72,175	2,96,762	3,23,876	3,53,735	3,87,123	4,24,890	9.2%
Total	12,36,834	12,21,546	13,27,957	14,47,818	15,87,104	17,42,375	19,17,356	21,14,407	23,35,400	25,82,519	28,58,623	31,71,375	35,29,420	10.6%

JAPAN SOLAR MICRO INVERTER MARKET ANALYSIS, PROVIDER

TABLE 9.124

Japan Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast Provider 2019-2031

Provider	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Direct Sales through OEM	45.3	44.7	48.5	52.9	58.2	64.2	71.0	78.7	87.3	96.9	107.8	120.2	134.3	11.1%
Distributors and Wholesalers	70.3	70.0	76.8	84.7	94.1	104.9	117.1	131.1	146.9	164.9	185.3	208.6	235.6	12.3%
Retailers	56.6	56.0	61.1	67.1	74.1	82.2	91.3	101.7	113.4	126.6	141.6	158.6	178.1	11.7%
Solar Installers and Contractors	81.2	81.9	91.0	101.6	114.2	128.9	145.7	164.9	186.9	212.1	241.1	274.4	313.2	13.5%
Total	253.5	252.6	277.5	306.2	340.6	380.2	425.1	476.3	534.5	600.5	675.9	761.8	861.2	12.4%

JAPAN SOLAR MICRO INVERTER MARKET ANALYSIS, PROVIDER

TABLE 9.125

Japan Solar Micro Inverter Market Volume (Units) Analysis and Forecast Provider 2019-2031

Provider	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Direct Sales through OEM	2,03,763	1,98,950	2,13,815	2,30,457	2,49,748	2,71,055	2,94,876	3,21,474	3,51,026	3,83,745	4,19,929	4,60,562	5,06,715	9.3%
Distributors and Wholesalers	3,69,678	3,64,671	3,95,962	4,31,184	4,72,098	5,17,663	5,68,966	6,26,687	6,91,357	7,63,595	8,44,219	9,35,458	10,39,821	10.5%
Retailers	2,43,667	2,39,140	2,58,334	2,79,876	3,04,869	3,32,586	3,63,681	3,98,531	4,37,411	4,80,648	5,28,684	5,82,830	6,44,545	9.9%
Solar Installers and Contractors	4,19,725	4,18,786	4,59,846	5,06,301	5,60,390	6,21,070	6,89,832	7,67,714	8,55,606	9,54,531	10,65,791	11,92,526	13,38,339	11.6%
Total	12,36,834	12,21,546	13,27,957	14,47,818	15,87,104	17,42,375	19,17,356	21,14,407	23,35,400	25,82,519	28,58,623	31,71,375	35,29,420	10.6%

JAPAN SOLAR MICRO INVERTER MARKET ANALYSIS, END USER

TABLE 9.126

Japan Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast End User 2019-2031

End User	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Residential	124.2	125.0	138.6	154.5	173.5	195.5	220.7	249.7	283.0	321.0	364.8	415.1	473.8	13.5%
Commercial and Industrial	78.8	78.0	85.1	93.4	103.2	114.5	127.2	141.5	157.8	176.2	197.0	220.6	247.8	11.7%
Utility-scale	50.5	49.6	53.7	58.4	63.9	70.2	77.2	85.1	93.7	103.4	114.1	126.0	139.5	10.3%
Total	253.5	252.6	277.5	306.2	340.6	380.2	425.1	476.3	534.5	600.5	675.9	761.8	861.2	12.4%

JAPAN SOLAR MICRO INVERTER MARKET ANALYSIS, END USER

TABLE 9.127

Japan Solar Micro Inverter Market Volume (Units) Analysis and Forecast End User 2019-2031

End User	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Residential	6,52,317	6,49,859	7,12,616	7,83,696	8,66,565	9,59,620	10,65,179	11,84,869	13,20,094	14,72,480	16,44,086	18,39,829	20,65,357	11.6%
Commercial and Industrial	4,01,307	3,93,414	4,24,521	4,59,412	4,99,883	5,44,727	5,94,996	6,51,290	7,14,038	7,83,751	8,61,124	9,48,267	10,47,516	9.8%
Utility-scale	1,83,209	1,78,272	1,90,820	2,04,709	2,20,656	2,38,028	2,57,181	2,78,248	3,01,267	3,26,289	3,53,412	3,83,279	4,16,547	8.3%
Total	12,36,834	12,21,546	13,27,957	14,47,818	15,87,104	17,42,375	19,17,356	21,14,407	23,35,400	25,82,519	28,58,623	31,71,375	35,29,420	10.6%

SECTION 9.3.4 SOUTH KOREA SOLAR MICRO INVERTER MARKET

- South Korea Segment Analysis
- Market Share Analysis
- Market Growth Analysis

SOUTH KOREA SOLAR MICRO INVERTER MARKET ANALYSIS, TECHNOLOGY

TABLE 9.128

South Korea Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast Technology 2019-2031

Technology	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Single-Phase Micro Inverters	29.8	29.3	31.8	34.7	38.1	42.1	46.5	51.5	57.1	63.3	70.5	78.5	87.7	11.1%
Three-Phase Micro Inverters	18.7	18.8	20.8	23.2	26.0	29.2	32.8	37.0	41.8	47.3	53.5	60.6	68.9	13.1%
Total	48.5	48.1	52.6	57.9	64.1	71.2	79.3	88.5	98.9	110.6	124.0	139.1	156.6	11.9%

SOUTH KOREA SOLAR MICRO INVERTER MARKET ANALYSIS, TECHNOLOGY

TABLE 9.129

South Korea Solar Micro Inverter Market Volume (Units) Analysis and Forecast Technology 2019-2031

Technology	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Single-Phase Micro Inverters	1,36,937	1,33,648	1,43,576	1,54,688	1,67,569	1,81,791	1,97,688	2,15,432	2,35,140	2,56,953	2,81,068	3,08,140	3,38,881	9.3%
Three-Phase Micro Inverters	99,732	99,106	1,08,383	1,18,850	1,31,016	1,44,617	1,59,981	1,77,325	1,96,831	2,18,705	2,43,215	2,71,042	3,02,961	11.1%
Total	2,36,669	2,32,754	2,51,959	2,73,538	2,98,584	3,26,408	3,57,668	3,92,757	4,31,971	4,75,658	5,24,283	5,79,182	6,41,842	10.1%

SOUTH KOREA SOLAR MICRO INVERTER MARKET ANALYSIS, POWER RATING

TABLE 9.130

South Korea Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast Power Rating 2019-2031

Power Rating	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Less than 250 W	22.2	22.0	24.0	26.3	29.1	32.3	35.9	40.0	44.6	49.7	55.6	62.3	70.0	11.7%
250 W - 500 W	18.7	18.7	20.7	22.9	25.6	28.7	32.3	36.3	40.9	46.2	52.2	59.1	67.2	12.9%
More than 500 W	7.6	7.4	8.0	8.6	9.4	10.2	11.2	12.2	13.4	14.7	16.1	17.7	19.5	9.6%
Total	48.5	48.1	52.6	57.9	64.1	71.2	79.3	88.5	98.9	110.6	124.0	139.1	156.6	11.9%

SOUTH KOREA SOLAR MICRO INVERTER MARKET ANALYSIS, POWER RATING

TABLE 9.131

South Korea Solar Micro Inverter Market Volume (Units) Analysis and Forecast Power Rating 2019-2031

Power Rating	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Less than 250 W	1,16,313	1,14,149	1,23,308	1,33,588	1,45,513	1,58,739	1,73,576	1,90,204	2,08,756	2,29,385	2,52,304	2,78,137	3,07,581	9.9%
250 W - 500 W	85,522	84,856	92,676	1,01,508	1,11,789	1,23,294	1,36,304	1,51,008	1,67,563	1,86,152	2,07,008	2,30,719	2,57,955	11.1%
More than 500 W	34,833	33,749	35,975	38,442	41,282	44,376	47,788	51,545	55,652	60,121	64,972	70,325	76,305	8.1%
Total	2,36,669	2,32,754	2,51,959	2,73,538	2,98,584	3,26,408	3,57,668	3,92,757	4,31,971	4,75,658	5,24,283	5,79,182	6,41,842	10.1%

SOUTH KOREA SOLAR MICRO INVERTER MARKET ANALYSIS, PROVIDER

TABLE 9.132

South Korea Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast Provider 2019-2031

Provider	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Direct Sales through OEM	7.9	7.7	8.3	9.0	9.9	10.8	11.9	13.1	14.4	15.9	17.6	19.5	21.7	10.5%
Distributors and Wholesalers	14.3	14.3	15.7	17.3	19.2	21.4	23.9	26.8	30.0	33.7	37.9	42.7	48.2	12.3%
Retailers	9.8	9.7	10.5	11.5	12.7	14.0	15.5	17.1	19.0	21.1	23.5	26.2	29.3	11.2%
Solar Installers and Contractors	16.4	16.4	18.1	20.0	22.3	25.0	28.0	31.5	35.4	39.8	44.9	50.6	57.3	12.6%
Total	48.5	48.1	52.6	57.9	64.1	71.2	79.3	88.5	98.9	110.6	124.0	139.1	156.6	11.9%

SOUTH KOREA SOLAR MICRO INVERTER MARKET ANALYSIS, PROVIDER

TABLE 9.133

South Korea Solar Micro Inverter Market Volume (Units) Analysis and Forecast Provider 2019-2031

Provider	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Direct Sales through OEM	33,984	32,987	35,244	37,766	40,688	43,901	47,480	51,460	55,862	60,712	66,049	72,016	78,770	8.7%
Distributors and Wholesalers	75,185	74,193	80,588	87,787	96,151	1,05,469	1,15,962	1,27,772	1,41,007	1,55,795	1,72,306	1,90,995	2,12,378	10.5%
Retailers	40,487	39,550	42,527	45,859	49,723	53,992	58,767	64,100	70,027	76,593	83,857	92,017	1,01,289	9.4%
Solar Installers and Contractors	87,013	86,024	93,600	1,02,126	1,12,022	1,23,046	1,35,459	1,49,425	1,65,075	1,82,558	2,02,072	2,24,153	2,49,405	10.6%
Total	2,36,669	2,32,754	2,51,959	2,73,538	2,98,584	3,26,408	3,57,668	3,92,757	4,31,971	4,75,658	5,24,283	5,79,182	6,41,842	10.1%

SOUTH KOREA SOLAR MICRO INVERTER MARKET ANALYSIS, END USER

TABLE 9.134

South Korea Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast End User 2019-2031

End User	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Residential	26.4	26.5	29.3	32.6	36.6	41.1	46.4	52.3	59.2	67.0	76.0	86.3	98.3	13.3%
Commercial and Industrial	13.9	13.6	14.7	16.0	17.5	19.3	21.2	23.4	25.9	28.6	31.7	35.2	39.2	10.7%
Utility-scale	8.3	8.0	8.6	9.2	10.0	10.8	11.8	12.8	13.8	15.0	16.3	17.6	19.1	8.4%
Total	48.5	48.1	52.6	57.9	64.1	71.2	79.3	88.5	98.9	110.6	124.0	139.1	156.6	11.9%

SOUTH KOREA SOLAR MICRO INVERTER MARKET ANALYSIS, END USER

TABLE 9.135
South Korea Solar Micro Inverter Market Volume (Units) Analysis and Forecast End User 2019-2031

End User	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Residential	1,33,604	1,32,839	1,45,382	1,59,569	1,76,096	1,94,623	2,15,608	2,39,365	2,66,159	2,96,301	3,30,184	3,68,770	4,13,162	11.4%
Commercial and Industrial	71,658	69,627	74,468	79,875	86,143	93,040	1,00,727	1,09,281	1,18,750	1,29,191	1,40,689	1,53,555	1,68,126	8.8%
Utility-scale	31,407	30,288	32,110	34,094	36,346	38,745	41,333	44,111	47,062	50,166	53,411	56,857	60,554	6.6%
Total	2,36,669	2,32,754	2,51,959	2,73,538	2,98,584	3,26,408	3,57,668	3,92,757	4,31,971	4,75,658	5,24,283	5,79,182	6,41,842	10.1%

SECTION 9.3.5 ASEAN SOLAR MICRO INVERTER MARKET

- ASEAN Segment Analysis
- Market Share Analysis
- Market Growth Analysis

ASEAN SOLAR MICRO INVERTER MARKET ANALYSIS, TECHNOLOGY

TABLE 9.136

ASEAN Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast Technology 2019-2031

Technology	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Single-Phase Micro Inverters	51.1	50.2	54.3	59.1	64.8	71.3	78.6	86.8	96.0	106.3	117.9	131.0	146.0	10.8%
Three-Phase Micro Inverters	28.8	28.8	31.8	35.2	39.3	44.1	49.5	55.6	62.6	70.5	79.5	89.9	101.8	12.7%
Total	79.9	79.0	86.1	94.3	104.1	115.4	128.0	142.4	158.5	176.8	197.5	220.9	247.8	11.5%

ASEAN SOLAR MICRO INVERTER MARKET ANALYSIS, TECHNOLOGY

TABLE 9.137

ASEAN Solar Micro Inverter Market Volume (Units) Analysis and Forecast Technology 2019-2031

Technology	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Single-Phase Micro Inverters	2,32,559	2,26,399	2,42,600	2,60,712	2,81,705	3,04,841	3,30,655	3,59,421	3,91,307	4,26,522	4,65,368	5,08,896	5,58,248	9.0%
Three-Phase Micro Inverters	1,57,248	1,55,681	1,69,625	1,85,322	2,03,544	2,23,855	2,46,738	2,72,501	3,01,386	3,33,678	3,69,747	4,10,584	4,57,307	10.7%
Total	3,89,808	3,82,080	4,12,224	4,46,034	4,85,249	5,28,696	5,77,394	6,31,921	6,92,693	7,60,201	8,35,115	9,19,480	10,15,554	9.8%

ASEAN SOLAR MICRO INVERTER MARKET ANALYSIS, POWER RATING

TABLE 9.138

ASEAN Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast Power Rating 2019-2031

Power Rating	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Less than 250 W	37.0	36.5	39.7	43.5	47.9	53.0	58.7	65.2	72.5	80.8	90.1	100.6	112.7	11.4%
250 W - 500 W	29.8	29.6	32.5	35.8	39.7	44.3	49.4	55.3	61.9	69.5	78.1	87.9	99.2	12.2%
More than 500 W	13.2	12.9	13.9	15.1	16.5	18.1	19.9	21.9	24.1	26.5	29.3	32.4	35.9	10.3%
Total	79.9	79.0	86.1	94.3	104.1	115.4	128.0	142.4	158.5	176.8	197.5	220.9	247.8	11.5%

ASEAN SOLAR MICRO INVERTER MARKET ANALYSIS, POWER RATING

TABLE 9.139

ASEAN Solar Micro Inverter Market Volume (Units) Analysis and Forecast Power Rating 2019-2031

Power Rating	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Less than 250 W	1,97,241	1,93,060	2,08,000	2,24,745	2,44,162	2,65,650	2,89,713	3,16,629	3,46,593	3,79,838	4,16,686	4,58,138	5,05,299	9.6%
250 W - 500 W	1,36,470	1,34,567	1,46,055	1,58,982	1,73,998	1,90,714	2,09,530	2,30,694	2,54,396	2,80,864	3,10,394	3,43,801	3,82,002	10.4%
More than 500 W	56,097	54,453	58,169	62,307	67,090	72,332	78,151	84,599	91,703	99,498	1,08,036	1,17,542	1,28,253	8.5%
Total	3,89,808	3,82,080	4,12,224	4,46,034	4,85,249	5,28,696	5,77,394	6,31,921	6,92,693	7,60,201	8,35,115	9,19,480	10,15,554	9.8%

ASEAN SOLAR MICRO INVERTER MARKET ANALYSIS, PROVIDER

TABLE 9.140

ASEAN Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast Provider 2019-2031

Provider	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Direct Sales through OEM	13.6	13.2	14.1	15.2	16.5	18.0	19.6	21.5	23.5	25.7	28.3	31.1	34.3	9.6%
Distributors and Wholesalers	23.0	22.8	24.9	27.3	30.2	33.6	37.3	41.6	46.5	51.9	58.2	65.2	73.4	11.8%
Retailers	17.0	16.6	17.9	19.4	21.2	23.3	25.6	28.1	31.0	34.2	37.8	41.9	46.5	10.4%
Solar Installers and Contractors	26.4	26.4	29.2	32.4	36.2	40.5	45.5	51.2	57.6	64.9	73.2	82.7	93.6	12.7%
Total	79.9	79.0	86.1	94.3	104.1	115.4	128.0	142.4	158.5	176.8	197.5	220.9	247.8	11.5%

ASEAN SOLAR MICRO INVERTER MARKET ANALYSIS, PROVIDER

TABLE 9.141

ASEAN Solar Micro Inverter Market Volume (Units) Analysis and Forecast Provider 2019-2031

Provider	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Direct Sales through OEM	59,779	57,598	61,085	64,972	69,483	74,417	79,890	85,948	92,612	99,909	1,07,889	1,16,769	1,26,777	7.9%
Distributors and Wholesalers	1,20,454	1,18,361	1,28,019	1,38,865	1,51,451	1,65,424	1,81,113	1,98,712	2,18,367	2,40,248	2,64,583	2,92,040	3,23,360	10.0%
Retailers	71,351	69,223	73,922	79,170	85,252	91,937	99,381	1,07,657	1,16,807	1,26,883	1,37,965	1,50,353	1,64,369	8.7%
Solar Installers and Contractors	1,38,224	1,36,898	1,49,198	1,63,028	1,79,063	1,96,918	2,17,010	2,39,604	2,64,907	2,93,161	3,24,678	3,60,318	4,01,047	10.7%
Total	3,89,808	3,82,080	4,12,224	4,46,034	4,85,249	5,28,696	5,77,394	6,31,921	6,92,693	7,60,201	8,35,115	9,19,480	10,15,554	9.8%

ASEAN SOLAR MICRO INVERTER MARKET ANALYSIS, END USER

TABLE 9.142

ASEAN Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast End User 2019-2031

End User	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Residential	41.5	41.3	45.3	50.0	55.5	61.9	69.2	77.4	86.8	97.4	109.6	123.4	139.4	12.3%
Commercial and Industrial	23.7	23.4	25.5	27.9	30.7	33.9	37.6	41.7	46.3	51.6	57.5	64.2	71.8	11.3%
Utility-scale	14.7	14.3	15.3	16.5	17.9	19.5	21.3	23.2	25.4	27.8	30.4	33.3	36.6	9.4%
Total	79.9	79.0	86.1	94.3	104.1	115.4	128.0	142.4	158.5	176.8	197.5	220.9	247.8	11.5%

ASEAN SOLAR MICRO INVERTER MARKET ANALYSIS, END USER

TABLE 9.143

ASEAN Solar Micro Inverter Market Volume (Units) Analysis and Forecast End User 2019-2031

End User	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Residential	2,13,377	2,10,548	2,28,682	2,49,096	2,72,811	2,99,229	3,28,981	3,62,461	3,99,981	4,41,902	4,88,703	5,41,677	6,02,284	10.5%
Commercial and Industrial	1,21,927	1,19,258	1,28,397	1,38,636	1,50,508	1,63,640	1,78,337	1,94,769	2,13,052	2,33,324	2,55,779	2,81,027	3,09,738	9.5%
Utility-scale	54,504	52,273	55,145	58,302	61,929	65,827	70,076	74,691	79,661	84,974	90,634	96,776	1,03,531	6.7%
Total	3,89,808	3,82,080	4,12,224	4,46,034	4,85,249	5,28,696	5,77,394	6,31,921	6,92,693	7,60,201	8,35,115	9,19,480	10,15,554	9.8%

SECTION 9.3.6 AUSTRALIA SOLAR MICRO INVERTER MARKET

- Australia Segment Analysis
- Market Share Analysis
- Market Growth Analysis

AUSTRALIA SOLAR MICRO INVERTER MARKET ANALYSIS, TECHNOLOGY

TABLE 9.144

Australia Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast Technology 2019-2031

Technology	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Single-Phase Micro Inverters	70.9	69.5	75.2	81.7	89.4	98.3	108.1	119.2	131.7	145.6	161.3	179.0	199.2	10.6%
Three-Phase Micro Inverters	37.1	37.0	40.7	45.0	50.1	56.0	62.6	70.2	78.8	88.5	99.6	112.3	126.9	12.4%
Total	108.0	106.5	115.9	126.7	139.5	154.2	170.7	189.4	210.5	234.1	261.0	291.2	326.0	11.3%

AUSTRALIA SOLAR MICRO INVERTER MARKET ANALYSIS, TECHNOLOGY

TABLE 9.145

Australia Solar Micro Inverter Market Volume (Units) Analysis and Forecast Technology 2019-2031

Technology	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Single-Phase Micro Inverters	3,20,627	3,11,687	3,33,513	3,57,901	3,86,166	4,17,283	4,51,973	4,90,589	5,33,348	5,80,515	6,32,480	6,90,650	7,56,543	8.9%
Three-Phase Micro Inverters	2,06,200	2,03,542	2,21,123	2,40,885	2,63,809	2,89,306	3,17,976	3,50,189	3,86,228	4,26,426	4,71,220	5,21,833	5,79,637	10.4%
Total	5,26,827	5,15,229	5,54,636	5,98,786	6,49,975	7,06,589	7,69,949	8,40,778	9,19,576	10,06,941	11,03,700	12,12,483	13,36,180	9.5%

AUSTRALIA SOLAR MICRO INVERTER MARKET ANALYSIS, POWER RATING

TABLE 9.146

Australia Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast Power Rating 2019-2031

Power Rating	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Less than 250 W	50.3	49.6	54.0	59.0	65.0	71.8	79.5	88.2	98.1	109.1	121.6	135.7	152.0	11.3%
250 W - 500 W	39.3	38.9	42.5	46.7	51.7	57.4	63.8	71.1	79.4	88.7	99.3	111.4	125.3	11.8%
More than 500 W	18.4	18.0	19.4	21.0	22.9	25.0	27.4	30.0	33.0	36.3	40.0	44.1	48.8	10.0%
Total	108.0	106.5	115.9	126.7	139.5	154.2	170.7	189.4	210.5	234.1	261.0	291.2	326.0	11.3%

AUSTRALIA SOLAR MICRO INVERTER MARKET ANALYSIS, POWER RATING

TABLE 9.147

Australia Solar Micro Inverter Market Volume (Units) Analysis and Forecast Power Rating 2019-2031

Power Rating	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Less than 250 W	2,71,677	2,65,723	2,86,075	3,08,878	3,35,318	3,64,561	3,97,290	4,33,881	4,74,592	5,19,733	5,69,732	6,25,949	6,89,877	9.5%
250 W - 500 W	1,80,484	1,77,322	1,91,763	2,07,980	2,26,798	2,47,687	2,71,138	2,97,443	3,26,816	3,59,511	3,95,870	4,36,888	4,83,674	10.0%
More than 500 W	74,666	72,183	76,798	81,928	87,860	94,342	1,01,520	1,09,454	1,18,168	1,27,696	1,38,097	1,49,645	1,62,628	8.1%
Total	5,26,827	5,15,229	5,54,636	5,98,786	6,49,975	7,06,589	7,69,949	8,40,778	9,19,576	10,06,941	11,03,700	12,12,483	13,36,180	9.5%

AUSTRALIA SOLAR MICRO INVERTER MARKET ANALYSIS, PROVIDER

TABLE 9.148

Australia Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast Provider 2019-2031

Provider	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Direct Sales through OEM	18.9	18.4	19.8	21.4	23.3	25.5	27.9	30.6	33.6	37.0	40.7	44.9	49.7	10.0%
Distributors and Wholesalers	30.4	30.0	32.6	35.6	39.1	43.2	47.8	52.9	58.7	65.3	72.6	81.0	90.5	11.2%
Retailers	23.6	23.1	25.0	27.2	29.7	32.6	35.9	39.6	43.7	48.3	53.5	59.4	66.0	10.6%
Solar Installers and Contractors	35.1	35.0	38.5	42.5	47.3	52.9	59.2	66.3	74.4	83.6	94.1	106.0	119.7	12.4%
Total	108.0	106.5	115.9	126.7	139.5	154.2	170.7	189.4	210.5	234.1	261.0	291.2	326.0	11.3%

AUSTRALIA SOLAR MICRO INVERTER MARKET ANALYSIS, PROVIDER

TABLE 9.149

Australia Solar Micro Inverter Market Volume (Units) Analysis and Forecast Provider 2019-2031

Provider	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Direct Sales through OEM	84,220	81,427	86,656	92,488	99,250	1,06,664	1,14,904	1,24,044	1,34,123	1,45,191	1,57,328	1,70,865	1,86,150	8.3%
Distributors and Wholesalers	1,59,748	1,56,044	1,67,777	1,80,915	1,96,146	2,12,975	2,31,794	2,52,813	2,76,175	3,02,050	3,30,677	3,62,834	3,99,370	9.4%
Retailers	1,00,636	97,800	1,04,617	1,12,234	1,21,061	1,30,776	1,41,605	1,53,657	1,66,999	1,81,713	1,97,920	2,16,057	2,36,599	8.8%
Solar Installers and Contractors	1,82,222	1,79,957	1,95,585	2,13,150	2,33,519	2,56,174	2,81,646	3,10,264	3,42,279	3,77,987	4,17,774	4,62,727	5,14,061	10.5%
Total	5,26,827	5,15,229	5,54,636	5,98,786	6,49,975	7,06,589	7,69,949	8,40,778	9,19,576	10,06,941	11,03,700	12,12,483	13,36,180	9.5%

AUSTRALIA SOLAR MICRO INVERTER MARKET ANALYSIS, END USER

TABLE 9.150

Australia Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast End User 2019-2031

End User	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Residential	54.2	54.1	59.4	65.5	72.8	81.3	90.9	101.8	114.3	128.3	144.4	162.7	184.0	12.4%
Commercial and Industrial	32.9	32.3	34.9	37.9	41.5	45.5	50.1	55.2	61.0	67.4	74.6	82.8	92.1	10.6%
Utility-scale	20.8	20.2	21.6	23.2	25.2	27.3	29.7	32.3	35.2	38.4	41.9	45.7	50.0	9.0%
Total	108.0	106.5	115.9	126.7	139.5	154.2	170.7	189.4	210.5	234.1	261.0	291.2	326.0	11.3%

AUSTRALIA SOLAR MICRO INVERTER MARKET ANALYSIS, END USER

TABLE 9.151

Australia Solar Micro Inverter Market Volume (Units) Analysis and Forecast End User 2019-2031

End User	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Residential	2,82,365	2,78,827	3,03,065	3,30,363	3,62,084	3,97,440	4,37,279	4,82,137	5,32,438	5,88,678	6,51,504	7,22,660	8,04,111	10.6%
Commercial and Industrial	1,68,300	1,63,541	1,74,923	1,87,638	2,02,376	2,18,595	2,36,672	2,56,790	2,79,059	3,03,615	3,30,660	3,60,926	3,95,202	8.8%
Utility-scale	76,162	72,860	76,648	80,785	85,516	90,554	95,998	1,01,851	1,08,079	1,14,648	1,21,535	1,28,896	1,36,867	6.1%
Total	5,26,827	5,15,229	5,54,636	5,98,786	6,49,975	7,06,589	7,69,949	8,40,778	9,19,576	10,06,941	11,03,700	12,12,483	13,36,180	9.5%

SECTION 9.3.7 REST OF ASIA PACIFIC SOLAR MICRO INVERTER MARKET

- Rest of Asia Pacific Segment Analysis
- Market Share Analysis
- Market Growth Analysis

REST OF ASIA PACIFIC SOLAR MICRO INVERTER MARKET ANALYSIS, TECHNOLOGY

TABLE 9.152
Rest of Asia Pacific Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast Technology 2019-2031

Technology	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Single-Phase Micro Inverters	21.7	21.8	24.0	26.6	29.5	32.7	36.2	40.1	44.2	48.6	53.4	58.4	63.8	10.0%
Three-Phase Micro Inverters	13.9	14.2	16.0	18.0	20.3	22.9	25.7	28.9	32.4	36.3	40.5	45.0	49.9	11.8%
Total	35.6	36.0	40.0	44.5	49.7	55.6	62.0	69.0	76.7	84.9	93.8	103.4	113.6	10.8%

REST OF ASIA PACIFIC SOLAR MICRO INVERTER MARKET ANALYSIS, TECHNOLOGY

TABLE 9.153
Rest of Asia Pacific Solar Micro Inverter Market Volume (Units) Analysis and Forecast Technology 2019-2031

Technology	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Single-Phase Micro Inverters	99,956	99,550	1,08,738	1,18,698	1,29,818	1,41,689	1,54,455	1,68,109	1,82,559	1,97,689	2,13,375	2,29,770	2,46,973	8.3%
Three-Phase Micro Inverters	73,699	74,584	82,770	91,783	1,01,958	1,13,013	1,25,096	1,38,238	1,52,398	1,67,512	1,83,501	2,00,527	2,18,708	9.9%
Total	1,73,655	1,74,134	1,91,509	2,10,481	2,31,776	2,54,702	2,79,551	3,06,347	3,34,958	3,65,201	3,96,876	4,30,297	4,65,681	9.0%

REST OF ASIA PACIFIC SOLAR MICRO INVERTER MARKET ANALYSIS, POWER RATING

TABLE 9.154

Rest of Asia Pacific Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast Power Rating 2019-2031

Power Rating	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Less than 250 W	16.3	16.5	18.3	20.3	22.6	25.3	28.1	31.3	34.7	38.4	42.3	46.6	51.1	10.6%
250 W - 500 W	13.8	14.0	15.7	17.6	19.8	22.2	24.9	27.9	31.2	34.8	38.6	42.8	47.4	11.4%
More than 500 W	5.5	5.5	6.0	6.7	7.3	8.1	8.9	9.8	10.8	11.8	12.9	14.0	15.1	9.3%
Total	35.6	36.0	40.0	44.5	49.7	55.6	62.0	69.0	76.7	84.9	93.8	103.4	113.6	10.8%

REST OF ASIA PACIFIC SOLAR MICRO INVERTER MARKET ANALYSIS, POWER RATING

TABLE 9.155
Rest of Asia Pacific Solar Micro Inverter Market Volume (Units) Analysis and Forecast Power Rating 2019-2031

Power Rating	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Less than 250 W	84,924	85,038	93,393	1,02,501	1,12,713	1,23,689	1,35,566	1,48,353	1,61,981	1,76,359	1,91,387	2,07,213	2,23,938	8.8%
250 W - 500 W	63,078	63,631	70,400	77,839	86,228	95,326	1,05,254	1,16,035	1,27,633	1,39,992	1,53,047	1,66,930	1,81,741	9.7%
More than 500 W	25,654	25,464	27,716	30,141	32,834	35,687	38,731	41,959	45,344	48,850	52,443	56,154	60,001	7.7%
Total	1,73,655	1,74,134	1,91,509	2,10,481	2,31,776	2,54,702	2,79,551	3,06,347	3,34,958	3,65,201	3,96,876	4,30,297	4,65,681	9.0%

REST OF ASIA PACIFIC SOLAR MICRO INVERTER MARKET ANALYSIS, PROVIDER

TABLE 9.156

Rest of Asia Pacific Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast Provider 2019-2031

Provider	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Direct Sales through OEM	5.7	5.7	6.2	6.8	7.5	8.2	9.0	9.8	10.8	11.7	12.7	13.8	14.9	8.9%
Distributors and Wholesalers	10.6	10.7	12.0	13.3	14.9	16.7	18.7	20.9	23.2	25.8	28.6	31.6	34.8	11.0%
Retailers	7.2	7.2	7.9	8.7	9.6	10.6	11.7	12.9	14.2	15.6	17.1	18.6	20.2	9.6%
Solar Installers and Contractors	12.1	12.4	13.9	15.7	17.7	20.0	22.5	25.4	28.4	31.8	35.5	39.4	43.7	11.8%
Total	35.6	36.0	40.0	44.5	49.7	55.6	62.0	69.0	76.7	84.9	93.8	103.4	113.6	10.8%

REST OF ASIA PACIFIC SOLAR MICRO INVERTER MARKET ANALYSIS, PROVIDER

TABLE 9.157

Rest of Asia Pacific Solar Micro Inverter Market Volume (Units) Analysis and Forecast Provider 2019-2031

Provider	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Direct Sales through OEM	24,653	24,300	26,271	28,382	30,723	33,188	35,806	38,571	41,457	44,432	47,464	50,586	53,816	7.1%
Distributors and Wholesalers	55,418	55,710	61,422	67,675	74,708	82,303	90,559	99,487	1,09,051	1,19,194	1,29,856	1,41,143	1,53,132	9.3%
Retailers	29,360	29,141	31,722	34,509	37,612	40,911	44,445	48,208	52,173	56,303	60,562	64,993	69,620	7.9%
Solar Installers and Contractors	64,224	64,983	72,095	79,914	88,732	98,300	1,08,741	1,20,080	1,32,277	1,45,272	1,58,993	1,73,575	1,89,114	9.8%
Total	1,73,655	1,74,134	1,91,509	2,10,481	2,31,776	2,54,702	2,79,551	3,06,347	3,34,958	3,65,201	3,96,876	4,30,297	4,65,681	9.0%

REST OF ASIA PACIFIC SOLAR MICRO INVERTER MARKET ANALYSIS, END USER

TABLE 9.158

Rest of Asia Pacific Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast End User 2019-2031

End User	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Residential	19.5	19.9	22.2	24.9	28.0	31.5	35.4	39.6	44.3	49.4	55.0	61.0	67.5	11.5%
Commercial and Industrial	10.1	10.2	11.3	12.6	14.0	15.6	17.4	19.3	21.4	23.6	26.1	28.7	31.4	10.5%
Utility-scale	6.0	5.9	6.5	7.1	7.7	8.5	9.2	10.1	10.9	11.8	12.8	13.7	14.7	8.2%
Total	35.6	36.0	40.0	44.5	49.7	55.6	62.0	69.0	76.7	84.9	93.8	103.4	113.6	10.8%

REST OF ASIA PACIFIC SOLAR MICRO INVERTER MARKET ANALYSIS, END USER

TABLE 9.159

Rest of Asia Pacific Solar Micro Inverter Market Volume (Units) Analysis and Forecast End User 2019-2031

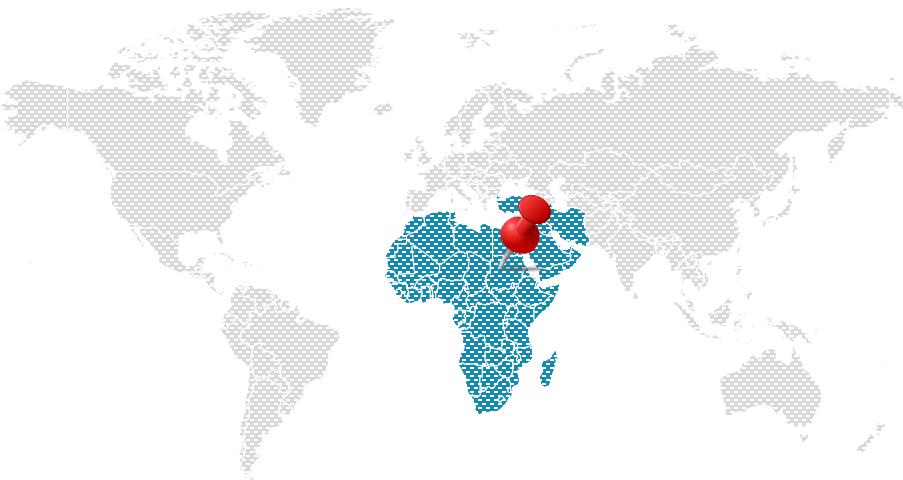
End User	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Residential	98,527	99,362	1,09,899	1,21,475	1,34,527	1,48,677	1,64,112	1,80,868	1,98,887	2,18,080	2,38,346	2,59,890	2,82,865	9.6%
Commercial and Industrial	52,289	52,271	57,308	62,790	68,928	75,512	82,622	90,261	98,384	1,06,935	1,15,850	1,25,216	1,35,093	8.7%
Utility-scale	22,839	22,501	24,302	26,216	28,320	30,514	32,817	35,218	37,686	40,186	42,680	45,191	47,724	6.6%
Total	1,73,655	1,74,134	1,91,509	2,10,481	2,31,776	2,54,702	2,79,551	3,06,347	3,34,958	3,65,201	3,96,876	4,30,297	4,65,681	9.0%

SECTION 9.4

MIDDLE EAST & AFRICA SOLAR MICRO INVERTER MARKET

- Region and Segment Analysis
- Market Share Analysis
- Market Growth Analysis

MIDDLE EAST & AFRICA



- Middle East & Africa Solar Micro Inverter Market is estimated to be valued at US\$ 166.53 million in 2024, and is expected to reach US\$ 270.84 million by 2031, exhibiting a CAGR of 7.2% over the forecast period 2024-2031
- Middle East & Africa is estimated to account for 3% market share in 2024 and is expected to account for 2.2% market share by 2031
- Middle East and Africa's abundant solar resources, coupled with the declining cost of solar panels and inverters, are key growth drivers. Recent advancements in micro-inverter technology, such as improved energy efficiency, enhanced monitoring systems, and integration with IoT-based platforms, are further fueling adoption.
- Many manufacturers are focusing on hybrid systems that combine solar micro-inverters with energy storage solutions to address intermittent energy supply issues in areas with unreliable power grids. Countries like the UAE, Saudi Arabia, and South Africa are at the forefront, with large-scale solar projects and favorable regulatory frameworks.

- For instance, in October 2023, Enphase Energy, Inc. announced its entry into the South African solar market with the launch of IQ8 Microinverters. These microinverters are designed for grid-tied residential and small commercial use, offering a peak AC output power of 480 watts to support the latest high-powered solar modules.

MIDDLE EAST & AFRICA

FIGURE 9.9

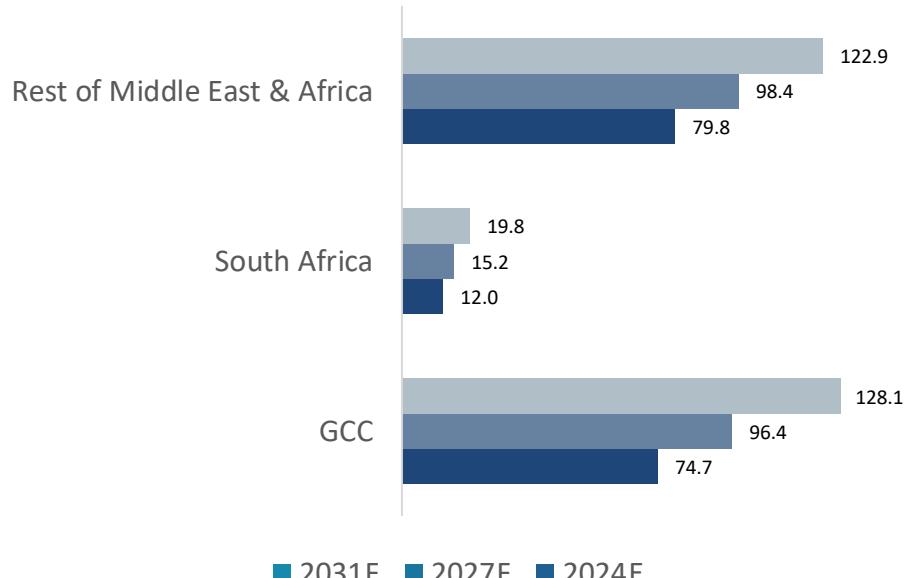
Middle East & Africa Solar Micro Inverter Market Value (US\$ million) Analysis



Projected growth of the **Middle East & Africa Solar Micro Inverter Market** between 2024-2031

FIGURE 9.10

Middle East & Africa Solar Micro Inverter Market Value (US\$ million) Analysis



MIDDLE EAST & AFRICA SOLAR MICRO INVERTER MARKET ANALYSIS, BY TECHNOLOGY

TABLE 9.160

Middle East & Africa Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast By Technology 2019-2031

Technology	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Single-Phase Micro Inverters	77.9	76.2	81.9	88.0	95.0	102.5	110.3	118.5	126.8	135.1	143.4	151.5	159.3	6.5%
Three-Phase Micro Inverters	44.5	44.4	48.5	53.1	58.3	64.0	70.1	76.5	83.2	90.2	97.3	104.4	111.6	8.3%
Total	122.4	120.6	130.4	141.1	153.3	166.5	180.4	195.0	210.0	225.3	240.7	255.9	270.8	7.2%

MIDDLE EAST & AFRICA SOLAR MICRO INVERTER MARKET ANALYSIS, BY TECHNOLOGY

TABLE 9.161

Middle East & Africa Solar Micro Inverter Market Volume (Units) Analysis and Forecast By Technology 2019-2031

Technology	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Single-Phase Micro Inverters	4,39,609	4,23,948	4,48,964	4,75,672	5,05,432	5,36,419	5,69,043	6,03,119	6,38,177	6,73,697	7,09,167	7,45,018	7,81,433	5.5%
Three-Phase Micro Inverters	2,99,919	2,93,936	3,16,288	3,40,440	3,67,442	3,96,058	4,26,640	4,59,113	4,93,168	5,28,439	5,64,544	6,01,832	6,40,478	7.1%
Total	7,39,528	7,17,884	7,65,252	8,16,112	8,72,874	9,32,476	9,95,683	10,62,231	11,31,346	12,02,136	12,73,711	13,46,850	14,21,911	6.2%

MIDDLE EAST & AFRICA SOLAR MICRO INVERTER MARKET ANALYSIS, BY POWER RATING

TABLE 9.162

Middle East & Africa Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast By Power Rating 2019-2031

Power Rating	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Less than 250 W	56.6	55.7	60.2	65.1	70.6	76.7	83.0	89.6	96.4	103.4	110.4	117.3	124.0	7.1%
250 W - 500 W	45.8	45.3	49.3	53.7	58.6	64.1	69.8	75.8	82.2	88.6	95.2	101.8	108.4	7.8%
More than 500 W	20.1	19.5	20.9	22.4	24.0	25.8	27.6	29.5	31.4	33.3	35.1	36.8	38.5	5.9%
Total	122.4	120.6	130.4	141.1	153.3	166.5	180.4	195.0	210.0	225.3	240.7	255.9	270.8	7.2%

MIDDLE EAST & AFRICA SOLAR MICRO INVERTER MARKET ANALYSIS, BY POWER RATING

TABLE 9.163

Middle East & Africa Solar Micro Inverter Market Volume (Units) Analysis and Forecast By Power Rating 2019-2031

Power Rating	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Less than 250 W	3,72,911	3,61,694	3,85,241	4,10,510	4,38,708	4,68,291	4,99,641	5,32,623	5,66,846	6,01,861	6,37,223	6,73,322	7,10,336	6.1%
250 W - 500 W	2,59,902	2,53,722	2,71,991	2,91,704	3,13,750	3,37,060	3,61,930	3,88,287	4,15,870	4,44,366	4,73,456	5,03,438	5,34,459	6.8%
More than 500 W	1,06,714	1,02,468	1,08,020	1,13,898	1,20,416	1,27,125	1,34,112	1,41,321	1,48,630	1,55,910	1,63,032	1,70,090	1,77,116	4.9%
Total	7,39,528	7,17,884	7,65,252	8,16,112	8,72,874	9,32,476	9,95,683	10,62,231	11,31,346	12,02,136	12,73,711	13,46,850	14,21,911	6.2%

MIDDLE EAST & AFRICA SOLAR MICRO INVERTER MARKET ANALYSIS, BY PROVIDER

TABLE 9.164

Middle East & Africa Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast By Provider 2019-2031

Provider	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Direct Sales through OEM	20.7	20.1	21.4	22.8	24.5	26.2	28.0	29.8	31.7	33.5	35.3	37.0	38.6	5.7%
Distributors and Wholesalers	35.3	34.8	37.7	40.8	44.4	48.2	52.3	56.6	61.0	65.5	70.0	74.5	78.9	7.3%
Retailers	25.9	25.2	27.1	29.1	31.3	33.7	36.2	38.8	41.5	44.2	46.8	49.4	51.8	6.3%
Solar Installers and Contractors	40.6	40.4	44.2	48.4	53.2	58.4	63.9	69.7	75.8	82.1	88.6	95.0	101.5	8.2%
Total	122.4	120.6	130.4	141.1	153.3	166.5	180.4	195.0	210.0	225.3	240.7	255.9	270.8	7.2%

MIDDLE EAST & AFRICA SOLAR MICRO INVERTER MARKET ANALYSIS, BY PROVIDER

TABLE 9.165

Middle East & Africa Solar Micro Inverter Market Volume (Units) Analysis and Forecast By Provider 2019-2031

Provider	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Direct Sales through OEM	1,12,546	1,07,678	1,13,135	1,18,927	1,25,383	1,32,040	1,38,992	1,46,187	1,53,507	1,60,824	1,68,017	1,75,190	1,82,386	4.7%
Distributors and Wholesalers	2,29,288	2,22,799	2,37,732	2,53,774	2,71,678	2,90,493	3,10,460	3,31,499	3,53,367	3,75,788	3,98,483	4,21,694	4,45,533	6.3%
Retailers	1,34,304	1,29,281	1,36,661	1,44,531	1,53,302	1,62,418	1,72,001	1,81,994	1,92,253	2,02,622	2,12,948	2,23,360	2,33,915	5.3%
Solar Installers and Contractors	2,63,389	2,58,126	2,77,725	2,98,881	3,22,511	3,47,525	3,74,230	4,02,552	4,32,219	4,62,902	4,94,263	5,26,606	5,60,077	7.1%
Total	7,39,528	7,17,884	7,65,252	8,16,112	8,72,874	9,32,476	9,95,683	10,62,231	11,31,346	12,02,136	12,73,711	13,46,850	14,21,911	6.2%

MIDDLE EAST & AFRICA SOLAR MICRO INVERTER MARKET ANALYSIS, BY END USER

TABLE 9.166

Middle East & Africa Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast By End User 2019-2031

End User	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Residential	63.9	63.4	69.1	75.4	82.6	90.4	98.8	107.6	116.8	126.3	136.1	145.9	155.7	8.1%
Commercial and Industrial	36.2	35.5	38.1	41.0	44.3	47.9	51.5	55.4	59.3	63.2	67.2	71.0	74.7	6.6%
Utility-scale	22.3	21.7	23.1	24.7	26.4	28.2	30.1	32.0	33.9	35.7	37.5	39.1	40.5	5.3%
Total	122.4	120.6	130.4	141.1	153.3	166.5	180.4	195.0	210.0	225.3	240.7	255.9	270.8	7.2%

MIDDLE EAST & AFRICA SOLAR MICRO INVERTER MARKET ANALYSIS, BY END USER

TABLE 9.167

Middle East & Africa Solar Micro Inverter Market Volume (Units) Analysis and Forecast By End User 2019-2031

End User	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Residential	4,06,327	3,97,516	4,27,068	4,59,039	4,94,849	5,32,837	5,73,492	6,16,722	6,62,131	7,09,244	7,57,568	8,07,594	8,59,577	7.1%
Commercial and Industrial	2,30,428	2,22,384	2,35,677	2,49,873	2,65,689	2,82,166	2,99,522	3,17,658	3,36,329	3,55,259	3,74,177	3,93,310	4,12,753	5.6%
Utility-scale	1,02,773	97,984	1,02,507	1,07,200	1,12,337	1,17,473	1,22,670	1,27,851	1,32,885	1,37,633	1,41,966	1,45,946	1,49,581	3.5%
Total	7,39,528	7,17,884	7,65,252	8,16,112	8,72,874	9,32,476	9,95,683	10,62,231	11,31,346	12,02,136	12,73,711	13,46,850	14,21,911	6.2%

MIDDLE EAST & AFRICA SOLAR MICRO INVERTER MARKET, BY COUNTRY

TABLE 9.168

Middle East & Africa Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast By Country 2019-2031

Country	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
GCC	52.9	52.5	57.2	62.3	68.3	74.7	81.5	88.8	96.4	104.2	112.1	120.1	128.1	8.0%
South Africa	8.7	8.6	9.3	10.1	11.0	12.0	13.0	14.1	15.2	16.4	17.5	18.7	19.8	7.4%
Rest of Middle East & Africa	60.8	59.5	63.9	68.7	74.0	79.8	85.8	92.1	98.4	104.7	111.0	117.1	122.9	6.4%
Total	122.4	120.6	130.4	141.1	153.3	166.5	180.4	195.0	210.0	225.3	240.7	255.9	270.8	7.2%

MIDDLE EAST & AFRICA SOLAR MICRO INVERTER MARKET, BY COUNTRY

TABLE 9.169

Middle East & Africa Solar Micro Inverter Market Volume (Units) Analysis and Forecast By Country 2019-2031

Country	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
GCC	3,19,402	3,12,411	3,35,555	3,60,577	3,88,586	4,18,275	4,50,022	4,83,748	5,19,139	5,55,815	5,93,384	6,32,226	6,72,533	7.0%
South Africa	52,647	51,224	54,729	58,501	62,714	67,150	71,867	76,846	82,034	87,368	92,783	98,336	1,04,055	6.5%
Rest of Middle East & Africa	3,67,479	3,54,250	3,74,968	3,97,035	4,21,574	4,47,052	4,73,795	5,01,637	5,30,172	5,58,953	5,87,544	6,16,288	6,45,323	5.4%
Total	7,39,528	7,17,884	7,65,252	8,16,112	8,72,874	9,32,476	9,95,683	10,62,231	11,31,346	12,02,136	12,73,711	13,46,850	14,21,911	6.2%

SECTION 9.4.1 GCC SOLAR MICRO INVERTER MARKET

- GCC Segment Analysis
- Market Share Analysis
- Market Growth Analysis

GCC SOLAR MICRO INVERTER MARKET ANALYSIS, TECHNOLOGY

TABLE 9.170

GCC Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast Technology 2019-2031

Technology	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Single-Phase Micro Inverters	33.6	33.1	35.9	38.9	42.3	46.0	49.9	54.1	58.3	62.7	67.1	71.4	75.7	7.4%
Three-Phase Micro Inverters	19.3	19.3	21.3	23.5	25.9	28.7	31.6	34.7	38.0	41.5	45.1	48.7	52.4	9.0%
Total	52.9	52.5	57.2	62.3	68.3	74.7	81.5	88.8	96.4	104.2	112.1	120.1	128.1	8.0%

GCC SOLAR MICRO INVERTER MARKET ANALYSIS, TECHNOLOGY

TABLE 9.171

GCC Solar Micro Inverter Market Volume (Units) Analysis and Forecast Technology 2019-2031

Technology	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Single-Phase Micro Inverters	1,89,597	1,84,334	1,96,803	2,10,209	2,25,179	2,40,928	2,57,659	2,75,307	2,93,676	3,12,537	3,31,660	3,51,250	3,71,402	6.4%
Three-Phase Micro Inverters	1,29,805	1,28,076	1,38,753	1,50,368	1,63,408	1,77,347	1,92,362	2,08,441	2,25,463	2,43,278	2,61,724	2,80,976	3,01,131	7.9%
Total	3,19,402	3,12,411	3,35,555	3,60,577	3,88,586	4,18,275	4,50,022	4,83,748	5,19,139	5,55,815	5,93,384	6,32,226	6,72,533	7.0%

GCC SOLAR MICRO INVERTER MARKET ANALYSIS, POWER RATING

TABLE 9.172

GCC Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast Power Rating 2019-2031

Power Rating	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Less than 250 W	24.4	24.2	26.4	28.8	31.5	34.5	37.7	41.0	44.5	48.2	51.9	55.5	59.2	8.0%
250 W - 500 W	19.8	19.7	21.6	23.7	26.0	28.6	31.4	34.3	37.5	40.7	44.0	47.3	50.7	8.5%
More than 500 W	8.6	8.5	9.1	9.9	10.7	11.5	12.4	13.4	14.4	15.3	16.3	17.2	18.1	6.7%
Total	52.9	52.5	57.2	62.3	68.3	74.7	81.5	88.8	96.4	104.2	112.1	120.1	128.1	8.0%

GCC SOLAR MICRO INVERTER MARKET ANALYSIS, POWER RATING

TABLE 9.173

GCC Solar Micro Inverter Market Volume (Units) Analysis and Forecast Power Rating 2019-2031

Power Rating	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Less than 250 W	1,60,842	1,57,337	1,69,010	1,81,631	1,95,760	2,10,737	2,26,755	2,43,773	2,61,634	2,80,145	2,99,111	3,18,722	3,39,076	7.0%
250 W - 500 W	1,12,421	1,10,466	1,19,195	1,28,673	1,39,306	1,50,639	1,62,818	1,75,825	1,89,556	2,03,882	2,18,664	2,34,049	2,50,115	7.5%
More than 500 W	46,139	44,608	47,350	50,273	53,521	56,899	60,449	64,150	67,949	71,788	75,609	79,455	83,342	5.6%
Total	3,19,402	3,12,411	3,35,555	3,60,577	3,88,586	4,18,275	4,50,022	4,83,748	5,19,139	5,55,815	5,93,384	6,32,226	6,72,533	7.0%

GCC SOLAR MICRO INVERTER MARKET ANALYSIS, PROVIDER

TABLE 9.174

GCC Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast Provider 2019-2031

Provider	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Direct Sales through OEM	8.9	8.7	9.4	10.2	11.0	11.9	12.8	13.8	14.8	15.8	16.9	17.9	18.8	6.8%
Distributors and Wholesalers	15.3	15.1	16.5	17.9	19.6	21.4	23.4	25.4	27.6	29.8	32.0	34.2	36.5	7.9%
Retailers	11.1	11.0	11.9	12.9	14.0	15.3	16.5	17.9	19.3	20.7	22.2	23.6	25.0	7.3%
Solar Installers and Contractors	17.6	17.6	19.4	21.4	23.6	26.1	28.8	31.6	34.7	37.8	41.1	44.4	47.8	9.0%
Total	52.9	52.5	57.2	62.3	68.3	74.7	81.5	88.8	96.4	104.2	112.1	120.1	128.1	8.0%

GCC SOLAR MICRO INVERTER MARKET ANALYSIS, PROVIDER

TABLE 9.175

GCC Solar Micro Inverter Market Volume (Units) Analysis and Forecast Provider 2019-2031

Provider	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Direct Sales through OEM	48,462	46,861	49,759	52,859	56,316	59,928	63,741	67,737	71,864	76,064	80,280	84,560	88,925	5.8%
Distributors and Wholesalers	99,160	96,873	1,03,925	1,11,540	1,20,060	1,29,078	1,38,708	1,48,925	1,59,628	1,70,701	1,82,020	1,93,702	2,05,804	6.9%
Retailers	57,826	56,204	59,988	64,055	68,596	73,371	78,443	83,790	89,354	95,064	1,00,850	1,06,775	1,12,866	6.3%
Solar Installers and Contractors	1,13,954	1,12,473	1,21,884	1,32,122	1,43,614	1,55,898	1,69,129	1,83,296	1,98,293	2,13,986	2,30,234	2,47,190	2,64,937	7.9%
Total	3,19,402	3,12,411	3,35,555	3,60,577	3,88,586	4,18,275	4,50,022	4,83,748	5,19,139	5,55,815	5,93,384	6,32,226	6,72,533	7.0%

GCC SOLAR MICRO INVERTER MARKET ANALYSIS, END USER

TABLE 9.176

GCC Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast End User 2019-2031

End User	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Residential	27.7	27.7	30.5	33.6	37.1	41.0	45.2	49.7	54.5	59.5	64.6	69.9	75.3	9.1%
Commercial and Industrial	15.6	15.4	16.7	18.1	19.6	21.4	23.2	25.1	27.0	29.0	31.1	33.1	35.0	7.3%
Utility-scale	9.6	9.3	10.0	10.7	11.5	12.3	13.2	14.0	14.9	15.7	16.5	17.2	17.8	5.4%
Total	52.9	52.5	57.2	62.3	68.3	74.7	81.5	88.8	96.4	104.2	112.1	120.1	128.1	8.0%

GCC SOLAR MICRO INVERTER MARKET ANALYSIS, END USER

TABLE 9.177

GCC Solar Micro Inverter Market Volume (Units) Analysis and Forecast End User 2019-2031

End User	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Residential	1,75,750	1,73,570	1,88,237	2,04,235	2,22,235	2,41,535	2,62,388	2,84,788	3,08,588	3,33,594	3,59,597	3,86,852	4,15,507	8.1%
Commercial and Industrial	99,372	96,575	1,03,065	1,10,042	1,17,831	1,26,022	1,34,719	1,43,888	1,53,427	1,63,215	1,73,132	1,83,284	1,93,722	6.3%
Utility-scale	44,281	42,266	44,253	46,299	48,520	50,718	52,915	55,071	57,124	59,006	60,655	62,090	63,304	3.2%
Total	3,19,402	3,12,411	3,35,555	3,60,577	3,88,586	4,18,275	4,50,022	4,83,748	5,19,139	5,55,815	5,93,384	6,32,226	6,72,533	7.0%

SECTION 9.4.2 SOUTH AFRICA SOLAR MICRO INVERTER MARKET

- South Africa Segment Analysis
- Market Share Analysis
- Market Growth Analysis

SOUTH AFRICA SOLAR MICRO INVERTER MARKET ANALYSIS, TECHNOLOGY

TABLE 9.178

South Africa Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast Technology 2019-2031

Technology	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Single-Phase Micro Inverters	5.2	5.1	5.4	5.9	6.3	6.8	7.4	7.9	8.5	9.0	9.6	10.2	10.7	6.6%
Three-Phase Micro Inverters	3.6	3.5	3.9	4.3	4.7	5.2	5.7	6.2	6.7	7.3	7.9	8.5	9.1	8.5%
Total	8.7	8.6	9.3	10.1	11.0	12.0	13.0	14.1	15.2	16.4	17.5	18.7	19.8	7.4%

SOUTH AFRICA SOLAR MICRO INVERTER MARKET ANALYSIS, TECHNOLOGY

TABLE 9.179

South Africa Solar Micro Inverter Market Volume (Units) Analysis and Forecast Technology 2019-2031

Technology	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Single-Phase Micro Inverters	29,672	28,650	30,378	32,225	34,283	36,429	38,692	41,058	43,497	45,973	48,451	50,961	53,515	5.6%
Three-Phase Micro Inverters	22,975	22,573	24,351	26,276	28,431	30,721	33,175	35,788	38,537	41,395	44,331	47,375	50,540	7.4%
Total	52,647	51,224	54,729	58,501	62,714	67,150	71,867	76,846	82,034	87,368	92,783	98,336	1,04,055	6.5%

SOUTH AFRICA SOLAR MICRO INVERTER MARKET ANALYSIS, POWER RATING

TABLE 9.180

South Africa Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast Power Rating 2019-2031

Power Rating	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Less than 250 W	4.0	3.9	4.2	4.6	5.0	5.4	5.8	6.3	6.8	7.3	7.8	8.3	8.8	7.2%
250 W - 500 W	3.5	3.4	3.8	4.1	4.5	5.0	5.4	6.0	6.5	7.0	7.6	8.2	8.7	8.4%
More than 500 W	1.3	1.3	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3	5.0%
Total	8.7	8.6	9.3	10.1	11.0	12.0	13.0	14.1	15.2	16.4	17.5	18.7	19.8	7.4%

SOUTH AFRICA SOLAR MICRO INVERTER MARKET ANALYSIS, POWER RATING

TABLE 9.181

South Africa Solar Micro Inverter Market Volume (Units) Analysis and Forecast Power Rating 2019-2031

Power Rating	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Less than 250 W	25,236	24,502	26,124	27,866	29,810	31,851	34,017	36,298	38,667	41,095	43,550	46,059	48,636	6.2%
250 W - 500 W	19,519	19,160	20,653	22,273	24,090	26,023	28,099	30,313	32,648	35,080	37,586	40,190	42,906	7.4%
More than 500 W	7,892	7,561	7,952	8,362	8,814	9,275	9,750	10,235	10,719	11,193	11,647	12,087	12,513	4.4%
Total	52,647	51,224	54,729	58,501	62,714	67,150	71,867	76,846	82,034	87,368	92,783	98,336	1,04,055	6.5%

SOUTH AFRICA SOLAR MICRO INVERTER MARKET ANALYSIS, PROVIDER

TABLE 9.182

South Africa Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast Provider 2019-2031

Provider	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Direct Sales through OEM	1.4	1.3	1.4	1.5	1.6	1.7	1.9	2.0	2.1	2.3	2.4	2.5	2.6	6.0%
Distributors and Wholesalers	2.6	2.6	2.8	3.1	3.4	3.7	4.0	4.4	4.7	5.1	5.5	5.9	6.3	7.8%
Retailers	1.7	1.7	1.8	1.9	2.1	2.3	2.4	2.6	2.8	3.0	3.2	3.4	3.6	6.7%
Solar Installers and Contractors	3.0	3.0	3.3	3.6	3.9	4.3	4.7	5.1	5.5	6.0	6.4	6.9	7.4	8.0%
Total	8.7	8.6	9.3	10.1	11.0	12.0	13.0	14.1	15.2	16.4	17.5	18.7	19.8	7.4%

SOUTH AFRICA SOLAR MICRO INVERTER MARKET ANALYSIS, PROVIDER

TABLE 9.183

South Africa Solar Micro Inverter Market Volume (Units) Analysis and Forecast Provider 2019-2031

Provider	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Direct Sales through OEM	7,131	6,848	7,222	7,619	8,062	8,520	9,000	9,498	10,008	10,520	11,026	11,534	12,047	5.1%
Distributors and Wholesalers	17,105	16,700	17,903	19,202	20,655	22,191	23,830	25,568	27,387	29,267	31,187	33,166	35,214	6.8%
Retailers	8,481	8,196	8,699	9,236	9,835	10,460	11,119	11,810	12,523	13,248	13,975	14,712	15,463	5.7%
Solar Installers and Contractors	19,929	19,479	20,906	22,444	24,163	25,979	27,917	29,970	32,116	34,333	36,595	38,924	41,331	6.9%
Total	52,647	51,224	54,729	58,501	62,714	67,150	71,867	76,846	82,034	87,368	92,783	98,336	1,04,055	6.5%

SOUTH AFRICA SOLAR MICRO INVERTER MARKET ANALYSIS, END USER

TABLE 9.184

South Africa Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast End User 2019-2031

End User	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Residential	4.9	4.9	5.4	5.9	6.5	7.1	7.8	8.5	9.3	10.1	10.9	11.8	12.6	8.5%
Commercial and Industrial	2.4	2.3	2.5	2.7	2.9	3.1	3.3	3.5	3.8	4.0	4.2	4.4	4.6	5.9%
Utility-scale	1.4	1.4	1.4	1.6	1.7	1.8	1.9	2.0	2.2	2.3	2.4	2.5	2.6	5.4%
Total	8.7	8.6	9.3	10.1	11.0	12.0	13.0	14.1	15.2	16.4	17.5	18.7	19.8	7.4%

SOUTH AFRICA SOLAR MICRO INVERTER MARKET ANALYSIS, END USER

TABLE 9.185

South Africa Solar Micro Inverter Market Volume (Units) Analysis and Forecast End User 2019-2031

End User	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Residential	30,472	29,944	32,313	34,886	37,772	40,848	44,155	47,686	51,415	55,305	59,320	63,499	67,864	7.5%
Commercial and Industrial	15,501	14,871	15,666	16,511	17,453	18,426	19,444	20,500	21,578	22,659	23,726	24,794	25,869	5.0%
Utility-scale	6,674	6,408	6,750	7,104	7,489	7,876	8,268	8,660	9,042	9,404	9,736	10,042	10,322	3.9%
Total	52,647	51,224	54,729	58,501	62,714	67,150	71,867	76,846	82,034	87,368	92,783	98,336	1,04,055	6.5%

SECTION 9.4.3 REST OF MIDDLE EAST & AFRICA SOLAR MICRO INVERTER MARKET

- Rest of Middle East & Africa Segment Analysis
- Market Share Analysis
- Market Growth Analysis

REST OF MIDDLE EAST & AFRICA SOLAR MICRO INVERTER MARKET ANALYSIS, TECHNOLOGY

TABLE 9.186

Rest of Middle East & Africa Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast Technology 2019-2031

Technology	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Single-Phase Micro Inverters	39.2	38.0	40.6	43.3	46.4	49.7	53.0	56.5	60.0	63.4	66.8	69.9	72.9	5.6%
Three-Phase Micro Inverters	21.7	21.5	23.3	25.4	27.7	30.2	32.8	35.6	38.4	41.3	44.3	47.2	50.0	7.5%
Total	60.8	59.5	63.9	68.7	74.0	79.8	85.8	92.1	98.4	104.7	111.0	117.1	122.9	6.4%

REST OF MIDDLE EAST & AFRICA SOLAR MICRO INVERTER MARKET ANALYSIS, TECHNOLOGY

TABLE 9.187

Rest of Middle East & Africa Solar Micro Inverter Market Volume (Units) Analysis and Forecast Technology 2019-2031

Technology	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Single-Phase Micro Inverters	2,20,340	2,10,964	2,21,783	2,33,238	2,45,970	2,59,061	2,72,692	2,86,753	3,01,004	3,15,186	3,29,056	3,42,807	3,56,516	4.7%
Three-Phase Micro Inverters	1,47,139	1,43,286	1,53,184	1,63,796	1,75,604	1,87,990	2,01,103	2,14,884	2,29,168	2,43,767	2,58,489	2,73,481	2,88,807	6.3%
Total	3,67,479	3,54,250	3,74,968	3,97,035	4,21,574	4,47,052	4,73,795	5,01,637	5,30,172	5,58,953	5,87,544	6,16,288	6,45,323	5.4%

REST OF MIDDLE EAST & AFRICA SOLAR MICRO INVERTER MARKET ANALYSIS, POWER RATING

TABLE 9.188

Rest of Middle East & Africa Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast Power Rating 2019-2031

Power Rating	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Less than 250 W	28.2	27.5	29.5	31.7	34.1	36.7	39.4	42.2	45.1	47.9	50.7	53.4	56.0	6.2%
250 W - 500 W	22.5	22.2	23.9	25.9	28.1	30.5	32.9	35.5	38.2	40.9	43.6	46.3	48.9	7.0%
More than 500 W	10.1	9.8	10.4	11.1	11.8	12.6	13.5	14.3	15.1	15.9	16.7	17.4	18.0	5.2%
Total	60.8	59.5	63.9	68.7	74.0	79.8	85.8	92.1	98.4	104.7	111.0	117.1	122.9	6.4%

REST OF MIDDLE EAST & AFRICA SOLAR MICRO INVERTER MARKET ANALYSIS, POWER RATING

TABLE 9.189

Rest of Middle East & Africa Solar Micro Inverter Market Volume (Units) Analysis and Forecast Power Rating 2019-2031

Power Rating	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Less than 250 W	1,86,833	1,79,855	1,90,107	2,01,013	2,13,138	2,25,703	2,38,870	2,52,552	2,66,545	2,80,621	2,94,562	3,08,540	3,22,624	5.2%
250 W - 500 W	1,27,963	1,24,096	1,32,142	1,40,758	1,50,355	1,60,398	1,71,013	1,82,149	1,93,665	2,05,404	2,17,206	2,29,199	2,41,437	6.0%
More than 500 W	52,683	50,299	52,719	55,263	58,081	60,951	63,912	66,936	69,962	72,928	75,776	78,549	81,261	4.2%
Total	3,67,479	3,54,250	3,74,968	3,97,035	4,21,574	4,47,052	4,73,795	5,01,637	5,30,172	5,58,953	5,87,544	6,16,288	6,45,323	5.4%

REST OF MIDDLE EAST & AFRICA SOLAR MICRO INVERTER MARKET ANALYSIS, PROVIDER

TABLE 9.190

Rest of Middle East & Africa Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast Provider 2019-2031

Provider	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Direct Sales through OEM	10.4	10.0	10.6	11.2	11.8	12.5	13.3	14.0	14.7	15.4	16.0	16.6	17.1	4.6%
Distributors and Wholesalers	17.4	17.1	18.4	19.8	21.4	23.1	24.9	26.8	28.7	30.6	32.6	34.4	36.2	6.6%
Retailers	13.0	12.6	13.4	14.2	15.2	16.2	17.3	18.3	19.4	20.4	21.4	22.4	23.2	5.3%
Solar Installers and Contractors	20.0	19.8	21.6	23.5	25.6	28.0	30.4	33.0	35.6	38.3	41.0	43.7	46.3	7.5%
Total	60.8	59.5	63.9	68.7	74.0	79.8	85.8	92.1	98.4	104.7	111.0	117.1	122.9	6.4%

REST OF MIDDLE EAST & AFRICA SOLAR MICRO INVERTER MARKET ANALYSIS, PROVIDER

TABLE 9.191

Rest of Middle East & Africa Solar Micro Inverter Market Volume (Units) Analysis and Forecast Provider 2019-2031

Provider	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Direct Sales through OEM	56,953	53,969	56,154	58,448	61,005	63,593	66,251	68,952	71,635	74,240	76,711	79,096	81,414	3.6%
Distributors and Wholesalers	1,13,023	1,09,227	1,15,904	1,23,032	1,30,962	1,39,224	1,47,922	1,57,006	1,66,352	1,75,821	1,85,276	1,94,826	2,04,515	5.6%
Retailers	67,997	64,881	67,974	71,241	74,872	78,587	82,439	86,393	90,376	94,310	98,123	1,01,874	1,05,585	4.3%
Solar Installers and Contractors	1,29,506	1,26,174	1,34,935	1,44,314	1,54,734	1,65,648	1,77,183	1,89,287	2,01,809	2,14,582	2,27,434	2,40,492	2,53,809	6.3%
Total	3,67,479	3,54,250	3,74,968	3,97,035	4,21,574	4,47,052	4,73,795	5,01,637	5,30,172	5,58,953	5,87,544	6,16,288	6,45,323	5.4%

REST OF MIDDLE EAST & AFRICA SOLAR MICRO INVERTER MARKET ANALYSIS, END USER

TABLE 9.192

Rest of Middle East & Africa Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast End User 2019-2031

End User	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Residential	31.3	30.8	33.3	36.0	39.0	42.3	45.7	49.3	53.0	56.8	60.5	64.2	67.8	7.0%
Commercial and Industrial	18.2	17.7	19.0	20.3	21.8	23.4	25.1	26.8	28.5	30.2	31.9	33.5	35.0	5.9%
Utility-scale	11.3	11.0	11.7	12.4	13.2	14.1	15.0	16.0	16.9	17.8	18.6	19.4	20.1	5.2%
Total	60.8	59.5	63.9	68.7	74.0	79.8	85.8	92.1	98.4	104.7	111.0	117.1	122.9	6.4%

REST OF MIDDLE EAST & AFRICA SOLAR MICRO INVERTER MARKET ANALYSIS, END USER

TABLE 9.193

Rest of Middle East & Africa Solar Micro Inverter Market Volume (Units) Analysis and Forecast End User 2019-2031

End User	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Residential	2,00,106	1,94,002	2,06,518	2,19,918	2,34,841	2,50,453	2,66,949	2,84,247	3,02,128	3,20,345	3,38,651	3,57,243	3,76,206	6.0%
Commercial and Industrial	1,15,555	1,10,939	1,16,945	1,23,320	1,30,405	1,37,719	1,45,359	1,53,270	1,61,325	1,69,385	1,77,319	1,85,231	1,93,163	5.0%
Utility-scale	51,818	49,310	51,504	53,797	56,328	58,879	61,487	64,120	66,719	69,223	71,574	73,814	75,954	3.7%
Total	3,67,479	3,54,250	3,74,968	3,97,035	4,21,574	4,47,052	4,73,795	5,01,637	5,30,172	5,58,953	5,87,544	6,16,288	6,45,323	5.4%

SECTION 9.5

LATIN AMERICA SOLAR MICRO INVERTER MARKET

- Region and Segment Analysis
- Market Share Analysis
- Market Growth Analysis

LATIN AMERICA



- Latin America Solar Micro Inverter Market is estimated to be valued at US\$ 101.43 million in 2024, and is expected to reach US\$ 152.12 million by 2031, exhibiting a CAGR of 6.0% over the forecast period 2024-2031
- Latin America is estimated to account for 1.8% market share in 2024 and is expected to account for 1.2% market share by 2031
- Latin America's favorable solar irradiance, especially in countries like Brazil, Mexico, and Chile, has boosted the deployment of solar power systems. Solar micro inverters are gaining popularity due to their ability to optimize energy output at the individual panel level, improving efficiency and system reliability.
- Advancements in micro inverter technology, such as higher power-handling capabilities, wireless communication features, and integration with energy storage systems, are further fueling demand. The emphasis on grid resilience and the need for distributed energy systems in Latin America have also expanded the application of solar micro inverters, making them a preferred choice for both small and large-scale solar projects.

- For instance, on August 29, 2024, Sungrow, a leading provider of PV inverters and energy storage systems, showcased its latest solar, storage, and EV charging innovations at Intersolar South America, which took place from August 27-29, 2024. During the event, the company announced that it had achieved a significant milestone of 20 GW in total contracted inverter orders across Latin America, highlighting its dedication to supporting the region's clean energy goals.

LATIN AMERICA

FIGURE 9.11

Latin America Solar Micro Inverter Market Value (US\$ million)
Analysis

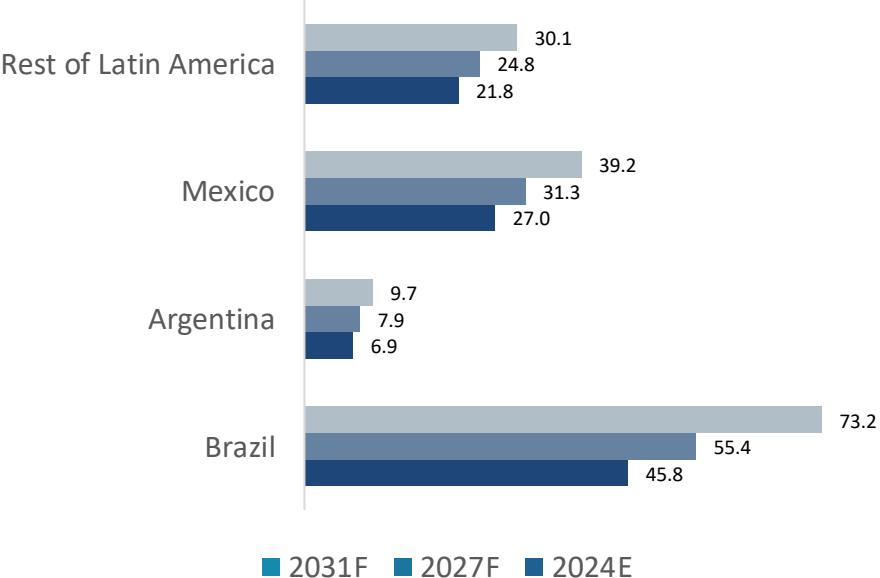


1.5X

Projected growth of the **Latin America Solar Micro Inverter Market** between 2024-2031

FIGURE 9.12

Latin America Solar Micro Inverter Market Value (US\$ million)
Analysis



LATIN AMERICA SOLAR MICRO INVERTER MARKET ANALYSIS, BY TECHNOLOGY

TABLE 9.194

Latin America Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast By Technology 2019-2031

Technology	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Single-Phase Micro Inverters	54.5	50.8	52.3	54.1	56.3	58.9	61.7	64.7	68.0	71.6	75.5	79.7	84.4	5.3%
Three-Phase Micro Inverters	36.3	34.4	36.0	37.8	40.0	42.5	45.2	48.2	51.5	55.0	58.8	63.0	67.8	6.9%
Total	90.8	85.3	88.3	91.9	96.4	101.4	106.9	112.9	119.5	126.6	134.3	142.7	152.1	6.0%

LATIN AMERICA SOLAR MICRO INVERTER MARKET ANALYSIS, BY TECHNOLOGY

TABLE 9.195

Latin America Solar Micro Inverter Market Volume (Units) Analysis and Forecast By Technology 2019-2031

Technology	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Single-Phase Micro Inverters	3,03,751	2,85,239	2,94,836	3,05,641	3,18,572	3,32,547	3,47,958	3,64,863	3,83,198	4,02,932	4,24,106	4,47,403	4,73,470	5.2%
Three-Phase Micro Inverters	2,29,739	2,19,077	2,29,918	2,41,960	2,55,986	2,71,191	2,87,940	3,06,337	3,26,384	3,48,109	3,71,605	3,97,534	4,26,562	6.7%
Total	5,33,490	5,04,317	5,24,754	5,47,601	5,74,558	6,03,738	6,35,899	6,71,200	7,09,582	7,51,041	7,95,711	8,44,937	9,00,033	5.9%

LATIN AMERICA SOLAR MICRO INVERTER MARKET ANALYSIS, BY POWER RATING

TABLE 9.196

Latin America Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast By Power Rating 2019-2031

Power Rating	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Less than 250 W	41.4	38.8	40.2	41.8	43.7	46.0	48.4	51.1	54.0	57.1	60.6	64.3	68.5	5.8%
250 W - 500 W	35.6	33.7	35.1	36.7	38.7	41.0	43.4	46.2	49.1	52.3	55.8	59.7	64.0	6.6%
More than 500 W	13.7	12.8	13.1	13.4	13.9	14.5	15.0	15.7	16.4	17.1	17.9	18.7	19.7	4.5%
Total	90.8	85.3	88.3	91.9	96.4	101.4	106.9	112.9	119.5	126.6	134.3	142.7	152.1	6.0%

LATIN AMERICA SOLAR MICRO INVERTER MARKET ANALYSIS, BY POWER RATING

TABLE 9.197

Latin America Solar Micro Inverter Market Volume (Units) Analysis and Forecast By Power Rating 2019-2031

Power Rating	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Less than 250 W	2,58,210	2,43,807	2,53,397	2,64,132	2,76,828	2,90,571	3,05,722	3,22,355	3,40,437	3,59,963	3,80,994	4,04,169	4,30,113	5.8%
250 W - 500 W	1,95,864	1,86,239	1,94,920	2,04,593	2,15,915	2,28,198	2,41,746	2,56,640	2,72,880	2,90,484	3,09,525	3,30,553	3,54,115	6.5%
More than 500 W	79,416	74,271	76,437	78,875	81,815	84,969	88,430	92,204	96,265	1,00,594	1,05,192	1,10,215	1,15,805	4.5%
Total	5,33,490	5,04,317	5,24,754	5,47,601	5,74,558	6,03,738	6,35,899	6,71,200	7,09,582	7,51,041	7,95,711	8,44,937	9,00,033	5.9%

LATIN AMERICA SOLAR MICRO INVERTER MARKET ANALYSIS, BY PROVIDER

TABLE 9.198

Latin America Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast By Provider 2019-2031

Provider	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Direct Sales through OEM	14.4	13.3	13.6	14.0	14.5	15.1	15.7	16.3	17.1	17.9	18.7	19.6	20.7	4.6%
Distributors and Wholesalers	27.2	25.6	26.6	27.7	29.0	30.6	32.3	34.1	36.1	38.3	40.7	43.3	46.2	6.1%
Retailers	18.0	16.8	17.3	17.8	18.6	19.4	20.3	21.3	22.4	23.6	24.8	26.2	27.7	5.2%
Solar Installers and Contractors	31.2	29.5	30.9	32.4	34.3	36.4	38.6	41.1	43.9	46.8	50.1	53.6	57.5	6.8%
Total	90.8	85.3	88.3	91.9	96.4	101.4	106.9	112.9	119.5	126.6	134.3	142.7	152.1	6.0%

LATIN AMERICA SOLAR MICRO INVERTER MARKET ANALYSIS, BY PROVIDER



TABLE 9.199

Latin America Solar Micro Inverter Market Volume (Units) Analysis and Forecast By Provider 2019-2031

Provider	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Direct Sales through OEM	73,932	69,003	70,890	73,042	75,671	78,513	81,657	85,109	88,851	92,868	97,166	1,01,895	1,07,193	4.5%
Distributors and Wholesalers	1,71,854	1,62,635	1,69,407	1,76,968	1,85,869	1,95,502	2,06,114	2,17,759	2,30,420	2,44,095	2,58,831	2,75,067	2,93,232	6.0%
Retailers	87,987	82,594	85,342	88,438	92,147	96,157	1,00,579	1,05,431	1,10,694	1,16,358	1,22,435	1,29,122	1,36,606	5.1%
Solar Installers and Contractors	1,99,718	1,90,085	1,99,115	2,09,154	2,20,871	2,33,566	2,47,549	2,62,900	2,79,618	2,97,720	3,17,278	3,38,853	3,63,001	6.5%
Total	5,33,490	5,04,317	5,24,754	5,47,601	5,74,558	6,03,738	6,35,899	6,71,200	7,09,582	7,51,041	7,95,711	8,44,937	9,00,033	5.9%

LATIN AMERICA SOLAR MICRO INVERTER MARKET ANALYSIS, BY END USER

TABLE 9.200

Latin America Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast By End User 2019-2031

End User	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Residential	50.5	47.9	50.0	52.5	55.5	58.9	62.6	66.7	71.2	76.1	81.4	87.3	93.8	6.9%
Commercial and Industrial	25.4	23.7	24.3	25.1	26.1	27.3	28.6	29.9	31.4	33.0	34.8	36.7	38.8	5.2%
Utility-scale	14.8	13.7	14.0	14.3	14.7	15.2	15.7	16.3	16.9	17.5	18.1	18.7	19.5	3.6%
Total	90.8	85.3	88.3	91.9	96.4	101.4	106.9	112.9	119.5	126.6	134.3	142.7	152.1	6.0%

LATIN AMERICA SOLAR MICRO INVERTER MARKET ANALYSIS, BY END USER



TABLE 9.201

Latin America Solar Micro Inverter Market Volume (Units) Analysis and Forecast By End User 2019-2031

End User	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Residential	3,05,852	2,91,234	3,05,248	3,20,867	3,39,129	3,58,967	3,80,868	4,04,973	4,31,291	4,59,865	4,90,827	5,25,061	5,63,460	6.7%
Commercial and Industrial	1,58,789	1,48,815	1,53,514	1,58,821	1,65,207	1,72,106	1,79,716	1,88,062	1,97,106	2,06,828	2,17,243	2,28,696	2,41,510	5.0%
Utility-scale	68,848	64,268	65,991	67,912	70,222	72,665	75,315	78,165	81,185	84,348	87,641	91,179	95,063	3.9%
Total	5,33,490	5,04,317	5,24,754	5,47,601	5,74,558	6,03,738	6,35,899	6,71,200	7,09,582	7,51,041	7,95,711	8,44,937	9,00,033	5.9%

LATIN AMERICA SOLAR MICRO INVERTER MARKET, BY COUNTRY

TABLE 9.202

Latin America Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast By Country 2019-2031

Country	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Brazil	39.2	37.2	38.8	40.8	43.1	45.8	48.7	51.9	55.4	59.3	63.4	68.0	73.2	6.9%
Argentina	6.5	6.0	6.2	6.4	6.6	6.9	7.2	7.6	7.9	8.3	8.7	9.2	9.7	5.0%
Mexico	24.7	23.1	23.8	24.6	25.7	27.0	28.3	29.7	31.3	33.0	34.9	36.9	39.2	5.5%
Rest of Latin America	20.4	19.0	19.5	20.1	20.9	21.8	22.7	23.7	24.8	26.0	27.2	28.6	30.1	4.7%
Total	90.8	85.3	88.3	91.9	96.4	101.4	106.9	112.9	119.5	126.6	134.3	142.7	152.1	6.0%

LATIN AMERICA SOLAR MICRO INVERTER MARKET, BY COUNTRY

TABLE 9.203

Latin America Solar Micro Inverter Market Volume (Units) Analysis and Forecast By Country 2019-2031

Country	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Brazil	2,30,414	2,19,775	2,30,739	2,42,952	2,57,206	2,72,701	2,89,813	3,08,655	3,29,242	3,51,615	3,75,881	4,02,727	4,32,848	6.8%
Argentina	37,979	35,583	36,695	37,952	39,466	41,101	42,905	44,884	47,029	49,333	51,802	54,517	57,556	4.9%
Mexico	1,45,003	1,36,456	1,41,347	1,46,838	1,53,373	1,60,437	1,68,223	1,76,763	1,86,030	1,96,013	2,06,737	2,18,538	2,31,741	5.4%
Rest of Latin America	1,20,094	1,12,503	1,15,972	1,19,859	1,24,513	1,29,498	1,34,957	1,40,898	1,47,282	1,54,080	1,61,291	1,69,155	1,77,888	4.6%
Total	5,33,490	5,04,317	5,24,754	5,47,601	5,74,558	6,03,738	6,35,899	6,71,200	7,09,582	7,51,041	7,95,711	8,44,937	9,00,033	5.9%

SECTION 9.5.1 BRAZIL SOLAR MICRO INVERTER MARKET

- Brazil Segment Analysis
- Market Share Analysis
- Market Growth Analysis

BRAZIL SOLAR MICRO INVERTER MARKET ANALYSIS, TECHNOLOGY

TABLE 9.204

Brazil Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast Technology 2019-2031

Technology	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Single-Phase Micro Inverters	23.7	22.3	23.2	24.2	25.5	26.9	28.4	30.1	32.0	33.9	36.1	38.5	41.2	6.3%
Three-Phase Micro Inverters	15.5	14.8	15.6	16.6	17.7	18.9	20.3	21.8	23.5	25.3	27.3	29.5	32.0	7.8%
Total	39.2	37.2	38.8	40.8	43.1	45.8	48.7	51.9	55.4	59.3	63.4	68.0	73.2	6.9%

BRAZIL SOLAR MICRO INVERTER MARKET ANALYSIS, TECHNOLOGY

TABLE 9.205

Brazil Solar Micro Inverter Market Volume (Units) Analysis and Forecast Technology 2019-2031

Technology	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Single-Phase Micro Inverters	1,31,935	1,25,088	1,30,541	1,36,625	1,43,773	1,51,520	1,60,062	1,69,445	1,79,663	1,90,720	2,02,659	2,15,830	2,30,581	6.2%
Three-Phase Micro Inverters	98,479	94,687	1,00,199	1,06,327	1,13,433	1,21,181	1,29,751	1,39,210	1,49,579	1,60,895	1,73,222	1,86,897	2,02,267	7.6%
Total	2,30,414	2,19,775	2,30,739	2,42,952	2,57,206	2,72,701	2,89,813	3,08,655	3,29,242	3,51,615	3,75,881	4,02,727	4,32,848	6.8%

BRAZIL SOLAR MICRO INVERTER MARKET ANALYSIS, POWER RATING

TABLE 9.206

Brazil Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast Power Rating 2019-2031

Power Rating	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Less than 250 W	17.9	17.0	17.7	18.6	19.7	20.9	22.3	23.7	25.3	27.1	29.0	31.1	33.5	6.9%
250 W - 500 W	15.3	14.6	15.3	16.1	17.1	18.3	19.5	20.9	22.4	24.1	25.9	27.9	30.2	7.4%
More than 500 W	6.0	5.6	5.8	6.0	6.3	6.6	6.9	7.3	7.7	8.1	8.5	9.0	9.5	5.4%
Total	39.2	37.2	38.8	40.8	43.1	45.8	48.7	51.9	55.4	59.3	63.4	68.0	73.2	6.9%

BRAZIL SOLAR MICRO INVERTER MARKET ANALYSIS, POWER RATING



TABLE 9.207

Brazil Solar Micro Inverter Market Volume (Units) Analysis and Forecast Power Rating 2019-2031

Power Rating	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Less than 250 W	1,12,123	1,06,956	1,12,303	1,18,259	1,25,210	1,32,767	1,41,112	1,50,301	1,60,342	1,71,255	1,83,092	1,96,188	2,10,883	6.8%
250 W - 500 W	84,127	80,612	85,023	89,935	95,649	1,01,878	1,08,769	1,16,373	1,24,706	1,33,793	1,43,684	1,54,655	1,66,987	7.3%
More than 500 W	34,164	32,207	33,413	34,758	36,347	38,057	39,932	41,981	44,194	46,567	49,105	51,884	54,979	5.4%
Total	2,30,414	2,19,775	2,30,739	2,42,952	2,57,206	2,72,701	2,89,813	3,08,655	3,29,242	3,51,615	3,75,881	4,02,727	4,32,848	6.8%

BRAZIL SOLAR MICRO INVERTER MARKET ANALYSIS, PROVIDER

TABLE 9.208

Brazil Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast Provider 2019-2031

Provider	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Direct Sales through OEM	6.3	5.9	6.1	6.3	6.6	6.9	7.3	7.7	8.1	8.5	9.0	9.6	10.2	5.7%
Distributors and Wholesalers	11.7	11.1	11.6	12.1	12.8	13.6	14.4	15.4	16.4	17.5	18.7	20.0	21.5	6.8%
Retailers	7.8	7.4	7.7	8.0	8.4	8.9	9.4	9.9	10.5	11.2	11.9	12.7	13.6	6.2%
Solar Installers and Contractors	13.4	12.8	13.5	14.4	15.3	16.4	17.6	19.0	20.4	22.0	23.8	25.7	27.9	7.8%
Total	39.2	37.2	38.8	40.8	43.1	45.8	48.7	51.9	55.4	59.3	63.4	68.0	73.2	6.9%

BRAZIL SOLAR MICRO INVERTER MARKET ANALYSIS, PROVIDER



TABLE 9.209

Brazil Solar Micro Inverter Market Volume (Units) Analysis and Forecast Provider 2019-2031

Provider	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Direct Sales through OEM	32,336	30,491	31,647	32,942	34,477	36,138	37,967	39,975	42,155	44,506	47,036	49,820	52,936	5.6%
Distributors and Wholesalers	73,865	70,369	73,791	77,604	82,058	86,897	92,239	98,118	1,04,537	1,11,507	1,19,059	1,27,409	1,36,774	6.7%
Retailers	38,497	36,488	38,067	39,829	41,901	44,145	46,619	49,338	52,297	55,499	58,955	62,768	67,037	6.1%
Solar Installers and Contractors	85,717	82,427	87,234	92,577	98,770	1,05,521	1,12,987	1,21,224	1,30,253	1,40,103	1,50,831	1,62,729	1,76,100	7.6%
Total	2,30,414	2,19,775	2,30,739	2,42,952	2,57,206	2,72,701	2,89,813	3,08,655	3,29,242	3,51,615	3,75,881	4,02,727	4,32,848	6.8%

BRAZIL SOLAR MICRO INVERTER MARKET ANALYSIS, END USER

TABLE 9.210

Brazil Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast End User 2019-2031

End User	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Residential	21.7	20.7	21.9	23.2	24.8	26.6	28.5	30.7	33.1	35.7	38.6	41.8	45.4	8.0%
Commercial and Industrial	11.0	10.4	10.8	11.3	11.8	12.5	13.2	14.0	14.8	15.8	16.8	17.9	19.1	6.2%
Utility-scale	6.5	6.0	6.2	6.3	6.5	6.8	7.0	7.2	7.5	7.8	8.1	8.4	8.7	3.7%
Total	39.2	37.2	38.8	40.8	43.1	45.8	48.7	51.9	55.4	59.3	63.4	68.0	73.2	6.9%

BRAZIL SOLAR MICRO INVERTER MARKET ANALYSIS, END USER

TABLE 9.211

Brazil Solar Micro Inverter Market Volume (Units) Analysis and Forecast End User 2019-2031

End User	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Residential	1,31,389	1,26,287	1,33,608	1,41,763	1,51,236	1,61,581	1,73,043	1,85,712	1,99,624	2,14,831	2,31,425	2,49,863	2,70,619	7.6%
Commercial and Industrial	68,996	65,257	67,937	70,932	74,463	78,285	82,499	87,124	92,155	97,590	1,03,449	1,09,906	1,17,134	5.9%
Utility-scale	30,030	28,231	29,195	30,257	31,508	32,834	34,271	35,818	37,463	39,194	41,007	42,957	45,094	4.6%
Total	2,30,414	2,19,775	2,30,739	2,42,952	2,57,206	2,72,701	2,89,813	3,08,655	3,29,242	3,51,615	3,75,881	4,02,727	4,32,848	6.8%

SECTION 9.5.2 ARGENTINA SOLAR MICRO INVERTER MARKET

- Argentina Segment Analysis
- Market Share Analysis
- Market Growth Analysis

ARGENTINA SOLAR MICRO INVERTER MARKET ANALYSIS, TECHNOLOGY

TABLE 9.212

Argentina Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast Technology 2019-2031

Technology	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Single-Phase Micro Inverters	3.8	3.5	3.6	3.6	3.8	3.9	4.0	4.2	4.4	4.6	4.8	5.0	5.2	4.3%
Three-Phase Micro Inverters	2.7	2.5	2.6	2.7	2.9	3.0	3.2	3.4	3.5	3.8	4.0	4.2	4.5	5.9%
Total	6.5	6.0	6.2	6.4	6.6	6.9	7.2	7.6	7.9	8.3	8.7	9.2	9.7	5.0%

ARGENTINA SOLAR MICRO INVERTER MARKET ANALYSIS, TECHNOLOGY

TABLE 9.213

Argentina Solar Micro Inverter Market Volume (Units) Analysis and Forecast Technology 2019-2031

Technology	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Single-Phase Micro Inverters	21,177	19,706	20,184	20,733	21,414	22,149	22,964	23,860	24,830	25,870	26,980	28,201	29,570	4.2%
Three-Phase Micro Inverters	16,802	15,877	16,511	17,219	18,052	18,952	19,941	21,024	22,198	23,463	24,822	26,317	27,986	5.7%
Total	37,979	35,583	36,695	37,952	39,466	41,101	42,905	44,884	47,029	49,333	51,802	54,517	57,556	4.9%

ARGENTINA SOLAR MICRO INVERTER MARKET ANALYSIS, POWER RATING

TABLE 9.214

Argentina Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast Power Rating 2019-2031

Power Rating	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Less than 250 W	2.9	2.7	2.8	2.9	3.0	3.1	3.2	3.4	3.5	3.7	3.9	4.1	4.3	4.9%
250 W - 500 W	2.6	2.4	2.5	2.6	2.7	2.9	3.0	3.2	3.3	3.5	3.7	3.9	4.2	5.6%
More than 500 W	0.9	0.9	0.9	0.9	0.9	0.9	1.0	1.0	1.0	1.1	1.1	1.2	1.2	3.5%
Total	6.5	6.0	6.2	6.4	6.6	6.9	7.2	7.6	7.9	8.3	8.7	9.2	9.7	5.0%

ARGENTINA SOLAR MICRO INVERTER MARKET ANALYSIS, POWER RATING

TABLE 9.215

Argentina Solar Micro Inverter Market Volume (Units) Analysis and Forecast Power Rating 2019-2031

Power Rating	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Less than 250 W	18,021	16,860	17,363	17,933	18,622	19,366	20,188	21,090	22,066	23,115	24,238	25,473	26,855	4.8%
250 W - 500 W	14,223	13,406	13,908	14,470	15,138	15,860	16,655	17,528	18,476	19,497	20,596	21,805	23,159	5.6%
More than 500 W	5,735	5,317	5,424	5,549	5,706	5,875	6,062	6,267	6,487	6,721	6,968	7,239	7,542	3.6%
Total	37,979	35,583	36,695	37,952	39,466	41,101	42,905	44,884	47,029	49,333	51,802	54,517	57,556	4.9%

ARGENTINA SOLAR MICRO INVERTER MARKET ANALYSIS, PROVIDER



TABLE 9.216

Argentina Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast Provider 2019-2031

Provider	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Direct Sales through OEM	1.0	0.9	0.9	0.9	0.9	1.0	1.0	1.0	1.1	1.1	1.1	1.2	1.2	3.2%
Distributors and Wholesalers	2.0	1.8	1.9	2.0	2.0	2.1	2.2	2.3	2.5	2.6	2.7	2.9	3.1	5.3%
Retailers	1.2	1.1	1.2	1.2	1.2	1.3	1.3	1.4	1.4	1.5	1.5	1.6	1.7	3.9%
Solar Installers and Contractors	2.3	2.1	2.2	2.3	2.4	2.5	2.7	2.8	3.0	3.2	3.4	3.6	3.8	5.9%
Total	6.5	6.0	6.2	6.4	6.6	6.9	7.2	7.6	7.9	8.3	8.7	9.2	9.7	5.0%

ARGENTINA SOLAR MICRO INVERTER MARKET ANALYSIS, PROVIDER



TABLE 9.217

Argentina Solar Micro Inverter Market Volume (Units) Analysis and Forecast Provider 2019-2031

Provider	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Direct Sales through OEM	5,021	4,624	4,688	4,766	4,872	4,987	5,118	5,263	5,420	5,589	5,769	5,968	6,194	3.1%
Distributors and Wholesalers	12,450	11,693	12,089	12,534	13,067	13,642	14,277	14,972	15,727	16,539	17,410	18,368	19,441	5.2%
Retailers	5,967	5,533	5,648	5,782	5,951	6,134	6,338	6,563	6,806	7,067	7,345	7,651	7,995	3.9%
Solar Installers and Contractors	14,542	13,732	14,271	14,870	15,577	16,337	17,173	18,086	19,075	20,138	21,278	22,529	23,926	5.6%
Total	37,979	35,583	36,695	37,952	39,466	41,101	42,905	44,884	47,029	49,333	51,802	54,517	57,556	4.9%

ARGENTINA SOLAR MICRO INVERTER MARKET ANALYSIS, END USER

TABLE 9.218

Argentina Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast End User 2019-2031

End User	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Residential	3.7	3.5	3.6	3.7	3.9	4.1	4.3	4.5	4.8	5.1	5.4	5.7	6.0	5.7%
Commercial and Industrial	1.8	1.6	1.7	1.7	1.7	1.8	1.9	1.9	2.0	2.1	2.2	2.3	2.4	4.2%
Utility-scale	1.0	0.9	0.9	1.0	1.0	1.0	1.0	1.1	1.1	1.2	1.2	1.2	1.3	3.5%
Total	6.5	6.0	6.2	6.4	6.6	6.9	7.2	7.6	7.9	8.3	8.7	9.2	9.7	5.0%

ARGENTINA SOLAR MICRO INVERTER MARKET ANALYSIS, END USER

TABLE 9.219

Argentina Solar Micro Inverter Market Volume (Units) Analysis and Forecast End User 2019-2031

End User	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Residential	22,199	20,937	21,737	22,632	23,692	24,839	26,103	27,490	28,997	30,621	32,369	34,294	36,448	5.6%
Commercial and Industrial	11,056	10,274	10,510	10,782	11,121	11,488	11,895	12,343	12,828	13,347	13,902	14,512	15,197	4.1%
Utility-scale	4,725	4,371	4,449	4,539	4,653	4,774	4,907	5,051	5,204	5,365	5,531	5,711	5,911	3.1%
Total	37,979	35,583	36,695	37,952	39,466	41,101	42,905	44,884	47,029	49,333	51,802	54,517	57,556	4.9%

SECTION 9.5.3 MEXICO SOLAR MICRO INVERTER MARKET

- Mexico Segment Analysis
- Market Share Analysis
- Market Growth Analysis

MEXICO SOLAR MICRO INVERTER MARKET ANALYSIS, TECHNOLOGY

TABLE 9.220

Mexico Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast Technology 2019-2031

Technology	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Single-Phase Micro Inverters	14.8	13.7	14.1	14.5	15.0	15.6	16.2	16.9	17.7	18.5	19.4	20.4	21.5	4.7%
Three-Phase Micro Inverters	9.9	9.3	9.7	10.2	10.7	11.4	12.1	12.8	13.6	14.5	15.5	16.5	17.7	6.5%
Total	24.7	23.1	23.8	24.6	25.7	27.0	28.3	29.7	31.3	33.0	34.9	36.9	39.2	5.5%

MEXICO SOLAR MICRO INVERTER MARKET ANALYSIS, TECHNOLOGY

TABLE 9.221

Mexico Solar Micro Inverter Market Volume (Units) Analysis and Forecast Technology 2019-2031

Technology	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Single-Phase Micro Inverters	82,594	77,135	79,292	81,746	84,735	87,965	91,533	95,448	99,689	1,04,240	1,09,108	1,14,460	1,20,452	4.6%
Three-Phase Micro Inverters	62,409	59,322	62,055	65,091	68,637	72,472	76,690	81,314	86,341	91,773	97,629	1,04,079	1,11,289	6.3%
Total	1,45,003	1,36,456	1,41,347	1,46,838	1,53,373	1,60,437	1,68,223	1,76,763	1,86,030	1,96,013	2,06,737	2,18,538	2,31,741	5.4%

MEXICO SOLAR MICRO INVERTER MARKET ANALYSIS, POWER RATING

TABLE 9.222

Mexico Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast Power Rating 2019-2031

Power Rating	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Less than 250 W	11.3	10.5	10.8	11.1	11.6	12.1	12.7	13.3	13.9	14.7	15.4	16.3	17.2	5.2%
250 W - 500 W	9.7	9.1	9.5	9.9	10.4	11.0	11.6	12.3	13.1	13.9	14.8	15.8	16.9	6.3%
More than 500 W	3.7	3.5	3.5	3.6	3.7	3.9	4.0	4.1	4.3	4.5	4.7	4.9	5.1	4.0%
Total	24.7	23.1	23.8	24.6	25.7	27.0	28.3	29.7	31.3	33.0	34.9	36.9	39.2	5.5%

MEXICO SOLAR MICRO INVERTER MARKET ANALYSIS, POWER RATING

TABLE 9.223

Mexico Solar Micro Inverter Market Volume (Units) Analysis and Forecast Power Rating 2019-2031

Power Rating	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Less than 250 W	70,209	65,866	68,015	70,438	73,345	76,485	79,949	83,747	87,864	92,292	97,040	1,02,261	1,08,103	5.1%
250 W - 500 W	53,215	50,474	52,696	55,175	58,086	61,242	64,721	68,544	72,707	77,214	82,082	87,453	93,469	6.2%
More than 500 W	21,579	20,116	20,636	21,224	21,941	22,710	23,553	24,472	25,458	26,506	27,615	28,824	30,169	4.1%
Total	1,45,003	1,36,456	1,41,347	1,46,838	1,53,373	1,60,437	1,68,223	1,76,763	1,86,030	1,96,013	2,06,737	2,18,538	2,31,741	5.4%

MEXICO SOLAR MICRO INVERTER MARKET ANALYSIS, PROVIDER

TABLE 9.224

Mexico Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast Provider 2019-2031

Provider	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Direct Sales through OEM	3.9	3.6	3.7	3.8	3.9	4.0	4.1	4.3	4.5	4.6	4.8	5.1	5.3	4.1%
Distributors and Wholesalers	7.4	6.9	7.2	7.5	7.8	8.2	8.7	9.1	9.7	10.2	10.8	11.5	12.2	5.8%
Retailers	4.9	4.5	4.7	4.8	5.0	5.2	5.4	5.6	5.9	6.2	6.5	6.8	7.2	4.8%
Solar Installers and Contractors	8.5	8.0	8.3	8.6	9.1	9.6	10.1	10.7	11.3	12.0	12.7	13.6	14.5	6.1%
Total	24.7	23.1	23.8	24.6	25.7	27.0	28.3	29.7	31.3	33.0	34.9	36.9	39.2	5.5%

MEXICO SOLAR MICRO INVERTER MARKET ANALYSIS, PROVIDER

TABLE 9.225

Mexico Solar Micro Inverter Market Volume (Units) Analysis and Forecast Provider 2019-2031

Provider	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Direct Sales through OEM	20,113	18,682	19,100	19,584	20,189	20,845	21,572	22,373	23,239	24,168	25,159	26,250	27,473	4.0%
Distributors and Wholesalers	46,693	44,091	45,826	47,768	50,064	52,548	55,285	58,289	61,554	65,078	68,871	73,050	77,727	5.8%
Retailers	23,937	22,376	23,022	23,756	24,647	25,610	26,673	27,839	29,102	30,458	31,910	33,505	35,291	4.7%
Solar Installers and Contractors	54,259	51,308	53,399	55,729	58,472	61,435	64,693	68,262	72,134	76,309	80,797	85,733	91,249	5.8%
Total	1,45,003	1,36,456	1,41,347	1,46,838	1,53,373	1,60,437	1,68,223	1,76,763	1,86,030	1,96,013	2,06,737	2,18,538	2,31,741	5.4%

MEXICO SOLAR MICRO INVERTER MARKET ANALYSIS, END USER

TABLE 9.226

Mexico Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast End User 2019-2031

End User	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Residential	13.7	13.0	13.5	14.1	14.9	15.8	16.7	17.7	18.9	20.1	21.5	22.9	24.6	6.5%
Commercial and Industrial	6.9	6.4	6.5	6.6	6.8	7.1	7.3	7.6	7.9	8.2	8.6	8.9	9.4	4.1%
Utility-scale	4.0	3.7	3.8	3.9	4.0	4.1	4.3	4.4	4.6	4.7	4.9	5.0	5.2	3.5%
Total	24.7	23.1	23.8	24.6	25.7	27.0	28.3	29.7	31.3	33.0	34.9	36.9	39.2	5.5%

MEXICO SOLAR MICRO INVERTER MARKET ANALYSIS, END USER

TABLE 9.227

Mexico Solar Micro Inverter Market Volume (Units) Analysis and Forecast End User 2019-2031

End User	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Residential	83,098	78,905	82,468	86,443	91,102	96,156	1,01,730	1,07,856	1,14,532	1,21,765	1,29,582	1,38,212	1,47,881	6.3%
Commercial and Industrial	43,178	40,105	41,002	42,041	43,341	44,748	46,310	48,028	49,889	51,883	54,010	56,351	58,978	4.0%
Utility-scale	18,726	17,447	17,877	18,354	18,929	19,533	20,183	20,878	21,608	22,365	23,144	23,975	24,881	3.5%
Total	1,45,003	1,36,456	1,41,347	1,46,838	1,53,373	1,60,437	1,68,223	1,76,763	1,86,030	1,96,013	2,06,737	2,18,538	2,31,741	5.4%

SECTION 9.5.4 REST OF LATIN AMERICA SOLAR MICRO INVERTER MARKET

- Rest of Latin America Segment Analysis
- Market Share Analysis
- Market Growth Analysis

REST OF LATIN AMERICA SOLAR MICRO INVERTER MARKET ANALYSIS, TECHNOLOGY

TABLE 9.228

Rest of Latin America Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast Technology 2019-2031

Technology	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Single-Phase Micro Inverters	12.2	11.3	11.5	11.7	12.1	12.5	13.0	13.5	14.0	14.6	15.2	15.8	16.5	4.0%
Three-Phase Micro Inverters	8.3	7.8	8.0	8.4	8.8	9.2	9.7	10.2	10.8	11.4	12.1	12.8	13.6	5.7%
Total	20.4	19.0	19.5	20.1	20.9	21.8	22.7	23.7	24.8	26.0	27.2	28.6	30.1	4.7%

REST OF LATIN AMERICA SOLAR MICRO INVERTER MARKET ANALYSIS, TECHNOLOGY

TABLE 9.229

Rest of Latin America Solar Micro Inverter Market Volume (Units) Analysis and Forecast Technology 2019-2031

Technology	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Single-Phase Micro Inverters	68,045	63,311	64,819	66,536	68,650	70,913	73,399	76,110	79,017	82,102	85,360	88,913	92,868	3.9%
Three-Phase Micro Inverters	52,049	49,192	51,153	53,323	55,863	58,586	61,558	64,789	68,265	71,978	75,931	80,242	85,021	5.5%
Total	1,20,094	1,12,503	1,15,972	1,19,859	1,24,513	1,29,498	1,34,957	1,40,898	1,47,282	1,54,080	1,61,291	1,69,155	1,77,888	4.6%

REST OF LATIN AMERICA SOLAR MICRO INVERTER MARKET ANALYSIS, POWER RATING

TABLE 9.230

Rest of Latin America Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast Power Rating 2019-2031

Power Rating	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Less than 250 W	9.3	8.6	8.9	9.1	9.5	9.8	10.2	10.7	11.2	11.7	12.2	12.8	13.5	4.6%
250 W - 500 W	8.1	7.5	7.8	8.1	8.4	8.8	9.3	9.8	10.3	10.8	11.4	12.0	12.7	5.4%
More than 500 W	3.1	2.8	2.9	2.9	3.0	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.9	3.3%
Total	20.4	19.0	19.5	20.1	20.9	21.8	22.7	23.7	24.8	26.0	27.2	28.6	30.1	4.7%

REST OF LATIN AMERICA SOLAR MICRO INVERTER MARKET ANALYSIS, POWER RATING

TABLE 9.231

Rest of Latin America Solar Micro Inverter Market Volume (Units) Analysis and Forecast Power Rating 2019-2031

Power Rating	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Less than 250 W	57,857	54,124	55,715	57,502	59,651	61,953	64,474	67,218	70,165	73,301	76,624	80,247	84,272	4.5%
250 W - 500 W	44,299	41,748	43,293	45,013	47,041	49,218	51,601	54,195	56,991	59,979	63,163	66,640	70,501	5.3%
More than 500 W	17,938	16,631	16,963	17,344	17,821	18,327	18,883	19,485	20,126	20,800	21,504	22,268	23,115	3.4%
Total	1,20,094	1,12,503	1,15,972	1,19,859	1,24,513	1,29,498	1,34,957	1,40,898	1,47,282	1,54,080	1,61,291	1,69,155	1,77,888	4.6%

REST OF LATIN AMERICA SOLAR MICRO INVERTER MARKET ANALYSIS, PROVIDER

TABLE 9.232

Rest of Latin America Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast Provider 2019-2031

Provider	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Direct Sales through OEM	3.2	2.9	3.0	3.0	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8	4.0	3.3%
Distributors and Wholesalers	6.2	5.7	5.9	6.1	6.4	6.6	6.9	7.3	7.6	8.0	8.4	8.9	9.3	5.0%
Retailers	4.0	3.7	3.8	3.9	4.0	4.1	4.2	4.4	4.6	4.7	4.9	5.1	5.4	3.9%
Solar Installers and Contractors	7.0	6.6	6.8	7.1	7.4	7.8	8.2	8.7	9.1	9.6	10.2	10.7	11.4	5.5%
Total	20.4	19.0	19.5	20.1	20.9	21.8	22.7	23.7	24.8	26.0	27.2	28.6	30.1	4.7%

REST OF LATIN AMERICA SOLAR MICRO INVERTER MARKET ANALYSIS, PROVIDER

TABLE 9.233

Rest of Latin America Solar Micro Inverter Market Volume (Units) Analysis and Forecast Provider 2019-2031

Provider	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Direct Sales through OEM	16,463	15,206	15,456	15,750	16,132	16,544	17,000	17,499	18,036	18,605	19,203	19,857	20,590	3.2%
Distributors and Wholesalers	38,846	36,482	37,701	39,062	40,680	42,414	44,313	46,379	48,602	50,972	53,491	56,239	59,290	4.9%
Retailers	19,586	18,197	18,605	19,070	19,648	20,268	20,949	21,692	22,488	23,334	24,225	25,198	26,282	3.8%
Solar Installers and Contractors	45,200	42,618	44,211	45,977	48,052	50,273	52,696	55,328	58,156	61,170	64,372	67,861	71,726	5.2%
Total	1,20,094	1,12,503	1,15,972	1,19,859	1,24,513	1,29,498	1,34,957	1,40,898	1,47,282	1,54,080	1,61,291	1,69,155	1,77,888	4.6%

REST OF LATIN AMERICA SOLAR MICRO INVERTER MARKET ANALYSIS, END USER

TABLE 9.234

Rest of Latin America Solar Micro Inverter Market Value (US\$ million) Analysis and Forecast End User 2019-2031

End User	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Residential	11.5	10.7	11.0	11.4	11.9	12.5	13.1	13.7	14.4	15.2	16.0	16.9	17.9	5.2%
Commercial and Industrial	5.7	5.3	5.4	5.5	5.7	5.9	6.2	6.4	6.7	7.0	7.3	7.6	8.0	4.3%
Utility-scale	3.3	3.0	3.1	3.1	3.2	3.3	3.4	3.6	3.7	3.8	3.9	4.1	4.2	3.5%
Total	20.4	19.0	19.5	20.1	20.9	21.8	22.7	23.7	24.8	26.0	27.2	28.6	30.1	4.7%

REST OF LATIN AMERICA SOLAR MICRO INVERTER MARKET ANALYSIS, END USER

TABLE 9.235

Rest of Latin America Solar Micro Inverter Market Volume (Units) Analysis and Forecast End User 2019-2031

End User	2019H	2020H	2021H	2022H	2023A	2024E	2025F	2026F	2027F	2028F	2029F	2030F	2031F	CAGR (2024-2031)
Residential	69,166	65,105	67,435	70,030	73,098	76,390	79,992	83,915	88,138	92,648	97,450	1,02,691	1,08,512	5.1%
Commercial and Industrial	35,560	33,179	34,066	35,067	36,282	37,584	39,012	40,566	42,235	44,007	45,883	47,927	50,200	4.2%
Utility-scale	15,367	14,218	14,471	14,762	15,132	15,524	15,953	16,417	16,910	17,424	17,959	18,536	19,176	3.1%
Total	1,20,094	1,12,503	1,15,972	1,19,859	1,24,513	1,29,498	1,34,957	1,40,898	1,47,282	1,54,080	1,61,291	1,69,155	1,77,888	4.6%

SECTION 10 **COMPETITIVE LANDSCAPE**

- Company Profile

COMPANY DETAILS

Company Name
Enphase Energy

Established
2006

Website
www.enphase.com

Key Management
Mr. Badri Kothandaraman (President & CEO)

Headquartered
California, U.S.

Employee Strength (2023)
~2,840

Revenue (2023)
US\$ 2,290.8 Mn

COMPANY OVERVIEW

- Enphase Energy is a provider of solar micro inverters, which are essential components for converting solar panel energy into usable electricity
- The company offers energy solutions particularly for residential and commercial solar power systems
- The company uses advanced technology for monitoring and energy management, enabling efficient solar installations
- The company's micro inverters provide better reliability and performance than traditional inverters
- The company has its global presence in the regions such as North America, Europe, Asia Pacific, and Latin America

PRODUCT/SERVICE PORTFOLIO

Products/Services	Models and Description
IQ8 Series	<p>The micro converter are the split-phase, grid-forming solar panel micro inverter, capable of converting DC power to AC power</p> <p>IQ8+ -</p> <ul style="list-style-type: none"> • Peak output power: 300 VA • Input power: 235 - 440 W • Maximum continuous output power: 290 VA • Operating range: 16 – 58 V <p>IQ8MC-</p> <ul style="list-style-type: none"> • Peak output power: 330 VA @240 Vac, 315 VA @ 208 Vac* • Input power: 260 – 460 W • Maximum continuous output power: 320 VA @ 240 VAC, 310 VA @ 208 VAC* • Operating range: 18 – 58 V <p>IQ8A-</p> <ul style="list-style-type: none"> • Peak output power: 366 VA @240Vac, 350 VA @208Vac • Input power: 295 - 500 W • Maximum continuous output power: 349 VA @240Vac, 345 VA @208Vac • Operating range: 18 – 58 V

PRODUCT/SERVICE PORTFOLIO

Products/Services	Models and Description
IQ8 Series	<p>IQ8HC-</p> <ul style="list-style-type: none">• Peak output power: 384 VA @240 Vac, 366 VA @208 Vac*• Input power: 320 - 540 W• Maximum continuous output power: 380 VA @240 Vac, 360 VA @208 Vac*• Operating range: 18 – 58 V <p>IQ8M- MC4 Converter, DCC Converter</p> <ul style="list-style-type: none">• Peak output power: 330 VA• Input power: 260 - 460 W• Maximum continuous output power: 325 VA• Operating range: 16 – 58 V <p>IQ8AC-</p> <ul style="list-style-type: none">• Peak output power: 366 VA• Input power: 295 - 500 W• Maximum continuous output power: 349 VA• Operating range: 16 – 58 V

PRODUCT/SERVICE PORTFOLIO

Products/Services	Models and Description
IQ8 Series	<p>IQ8X-</p> <ul style="list-style-type: none">• Peak output power: 384 VA @ 240 Vac, 366 VA @ 208 Vac*• Input power: 320–540 W• Maximum continuous output power: 380 VA @ 240 Vac, 360 VA @ 208 Vac*• Operating range: 25–79.5 V <p>IQ8H- MC4 AND Q-DCC Converter</p> <ul style="list-style-type: none">• Peak output power: 384 VA• Input power: 320 - 540 W• Maximum continuous output power: 380 VA• Operating range: 16 – 58 V <p>IQ8H 208 V-</p> <ul style="list-style-type: none">• Peak output power: 366 VA• Input power: 295 - 500 W• Maximum continuous output power: 360 VA• Operating range: 16 – 58 V

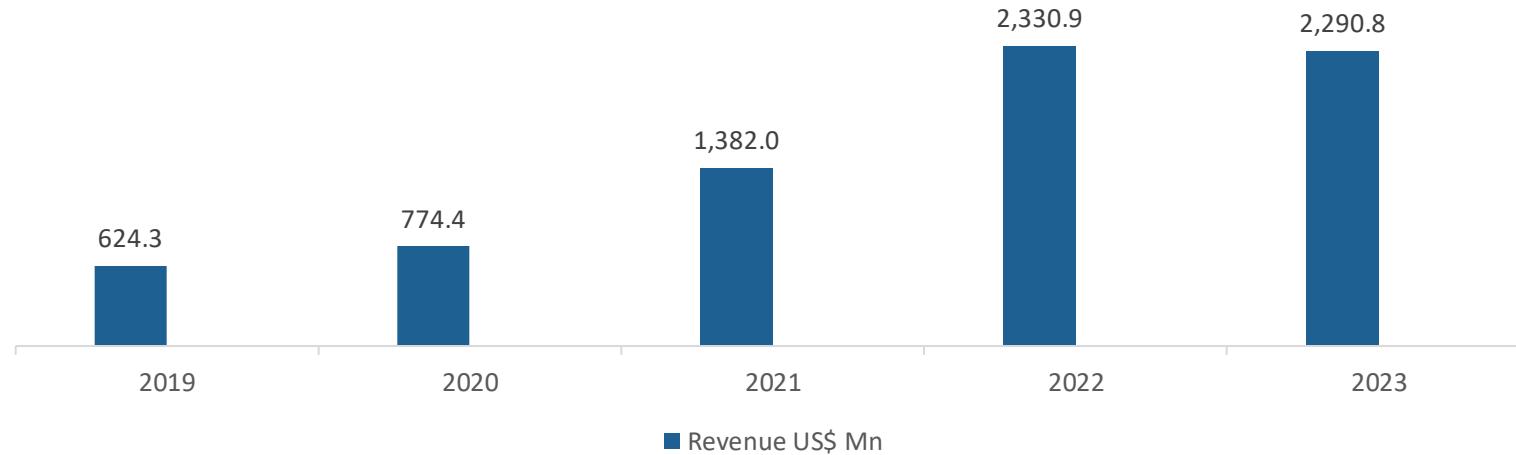
PRODUCT/SERVICE PORTFOLIO

Products/Services	Models and Description
IQ8 Series	<p>IQ8H 208 V (Q-DCC) -</p> <ul style="list-style-type: none">Peak output power: 366 VAModule pairing: 295–500 WMaximum continuous output power: 360 VAOperating range: 16–58 V <p>IQ8P-3P</p> <ul style="list-style-type: none">Peak power output: 480 W
IQ7 Series	<p>The high-powered Enphase IQ7 micro inverter dramatically simplifies the installation process while achieving high system efficiency. Part of the Enphase Energy System, the IQ7 micro inverter integrates with the IQ Battery, the IQ Gateway, and the Enphase App.</p> <p>IQ7+ (MC4 Converter, Q-DCC Converter) -</p> <ul style="list-style-type: none">Peak output power: 295 VAInput power: 235 - 440+ WMaximum continuous output power: 290 VAOperating range: 16 - 60 V

PRODUCT/SERVICE PORTFOLIO

Products/Services	Models and Description
IQ7 Series	<p>IQ7A</p> <p>IQ7PD-72 -</p> <ul style="list-style-type: none">• Peak output power: 199 VA• Module pairing: 180–260 W• Maximum continuous output power: 190 VA• Operating range: 20–54 V <p>IQ7PD-84 -</p> <ul style="list-style-type: none">• Peak output power: 220 VA• Module pairing: 200–290 W• Maximum continuous output power: 210 VA• Operating range: 20–60 V <p>IQ7X -</p> <ul style="list-style-type: none">• Peak output power: 320 VA• Module pairing: 320–460 W• Maximum continuous output power: 315 VA• Operating range: 25–79.5 V

KEY GLOBAL FINANCIALS (US\$ MN) – COMPANY OVERALL REVENUE



Year	2019	2020	2021	2022	2023
Revenue (US\$ Mn)	624.3	774.4	1,382.0	2,330.9	2,290.8

KEY GLOBAL FINANCIALS (US\$ MN) – COMPANY OVERALL REVENUE

MONTHLY REVENUE (2023-2024) US\$ Mn

Year	2023	2024
January	208.2	70.4
February	212.5	81.3
March	305.4	111.7
April	193.8	72.5
May	242.2	97.5
June	275.1	133.5
July	185.5	121.6
August	177.0	108.0
September	188.6	151.3
October	97.6	-
November	92.4	-
December	112.6	-

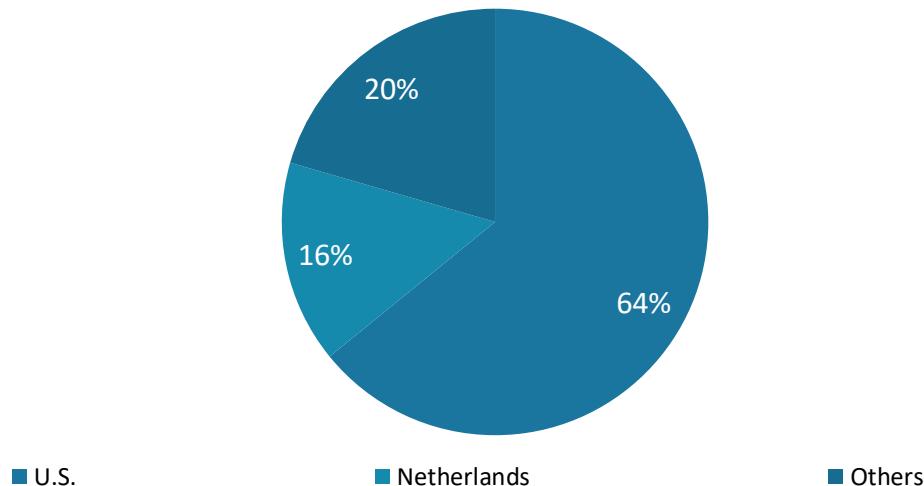
QUARTERLY REVENUE (2019-2024) US\$ Mn

Year	2019	2020	2021	2022	2023	2024
Q1 (Jan to Mar)	100.1	205.5	301.8	441.3	726.0	263.3
Q2 (Apr to Jun)	134.1	125.5	316.1	530.1	711.1	303.5
Q3 (Jul to Sept)	180.1	178.5	351.5	634.7	551.1	380.9
Q4 (Oct to Dec)	210.0	264.8	412.7	724.7	302.6	-

REVENUE SPLIT (%)

REGIONAL SPLIT (%)

BY REGION, 2023



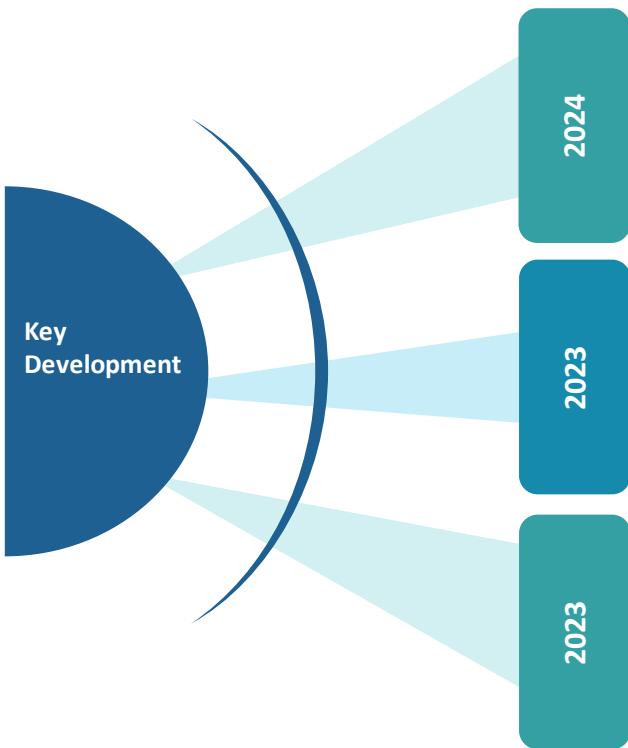
FINANCIALS 2023, 2024 - EUROPE ESTIMATES FOR THE SOLAR MICRO INVERTER MARKET
MONTHLY REVENUE (2023 AND 2024) US\$ Mn

Year	2023	2024
January	54.9	30.6
February	50.5	27.6
March	73.4	16.4
April	61.1	36.3
May	78.5	25.9
June	84.4	11.8
July	48.7	16.5
August	44.5	35.5
September	54.4	11.4
October	24.2	-
November	11.2	-
December	8.5	-

QUARTERLY REVENUE (2023 AND 2024) US\$ Mn

Year	2023	2024
Q1 (Jan to Mar)	178.8	74.7
Q2 (Apr to Jun)	224.0	74.0
Q3 (Jul to Sept)	147.6	63.5
Q4 (Oct to Dec)	43.9	-

KEY DEVELOPMENT



- On July 11, 2024, Enphase Energy launched a new line of U.S.-made solar solutions that qualify for significant federal tax credits, potentially reaching up to 50% for customers installing these technologies. This initiative is part of the company's strategy to enhance the domestic solar market following the Inflation Reduction Act (IRA).
- On November 21, 2023, Enphase Energy introduced its IQ8P-3P commercial micro inverter, marking a significant expansion into the commercial solar market. These micro inverters are designed for small-scale commercial installations and support a peak output of up to 480 W.
- On October 16, 2023, Enphase Energy launched its IQ8 micro inverters in India, designed to cater to high-power solar modules. This new series includes two models: the IQ8HC with a peak output of 384 W and the IQ8P with a peak output of 480 W. These micro inverters are engineered to maximize energy production and can handle a continuous DC current of 14 amperes, making them compatible with solar modules up to 670 W DC.

BUSINESS STRATEGIES

PARTNERSHIP

- On April 22, 2024, Enphase Energy and Octopus Energy announced a strategic partnership aimed at enhancing solar energy solutions in the U.K. This collaboration focuses on deploying Enphase's IQ8 micro inverters and IQ Battery 5P, which will allow Octopus Energy's retail customers to integrate advanced home solar and battery systems into their energy plans. Octopus Energy provides renewable electricity, energy plans, and smart home solutions.



COLLABORATION

- On November 11, 2021, Enphase Energy collaborated with U-Solar and commissioned a 160kW solar rooftop installation at the Club Bellezea clubhouse located in Bengaluru's luxury gated community of Nambiar Bellezea. This project utilizes 320 Trina 500 Wp solar modules paired with 320 Enphase IQ7A micro-inverters. U-Solar offers solar solutions for the residential, commercial, and industrial applications.



COMPANY DETAILS

Company Name
Apsystems

Established
2010

Website
www.emea.apsystems.com

Key Management
Dr. Zhi Min Ling (Chairman)

Headquartered
Jiaxing, China

COMPANY OVERVIEW

- APsystems operates in the solar micro inverter market, offering innovative, high-performance micro inverters that enhance solar system efficiency
- The company offers advanced, powerful solar micro inverter technology for residential and commercial systems
- The company also provides solutions that maximize energy harvest, reduce costs, and improve the overall performance of solar installations
- The company's solar solution combines efficient power conversion with a simple monitoring system, providing reliable and smart energy
- The company has its global presence in the regions such as North America, Europe, and Asia Pacific

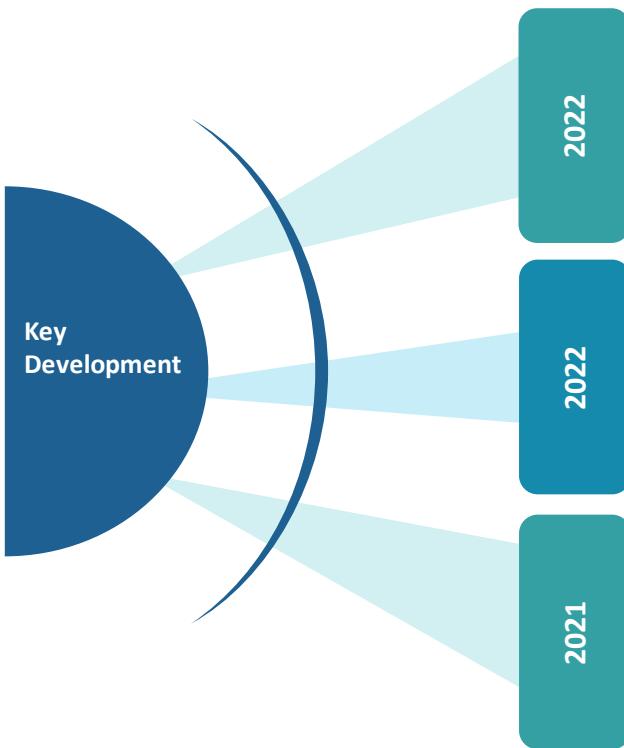
PRODUCT/SERVICE PORTFOLIO

Products/Services	Models and Description
QT2	<ul style="list-style-type: none">Designed for 3-phase grid connection4 input channels with low DC voltage, 2MPPTsSingle unit connects to 4 modulesMaximum continuous AC output power 2,000VAEngineered to match the highest power modules available (Maximum input current 20A)Safety protection relay integratedAdjustable output power factorBalancing 3-phase output
DS3	<ul style="list-style-type: none">One micro inverter connects to two modulesMax output power reaching 730VA, 880VA, or 960VATwo input channels with independent MPPTReactive Power ControlMaximum reliability, IP67Encrypted Zigbee CommunicationSafety protection relay integrated

PRODUCT/SERVICE PORTFOLIO

Products/Services	Models and Description
QT2D	<ul style="list-style-type: none">Designed for 3-phase grid connection4 input channelsSingle unit connects to 8 modulesMaximum continuous AC output power 3200VAEngineered to match the highest power modules available (Maximum input current 20A)Safety protection relay integratedAdjustable output power factorBalancing 3-phase output
DS3D	<ul style="list-style-type: none">One micro inverter connects to four modulesMax output power reaching 1800WTwo input channels with independent MPPTEngineered to match the highest power modules available (Max input current 20A)Maximum reliability, IP67Encrypted Zigbee CommunicationSafety protection relay integrated

KEY DEVELOPMENT



- On September 20, 2022, APsystems unveiled its new QT2 series, a four-module, three-phase micro inverter designed for commercial, industrial, and residential applications at the RE+ International trade show in California, U.S.. This innovative product is engineered to work with high-capacity photovoltaic (PV) modules ranging from 400W to over 600W.
- On May 17, 2022, APsystems launched its new QT2D micro inverter, a third-generation native 3-phase micro inverter designed to handle high-power photovoltaic (PV) modules. This innovative product is particularly aimed at the growing commercial solar market, providing a robust solution for installations requiring high efficiency and power output.
- On September 28, 2021, APsystems introduced DS3 micro inverter series, touted as the world's most powerful dual-module micro inverter. This third-generation product line is designed to maximize the performance of high-capacity photovoltaic (PV) modules, making it a significant advancement in solar technology.

BUSINESS STRATEGIES

PARTNERSHIP

- On March 6, 2023, APsystems and OSW announced a global distribution agreement aimed at expanding the reach of APsystems' micro inverter technology. The collaboration combines APsystems' innovative micro inverter solutions with OSW's extensive distribution capabilities. Both companies share a commitment to delivering high-quality solar products, emphasizing their shared values and purpose. OSW offers advanced solar technology solutions including solar panels and energy management systems for efficient power generation.



COLLABORATION

- On June 22, 2021, Yotta Energy introduced a panel-level storage solution designed to work seamlessly with Apsystems' micro inverters for commercial solar applications. This innovative system, branded as SolarLEAF, integrates a 1 kWh solid-state lithium-iron-phosphate battery with APsystems' micro inverters, specifically the DPI-208 and DPI-480 models. Yotta Energy provides solar energy storage solutions and integrated systems for residential and commercial applications.



COMPANY DETAILS

Company Name
Chilicon Power, LLC

Established
2010

Website
www.chiliconpower.com

Key Management
Mr. Alexandre KRAL (Co-Founder)

Headquartered
California, U.S.

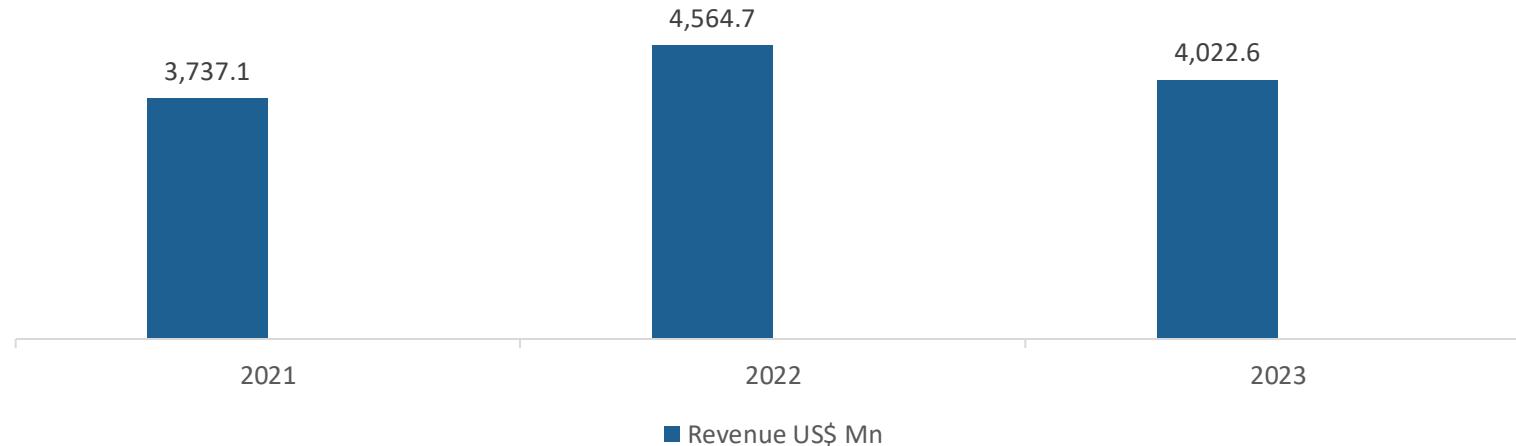
COMPANY OVERVIEW

- Chilicon Power, LLC specializes in the design and production of solar micro inverters
- The company provides enhanced solar energy solutions with efficient, reliable, and cost-effective micro inverters
- The company offers micro converters, cortex gateway, modular trunk cabling, and 2030.5/CSIP aggregator server CP-1000
- The company also offers solutions aimed at residential, commercial, and industrial solar energy systems
- The company has partnered with organizations like AVNET, CED Greentech, LOANPAL, MOSAIC, BEACON Solar Products, Ecopro Solar Supply, and others
- The company has its global presence in North America, Europe, and Asia Pacific

PRODUCT/SERVICE PORTFOLIO

Products/Services	Models and Description
CP-720	<ul style="list-style-type: none"> • 25-year standard warranty • 60-cell, 72-cell, 96-cell, 128-cell module compatibility in the same device • 240VAC and 208VAC • UL1741SA-Rule-21, IEEE std 1547, IEEE std C62.41.2, CSA C22.2 NO. 107.1 & CISPR 22 Class B • NEC 690.12 Rapid Shutdown Compliant • Efficiency: 96% CEC, 96.6% Peak • Output Power: 720VA Max • Recommended max input power: 2 x 430 W
CP-250E	<ul style="list-style-type: none"> • 25-year standard warranty • 60-cell and 72-cell module compatibility with same device (CP-250E) • 240VAC and 208VAC • UL1741, IEEE std 1547, IEEE std C62.41.2, CSA C22.2 NO. 107.1 & CISPR 22 Class B • NEC 690.12 Rapid Shutdown Compliant • Efficiency: 96% CEC, 96.6% Peak • Output Power: 285W Max (Ext. Range Enable) • Recommended max input power: 350W

KEY FINANCIALS (US\$ MN)



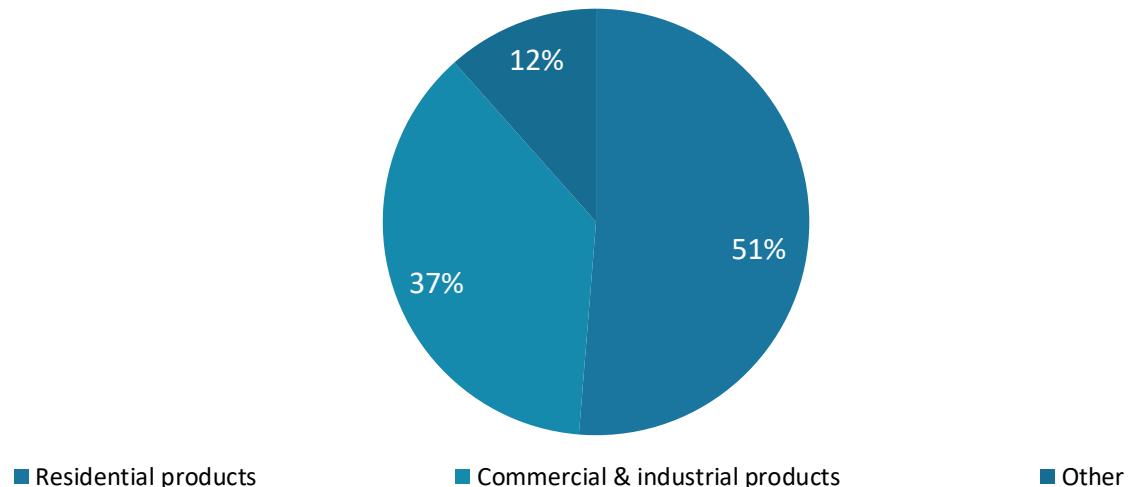
Year	2021	2022	2023
Revenue (US\$ Mn)	3,737.1	4,564.7	4,022.6

NOTE: The revenue provided is for Generac Power Systems, Inc., which acquired Chilicon Power, LLC

REVENUE SPLIT (%)

SEGMENTAL SPLIT (%)

BY SEGMENT, 2023



NOTE: The revenue provided is for Generac Power Systems, Inc., which acquired Chilicon Power, LLC

BUSINESS STRATEGIES

ACQUISITION

- On July 06, 2021, Generac Holdings Inc. has successfully acquired Chilicon Power as part of its strategy to enhance its offerings in the residential clean energy market. The acquisition aims to position Generac as a more formidable player in the rapidly growing solar micro inverter sector, where it will compete directly with established companies like Enphase Energy. Generac Holdings Inc. offers energy solutions, including backup power systems, clean energy products, and related services for residential, commercial, and industrial applications.



COMPANY DETAILS

Company Name
SPARQ Systems

Established
1995

Website
www.sparqsys.com

Key Management
Mr. Praveen Jain (Founder & CEO)

Headquartered
Ontario, Canada

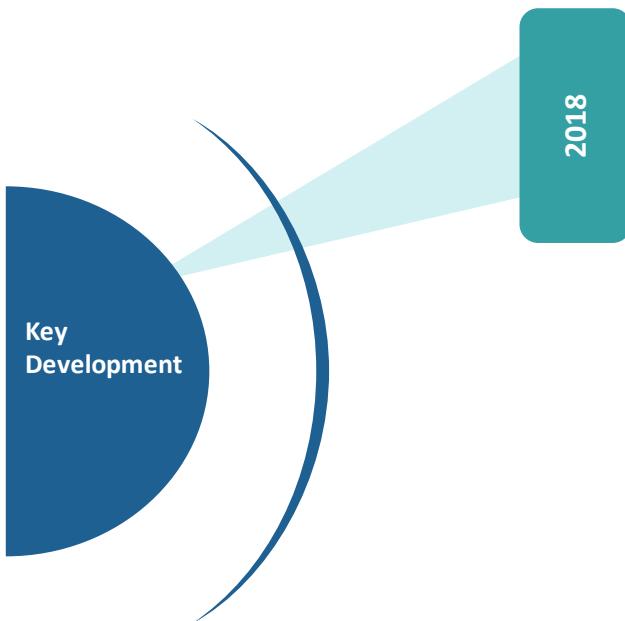
COMPANY OVERVIEW

- SPARQ Systems specializes in advanced solar technologies, focusing on solar micro inverters that enhance solar panel performance
- The company offers products such as Quad micro inverter, SparqLinq, SparqVu, and accessories
- The company's products are designed for residential and commercial applications, optimizing solar energy conversion and increasing energy yield
- The company also provides training and support such as installation manual, FAQs, and design system
- The company has its global presence in North America, Europe, Asia Pacific, and Latin America

PRODUCT/SERVICE PORTFOLIO

Products/Services	Models and Description
Quad Converter	
Quad micro inverters have four individual DC input channels to enable independent peak power tracking for up to four PV modules. This allows significant reduction in installation time and cable costs. Based on a Per-Watt rating, its Quad micro inverters have the lowest micro inverter cost, the highest power output, the highest power density, and the lowest weight in the industry.	
Q2000	This micro inverter is the industry's first highest power rating micro inverter that produces electrical energy from four photovoltaic ("PV") panels of 550W+ each, without any power clipping under all operating conditions. The Q2000 is designed to connect 4 PV panels, up to 550W, to the AC power grid.
Q1200 Grid-Tied	This micro inverter is designed to connect 4 PV panels, up to 400W, to the AC power grid.
Q1200 Dual Mode	This micro inverter is specifically designed for use in India, and operates both in grid-tied and off-grid modes, with and without home batteries. The Q1200 is designed to connect 4 PV panels, up to 400W, to the AC power grid.

KEY DEVELOPMENT



- On August 14, 2018, SPARQ Systems launched the Q1200 quad micro inverter, which is designed to provide efficient power conversion for solar energy systems. This micro inverter is notable for its ability to connect up to four solar modules, making it a versatile option for both residential and commercial applications.

BUSINESS STRATEGIES

PARTNERSHIP

- On February 8, 2024, SPARQ Systems entered into a significant technology partnership with Jio Things, a subsidiary of Jio Platforms, to develop, manufacture, and distribute micro inverters in India. This partnership aims to leverage both companies' strengths to enhance the solar energy market. Jio Things offers IoT solutions for smart homes, businesses, and industries, enabling connected devices and automation.



COMPANY DETAILS

Company Name
Northern Electric Power Technology Inc.

Established
2010

Website
www.northernp.com

Key Management
Mr. Ed Heacox (CEO)

Headquartered
California, U.S.

COMPANY OVERVIEW

- Northern Electric Power Technology Inc. provides innovative solar micro inverter technology which improves the performance and efficiency of solar energy systems
- The company offers products such as micro inverters, rapid shutdown solutions, 3-phase inverters, gateways, and accessories
- The company's products are designed for residential and commercial applications, optimizing solar energy conversion and increasing energy yield
- The company has a list of distributors including Rexel USA, Soligent, Elliott Electric Supply, and Greentech Renewable
- The company has its global presence in regions such as North America, Europe, Asia Pacific, and Latin America

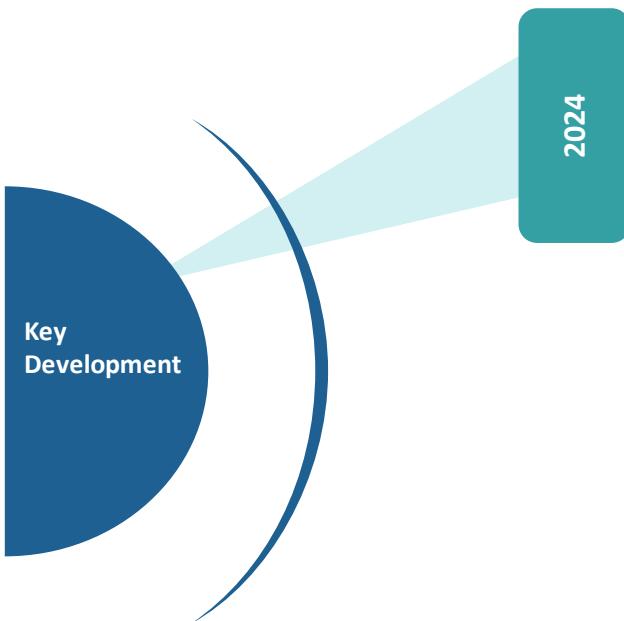
PRODUCT/SERVICE PORTFOLIO

Products/Services	Models and Description
BDM 650	BDM 650 is a micro inverter designed to generate more energy at a low cost and with an efficiency of 95%. It has an integrated monitor and power line communication with BDG-256 gateway. It can be connected to the BDM-300, BDM-250, and BDM-300x2. This macro-inverter is globally certified for Rule 21, UL1741, TUV, NEMA-6/IP-66/IP-67 enclosure rating.
BDM 550	BDM 550 is a micro inverter designed to generate more energy at a low cost and with an efficiency of 95%. It has an integrated monitor and power line communication with BDG-256 gateway. It can be connected to the BDM-300, BDM-250, and BDM-300x2. This macro-inverter is globally certified for Rule 21, UL1741, TUV, NEMA-6/IP-66/IP-67 enclosure rating.
BDM 600	BDM 600 solar micro inverter is designed to support up to two 450W high power panels. Additionally, it features integrated ground (IG) that eliminates the need for grounding conductor (GEC) on the DC side. The unique design of the BDM 600 model is original, functional, and available only from NEP.
BDM 300	BDM 300 offers cable options including conventional trunkable and daisy chain. It is the thinnest micro inverter in the world at just 0.98" thick.

PRODUCT/SERVICE PORTFOLIO

Products/Services	Models and Description
BDM 800	<p>BDM 800 is a micro inverter designed to generate more energy at a low cost and with an efficiency of 95%. It has an integrated monitor and power line communication with BDG-256 gateway. It can be connected to the BDM-300, BDM-250, and BDM-300x2. This macro-inverter is globally certified for Rule 21, UL1741, TUV, NEMA-6/IP-66/IP-67 enclosure rating.</p>

KEY DEVELOPMENT



- On April 16, 2024, Northern Electric Power Technology Inc. announced its latest innovation, the All-In-One micro inverter, specifically designed for high-power solar modules. This new product aims to enhance the efficiency and performance of solar energy systems, particularly in commercial and residential applications.

BUSINESS STRATEGIES

PARTNERSHIP

- On March 12, 2024, Northern Electric Power Technology Inc. (NEP) entered into a partnership with Global RAIS to enhance the deployment of its micro inverter technology. RAIS (Renewable Advanced Inverter Solutions) offers innovative inverter technology designed to enhance the efficiency, reliability, and integration of renewable energy systems, particularly in solar applications. This partnership aims to integrate NEP's advanced micro inverters with Global RAIS' innovative solar panel technology, which utilizes a unique cell structure designed to improve performance even under shading conditions.



COMPANY DETAILS

Company Name
Trackers FEINA S.L.

Established
1998

Website
www.tracker.cat

Headquartered
Barcelona, Spain

COMPANY OVERVIEW

- Trackers FEINA S.L. specializes in the development and manufacturing of solar tracking systems designed to improve the performance of photovoltaic installations
- The company offers products such as solar trackers, micro inverters, solar panels, bridle PV and alarmsolalarm
- The company solar plants include Tarragona, Over Industrial Plants, Navalenciña, Leon, Flix, and Thermoelectrical
- The company has distributors such as Romex Australia Pty.Limited, Jose L. Martinez Castro, Guido Antonio Castro Valencia, La Inesina Solar, and others
- The company has its global presence in North America, Europe, Asia Pacific, and Latin America

PRODUCT/SERVICE PORTFOLIO

Products/Services	Models and Description
EVT300	<ul style="list-style-type: none">• Communication - PLCC (Power Line Carrier Communication)• Compliance - VDE-AR-N 4105, VDE 0126-1-1, UTE C15-712-1, EN50438, IEC/EN62109, IEC/EN61000• Warranty - 15 Years• Life time - 25 Years• Peak inverter efficiency - 95.6%• EURO weighted efficiency - 95% (according to the EN50530)• Nighttime power consumption - 100mW• Enclosure environmental rating - IP67• External operating temperature range - 40°C~+65°C• Weight- 1.5Kg

NOTE: The products are from Envertech, which partners with Trackers Feina S.L. to deliver advanced solar solutions, integrating efficient micro inverters with high-quality solar tracking systems

PRODUCT/SERVICE PORTFOLIO

Products/Services	Models and Description
EVT560	<ul style="list-style-type: none"> • Communication - PLCC (Power Line Carrier Communication) • Compliance - VDE-AR-N 4105, VDE 0126-1-1, UTE C15-712-1, EN50438, IEC/EN62109, IEC/EN61000 • Warranty - 15 Years • Life time - 25 Years • Peak inverter efficiency - 95.8% • EURO weighted efficiency - 95.1% (according to the EN50530) • Nighttime power consumption - 120mW • Enclosure environmental rating - IP67 • External operating temperature range - 40°C~+65°C • Weight- 2.4Kg

NOTE: The products are from Envertech, which partners with Trackers Feina S.L. to deliver advanced solar solutions, integrating efficient micro inverters with high-quality solar tracking systems.

COMPANY DETAILS

Company Name
AE Conversion

Established
2012

Website
www.aeconversion.de.com

Key Management
Mr. Walter Knittel (Co-Founder)

Headquartered
Bad Sassendorf, Germany

Employee Strength (2023)
~40

COMPANY OVERVIEW

- AE Conversion specializes in the development and production of high-performance solar micro inverters and energy solutions
- The company offers solar products such as micro inverters, monitoring device, and bestellformular
- The company's products are designed to support the growing demand for renewable energy, providing tailored solutions for residential and commercial applications
- The company provides innovative technologies to optimize energy production and efficiency in solar power systems
- The company also offers power supply quotations, project sequence, and power supply reference products
- The company has a strong regional presence in Europe

PRODUCT/SERVICE PORTFOLIO

Products/Services	Models and Description
INV500-90	<p>Weight - 3kg Operating temperature range - -25°C to +70°C Cooling / Natural convection - Natural convection Energy consumption at night - 30mW Max. operating altitude above sea level – 2,000m Protection class - Class I</p> <p>50Hz-Version</p> <p>Rated frequency - 50,0Hz Frequency range - 47,5Hz – 51,5Hz Product safety - IEC 62109-1, IEC 62109-2 IEC 55011B, EN 50178, IEC 62103 EMC - EN 61000-6-2, EN 61000-6-3</p> <p>60Hz-Version</p> <p>Rated frequency - 60,0Hz Frequency range - 59,5Hz – 60,3Hz Product safety - UL 1741:2010, IEEE 1547:2003, CSA C22.2 EMC - FCC Part 15 Class B</p>

PRODUCT/SERVICE PORTFOLIO

Products/Services	Models and Description
INV315-50	<p>Weight - 0,8kg Operating temperature range - -25°C to +70°C Cooling / Natural convection Natural convection Energy consumption at night - 30mW Max. operating altitude above sea level – 2,000m Protection class - Class I</p> <p>50Hz-Version</p> <p>Rated frequency - 50,0Hz Frequency range - 47,5Hz – 51,5Hz Product safety - IEC 62109-1, IEC 62109-2 IEC 55011B, EN 50178, IEC 62103 EMC - EN 61000-6-2, EN 61000-6-3</p> <p>60Hz-Version</p> <p>Rated frequency - 60,0Hz Frequency range - 59,5Hz – 60,3Hz Product safety - UL 1741:2010, IEEE 1547:2003, CSA C22.2 EMC - FCC Part 15 Class B</p>

COMPANY DETAILS

Company Name
GoodWe

Established
2010

Website
www.en.goodwe.com

Key Management
Mr. Daniel Huang (CEO)

Headquartered
Suzhou, China

Employee Strength (2024)
~5,000

Revenue (2023)
US\$ 10,392.9 Mn

COMPANY OVERVIEW

- GoodWe caters to the solar micro inverter market, specializing in renewable energy solutions, energy storage, and smart energy management
- The company offers products such as grid-connected PV inverters, energy storage PV inverters, smart data collectors, and Smart Energy Management Systems (SEMS)
- The company provides research, development, production, and sales of new energy and power supply equipment, such as solar energy and energy storage solutions for residential, industrial, commercial, and utility-scale projects
- The company also provides integrated smart management solutions for energy systems
- The company has its global presence in North America, Europe, Asia Pacific, and Latin America

PRODUCT/SERVICE PORTFOLIO

Products/Services	Models and Description
GW1600-MIS	<ul style="list-style-type: none">• Max. Efficiency - 96.4%• Nominal MPPT Efficiency - 99.8%• Night Power Consumption (W) - 0.05• Operating Temperature Range (°C)* - 3 -40 ~ +65• Derating temperature (°C) - 45• Storage Temperature (°C) - -40 ~ +85• Cooling Method - Natural convection• Weight (kg) - 6• Dimensions (W × H × D mm) - 330.5 × 266.7 × 42.5• Ingress Protection Rating - IP67• DC Connector - Staubli MC4• Commonly Used Module Power (W) - 320 to 535+• Max. Continuous Output Power (VA) – 1,600

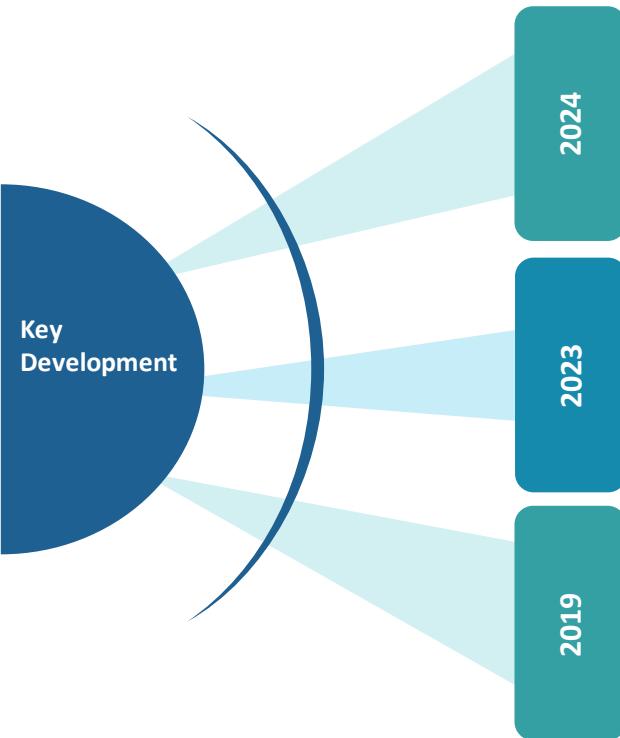
PRODUCT/SERVICE PORTFOLIO

Products/Services	Models and Description
GW1800-MIS	<ul style="list-style-type: none"> • Max. Efficiency - 96.4% • Nominal MPPT Efficiency - 99.8% • Night Power Consumption (W) - 0.05 • Operating Temperature Range (°C)* - 3 ~ -40 ~ +65 • Derating temperature (°C) - 45 • Storage Temperature (°C) - -40 ~ +85 • Cooling Method - Natural convection • Weight (kg) - 6 • Dimensions (W × H × D mm) - 330.5 × 266.7 × 42.5 • Ingress Protection Rating - IP67 • DC Connector - Staubli MC4 • Commonly Used Module Power (W) - 360 to 600+ • Max. Input Voltage (V) - 65 • MPPT Operating Voltage Range (V) - 16~60 • Max. Continuous Output Power (VA) – 1,800 • Nominal Output Voltage (V) - 1 / N / PE, 220/230/240 • Output Voltage Range (V)*1 - 180 ~ 275

PRODUCT/SERVICE PORTFOLIO

Products/Services	Models and Description
GW2000-MIS	<ul style="list-style-type: none">• Max. Efficiency - 96.4%• Nominal MPPT Efficiency - 99.8%• Night Power Consumption (W) - 0.05• Operating Temperature Range (°C)* - 3 -40 ~ +65• Derating temperature (°C) - 45• Storage Temperature (°C) - -40 ~ +85• Cooling Method - Natural convection• Weight (kg) - 6• Dimensions (W × H × D mm) - 330.5 × 266.7 × 42.5• Ingress Protection Rating - IP67• DC Connector - Staubli MC4• Commonly Used Module Power (W) - 400 to 670+• Max. Continuous Output Power (VA) – 2,000

KEY DEVELOPMENT



- On August 8, 2024, GoodWe unveiled a new solar inverter specifically designed for commercial and industrial (C&I) solar projects, enhancing its portfolio of energy solutions. This inverter is tailored to meet the unique demands of larger-scale installations, providing efficient and reliable energy management.
- On September 12, 2023, GoodWe participated in the ASEAN Sustainable Energy Week 2023 at the Queen Sirikit National Convention Center in Thailand. This event provided a significant platform for showcasing innovative solar solutions, reflecting the growing demand for renewable energy in Southeast Asia.
- On November 18, 2019, GoodWe introduced its XS Series, an ultra-compact residential solar inverter that is notably the size of an A4 sheet of paper. This innovative inverter ranges in capacity from 0.7 kW to 3.0 kW and is designed for easy installation and operation.

BUSINESS STRATEGIES

PARTNERSHIP

- On March 6, 2024, GoodWe announced a strategic partnership with Antyodaya Ujas, a key player in West Bengal's renewable energy sector. This collaboration aimed to enhance GoodWe's presence in the Indian solar market by leveraging Antyodaya Ujas's extensive regional expertise and distribution capabilities.
- On July 2, 2020, GoodWe formed a partnership with IBC SOLAR AG, a leading distributor in the photovoltaic (PV) systems and energy storage market. This collaboration aimed to enhance the availability of GoodWe's high-quality solar inverters across Europe.
- On April 2, 2020, GoodWe established a strategic partnership with General Electric (GE), granting GoodWe an exclusive licensing contract for the global sales of solar inverters. This collaboration was a significant milestone for GoodWe, affirming its reputation for quality and innovation in the solar industry. General Electric (GE) is a multinational conglomerate that provides a wide range of products and services including aviation, power generation, renewable energy, healthcare, and digital solutions.



COMPANY DETAILS

Company Name
Growatt New Energy

Established
2011

Website
www.en.growatt.com

Key Management
Mr. David Ding (CEO)

Headquartered
Shenzhen, China

Employee Strength (2024)
~3,000+

Revenue (2024)
US\$ 1,443.0 Mn

COMPANY OVERVIEW

- Growatt New Energy caters to the solar micro inverter market, offering high-efficiency PV inverters and energy storage solutions
- The company offers products such as micro inverter, Residential PV Inverter, Commercial & Industrial PV Inverter, Utility-Scale PV Inverter, Battery Ready Inverter, Hybrid Inverter, AC-Coupled Inverter, AC EV Charger, DC EV Charger, and others
- The company provides smart energy management, leveraging IoT and cloud technology to enhance performance across the residential, commercial, and industrial sectors
- The company operates through four business segment - PV Inverter, Energy Storage, EV Charger, and Smart Energy Management
- The company has its global presence in regions such as North America, Europe, Asia Pacific, and Latin America

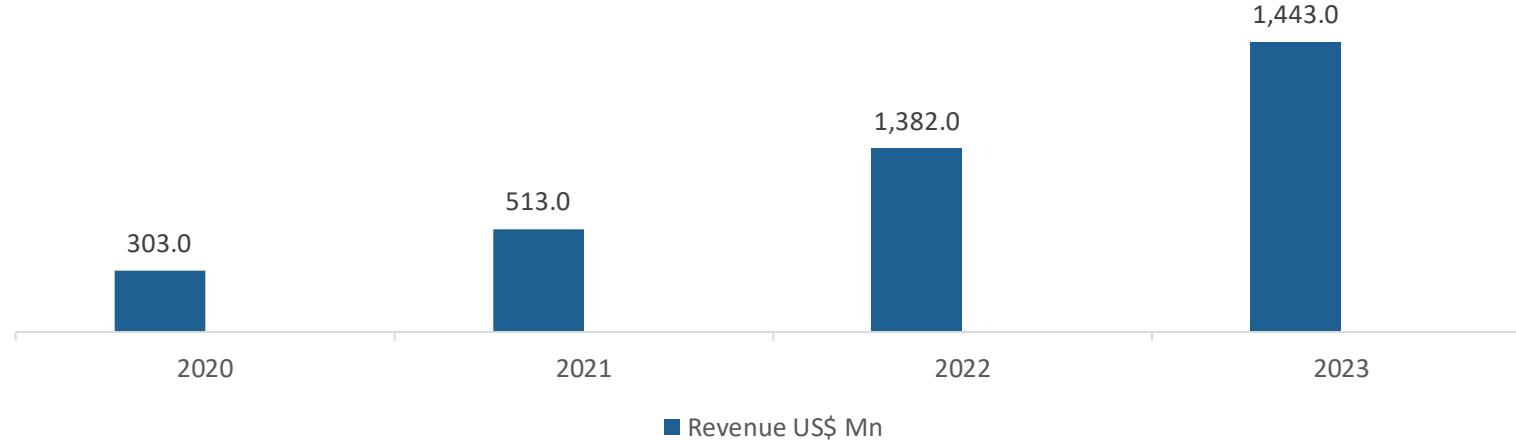
PRODUCT/SERVICE PORTFOLIO

Products/Services	Models and Description
NEO 1600-2500M-X2	<ul style="list-style-type: none"> • Maximum efficiency is 97.3% • Four MPP trackers • String current up to 18A • Type III SPD on AC side • IP67 protection degree • Module-Level monitoring • Online smart service and maintenance
NEO 600-1000M-X	<ul style="list-style-type: none"> • Maximum efficiency is 97.3% • Two MPP trackers • String current up to 18A • Type III SPD on AC side • IP67 protection degree • Module-Level monitoring • Online smart service and maintenance
NEO 2000M-X	<ul style="list-style-type: none"> • Maximum efficiency is 96.5% • Four MPP trackers • Long signal transmission distance

PRODUCT/SERVICE PORTFOLIO

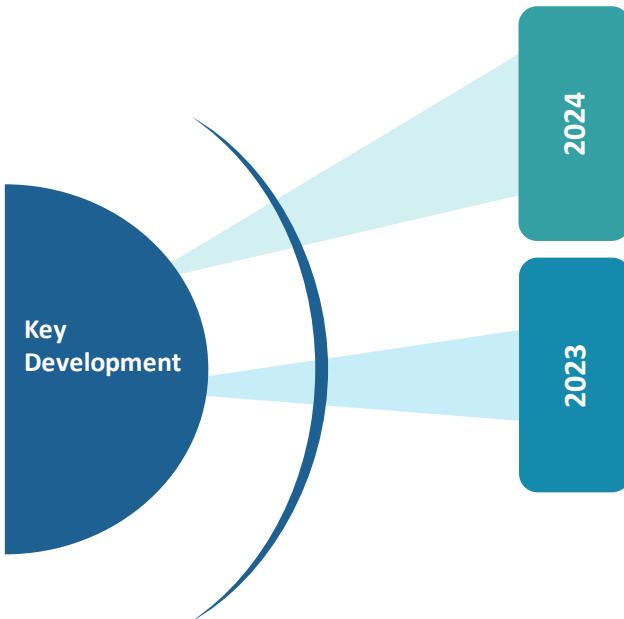
Products/Services	Models and Description
NEO 2000M-X	<ul style="list-style-type: none">• Type III SPD on AC side• IP67 protection degree• Module-Level monitoring• Online smart service and maintenance

KEY FINANCIALS (US\$ MN)



Year	2020	2021	2022	2023
Revenue (US\$ Mn)	303.0	513.0	1,382.0	1,443.0

KEY DEVELOPMENT



2024

2023

- On February 14, 2024, Growatt New Energy launched its H Series All-In-One Energy Storage System in Pakistan, marking a significant advancement in the renewable energy sector. This innovative system integrates both the inverter and battery into a modular design, catering to various energy storage needs for residential applications.
- On October 31, 2023, Growatt New Energy officially launched its new NEO 2000M-X micro inverter, designed to enhance solar energy efficiency for residential applications. This innovative product features a 2-kW power output, four Maximum Power Point Trackers (MPPTs), and a maximum efficiency of 96.5%.

BUSINESS STRATEGIES

PARTNERSHIP

- On January 7, 2022, Growatt New Energy deepened its global presence in the distributed photovoltaic (PV) market through a partnership with Krannich Solar, a global solar distributor. This collaboration aims to enhance the distribution of Growatt New Energy's extensive portfolio of solar energy solutions, focusing on both residential and commercial applications. Krannich Solar specializes in providing a wide range of solar products and solutions including photovoltaic modules, inverters, mounting systems, and energy storage systems.



COMPANY DETAILS

Company Name
Hoymiles Power Electronics Inc.

Established
2012

Website
www.hoymiles.com

Key Management
Mr. Bo Yang (Co-founder & CEO)

Headquartered
Hangzhou, China

Employee Strength (2024)
~1,600

COMPANY OVERVIEW

- Hoymiles Power Electronics Inc. specializes in solar micro inverters
- The company offers micro storage, micro inverter, transmitter, all-in-one battery system, outdoor battery system, battery container, and others
- The company also offers Data transfer units (DTU), micro inverter accessories, rapid shutdown, energy storage and monitoring app
- The company provides solutions for residential and commercial solar power installations
- The company operates through four business segments – DIY, Residential, C&I, and Utility
- The company has its global presence in regions such as North America, Europe, Asia Pacific, and Latin America

PRODUCT/SERVICE PORTFOLIO

Products/Services	Models and Description
HMS- 300W/350W/400W/450W/500W-1T (Wi-Fi integrated)	<ul style="list-style-type: none"> Dimensions: 182 × 164 × 30mm Rated output power: 300VA Commonly used module power: 240W to 405W+ Max. input current: 2 × 12A Max. input voltage: 60V Number of modules connected: 1 MPPT voltage range: 16V–60V Number of MPPTs: 1
HMS- 600W/700W/800W/900W/1000W-2T (Wi-Fi integrated)	<ul style="list-style-type: none"> Dimensions: 261 × 180 × 35.1mm Rated output power: 600VA Commonly used module power: 240W to 405W+ Max. input current: 2 × 12A Max. input voltage: 60V Number of modules connected: 2 MPPT voltage range: 16V–60V Number of MPPTs: 2

PRODUCT/SERVICE PORTFOLIO

Products/Services	Models and Description
Residential: HMS-300/350/400/450/500-1T	<ul style="list-style-type: none"> High-powered micro inverter for 1-in-1 with output power up to 500 VA With Reactive Power Control, compliant with EN 50549-1:2019, VDE-AR-N 4105:2018, VFR2019, etc. Safer for rooftop solar stations with rapid shutdown compliance and isolated transformer Connected to one panel, flexible for various applications Sub-1G wireless solution allows stable communication with Hoymiles gateway DTU
Residential: HMS-600/700/800/900/1000-2T	<ul style="list-style-type: none"> High-powered micro inverter for 2-in-1 with output power up to 1,000 VA With Reactive Power Control, compliant with EN 50549-1:2019, VDE-AR-N 4105:2018, VFR2019, etc. Safer for rooftop solar stations with rapid shutdown compliance and isolated transformer Independent MPPT and monitoring ensure greater energy harvest and easier maintenance 2-in-1 design enables faster installation Sub-1G wireless solution allows stable communication in commercial and industrial settings

PRODUCT/SERVICE PORTFOLIO

Products/Services	Models and Description
Residential: HMS-800-2T-LV	<ul style="list-style-type: none">• Compliant with 120 V & 127 V power grid• Safer for rooftop solar stations with rapid shutdown compliance and isolated transformer• Independent MPPT and monitoring• New Sub-1G wireless solution enables more stable communication
Residential: HMS-1600/1800/2000	<ul style="list-style-type: none">• High-powered micro inverter with output power up to 2,000 VA• Independent MPPT and monitoring ensure greater energy harvest and easier maintenance• With Reactive Power Control, compliant with EN 50549-1:2019, VDE-AR-N 4105:2018, VFR2019, etc.• 4-in-1 design enables faster installation and comes with a lower cost• Safer for rooftop solar stations with rapid shutdown compliance and isolated transformer• Sub-1G wireless solution allows stable communication in commercial and industrial settings

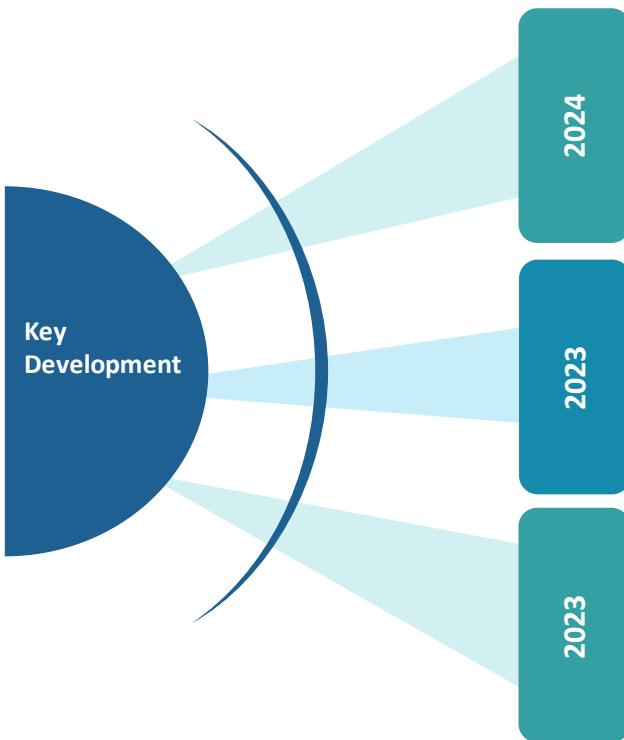
PRODUCT/SERVICE PORTFOLIO

Products/Services	Models and Description
Residential: HMS-1600D/1800D/2000D	<ul style="list-style-type: none"> High-powered micro inverter with output power up to 2,000 VA 99.8% MPPT efficiency and module-level monitoring ensure greater energy harvest and easier maintenance. Comply with UL 1741, IEC 61727, IEC 62116, IEC 61683, etc. 4-in-1 design maximizes efficiency and reduces costs. Sub-1G wireless solution allows stable communication in commercial and industrial settings. IP67 (NEMA 6) protection degree, adapt to outdoor use.
Residential: HMS-1600DW/1800DW/2000DW-4T (Wi-Fi integrated)	<ul style="list-style-type: none"> Built-in Wi-Fi module enables quicker and easier installation and commissioning. The industrial-grade Wi-Fi module brings higher micro inverter reliability. With output power up to 2,000 VA, compatible with 182 mm/210 mm PV module. With the top-tier brand battery cell, our device not only supports a long battery life with 6,000+ battery cycles, but also offers a Ten-year Warranty, standing the test of time. Safer for rooftop solar stations with rapid shutdown compliance and isolated transformer. IP67 (NEMA 6) protection degree, adapt to outdoor use.

PRODUCT/SERVICE PORTFOLIO

Products/Services	Models and Description
<p>Residential: MIT-4000/4500/5000-8T</p>	<ul style="list-style-type: none">Three-phase output, ideal for commercial and industrial applicationsOutput power up to 5,000 VA and input current up to 20 A, compatible with 182 mm/210 mm PV modulesFour MPPTs, optimizing power generationLow input voltage for safer rooftop installations, minimizing arc faults and electric shocks8-in-1 design for quick installation with HMT Cable System, reducing costsSub-1G wireless solution for stable communication and convenient O&M

KEY DEVELOPMENT



- On June 14, 2024, Hoymiles Power Electronics Inc. launched its new MIT-5000-8T three-phase micro inverter at the SNEC 2024 tradeshow in Shanghai, China claiming it to be the largest and the most efficient micro inverter currently available on the solar micro inverter market. This product is particularly well-suited for large residential and commercial applications.
- On November 1, 2023, Hoymiles Power Electronics Inc. introduced its new line of 4-in-1 three-phase micro inverters, designed specifically for small commercial and industrial solar systems. This innovative product series aims to enhance energy efficiency and adaptability in various market conditions.
- On June 14, 2023, Hoymiles Power Electronics Inc. launched its new HMS-1000W micro inverter series in Europe, specifically designed for mini photovoltaic (PV) systems including balcony solar installations. This innovative product was unveiled at the Intersolar Europe event in Munich, Germany.

BUSINESS STRATEGIES

PARTNERSHIP

- On March 20, 2024, Hoymiles Power Electronics Inc. significantly strengthened its partnership with VDH Solar in the Netherlands, aiming to drive the adoption of advanced solar solutions across the region. VDH Solar offers solar energy solutions, including solar panels, inverters, and other photovoltaic products, along with services for solar power system installation and maintenance. This collaboration was formalized during the Solar Solutions International event in Amsterdam, Netherlands.



COLLABORATION

- On May 19, 2023, Redington announced a strategic collaboration with Hoymiles Power Electronics Inc. and PIXON Group to enhance the distribution of solar solutions and green energy products across India. This partnership aims to accelerate the adoption of solar technology among both businesses and consumers. Redington offers a wide range of technology solutions, including IT products, mobility solutions, and solar energy products, along with services such as logistics, distribution, and after-sales support.



COMPANY DETAILS

Company Name
SUNGROW

Established
1997

Website
www.en.sungrowpower.com

Key Management
Mr. Cao Renxian (Founder & Chairman)

Headquartered
Hefei, China

Employee Strength (2023)
~1,280

Revenue (2023)
US\$ 3,740.0 Mn

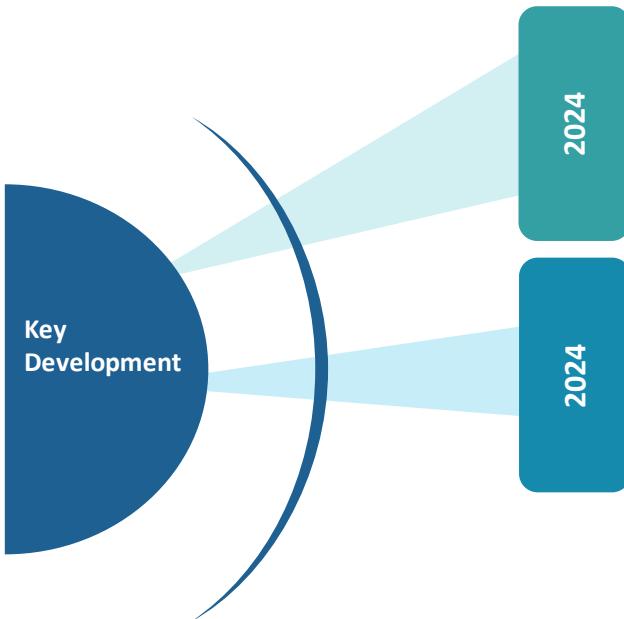
COMPANY OVERVIEW

- Sungrow caters to clean energy, providing advanced solutions for the solar micro inverter industry
- The company specializes in solar inverters, energy storage systems, and other related technologies
- The company offers products such as PV systems, storage systems, EV chargers, isolarcloud, floating PV system, accessories, and wind products
- The company also offers solutions for PV system, storage system, EV charger, floating PV system, and PV power plant
- The company has over 20 subsidiaries and 240 service outlets worldwide
- The company has its global presence in regions such as North America, Europe, Asia Pacific, and Latin America

PRODUCT/SERVICE PORTFOLIO

Products/Services	Models and Description
S450S, S800S, S1600S	<ul style="list-style-type: none">• Power ratings - 450W, 800W, and 1,600W• These micro inverters are designed for various residential applications such as balconies and rooftops• Resilient Performance in Low-Light and High-Temperature Conditions: 2% Yield Boost• Plug-and-Play with One-Click Configuration: 30% Efficiency Boost• 12 International Certifications Ensuring Safety and Reliability

KEY DEVELOPMENT



- On October 5, 2024, Sungrow made significant strides in India's renewable energy landscape with its innovative solar solutions aimed at powering the country's green revolution. The company launched SG150CX Inverter, Residential Inverters, S2000S-SA micro inverters, SG320HX-20 String Inverter, and energy solutions.
- On June 20, 2024, Sungrow unveiled its latest micro inverter solutions at Intersolar Europe 2024, showcasing a new product line designed for residential applications. This launch includes three models: the S450S, S800S, and S1600S, with power outputs of 450W, 800W, and 1600W, respectively.

COMPANY DETAILS

Company Name
Sunrover Power Co., Ltd

Established
2014

Website
www.sunroverpv.com

Key Management
Mr. Rodrigo Sauaia (Executive President)

Headquartered
Hefei, China

Employee Strength (2025)
~458

COMPANY OVERVIEW

- Sunrover Power Co., Ltd specializes in the development and production of solar energy products including solar micro inverters
- The company offers products such as solar panels, solar inverters, solar energy storage batteries and solar energy storage off-grid systems, on-grid systems, hybrid systems, and construction services
- The company provides high-performance, reliable solutions for residential and commercial solar power systems
- The company collaborates with various companies such as Deye, Sunpower, etc. for customizing the complete solar power system solutions kit based of request
- The company's products are approved by international certification like CEC, INMETRO, FIDE, etc. and domestic certification like CQC, Leader, ISO9001, ISO14001, and OHSAS18001
- The company has its global presence in regions such as North America, Europe, Asia Pacific, and Latin America

BUSINESS STRATEGIES

COLLABORATION

- On October 15, 2024, Sunrover Power Co., Ltd entered into a collaboration with Deye to enhance the availability and adoption of solar micro inverters in the market. This partnership aims to leverage Deye's advanced inverter technology to provide efficient and reliable solar energy solutions. Deye is a provider of solar inverters and energy storage solutions, specializing in renewable energy products for residential and commercial applications.



COMPANY DETAILS

Company Name
Zhejiang HIITIO New Energy Co., Ltd

Established
2018

Website
www.hiitio.com

Key Management
Mr. Andrew J. Gilmour (CEO)

Headquartered
Zhejiang, China

Employee Strength (2023)
~500+

COMPANY OVERVIEW

- Zhejiang HIITIO New Energy Co., Ltd specializes in the design and manufacture of high-voltage DC electrical devices tailored for the new energy sector
- The company offers products including high-voltage DC contactors, fuses, and power semiconductors like SiC and IGBT modules, along with high-voltage DC devices such as circuit breakers and surge protection devices
- The company also offers solar system components like micro inverters, power optimizers, and DC circuit breakers, along with LiFePO4 lithium batteries, HVAC/R components, and industrial motor control solutions
- The company serves clients across industries such as energy, automotive, solar, and industrial applications
- The company has its global presence in regions such as North America and Asia Pacific

PRODUCT/SERVICE PORTFOLIO

Products/Services	Description
300W PV Micro Inverter	The micro inverter supports a maximum input power of 300W with a voltage range of 16V to 50V. It offers a single-phase grid output for 120V or 230V systems, with a peak efficiency of 95%. Designed for ease of use, it features Wi-Fi communication for cloud monitoring and has an IP66 waterproof rating. The unit is efficient, operating in temperatures from -40°C to +65°C and requires no additional ground for installation.
350W PV Micro Inverter	The micro inverter supports single-phase 120V/230V grids with a maximum of 10 units per branch at 230V. It offers 350W max input power, operates in an MPPT range of 16-48V, and delivers >95% efficiency. Its compact, IP66-rated design ensures natural cooling, cloud monitoring, and integrated safety protections.
400W PV Micro Inverter	The micro inverter supports single-phase 120V/230V grids with up to 10 units per branch at 230V. It handles 400W max input power with an MPPT range of 16-48V, offers >95% efficiency, and features IP65 protection with natural cooling. Integrated safety functions, reverse power transfer, and Wi-Fi cloud monitoring enhance its performance and usability.
600W PV Micro Inverter	The micro inverter supports single-phase 120V/230V grids with up to 10 units per branch at 230V. It handles 600W max. input power (2x300W PV modules) with an MPPT range of 22-48V and >95% efficiency. Its IP65-rated design features dual MC4 connectors, reverse power transfer, and Wi-Fi cloud monitoring. Built-in protections and natural cooling enhance safety and reliability.

PRODUCT/SERVICE PORTFOLIO	
Products/Services	Description
700W PV Micro Inverter	The micro inverter supports single-phase 120V/230V grids with up to 5 units per branch at 230V. It features dual MC4 connectors, an MPPT range of 22-48V, and 95% nominal efficiency with IP66 protection. Natural convection cooling, Wi-Fi cloud monitoring, and integrated safety features ensure reliable operation.
800W PV Micro Inverter	The micro inverter supports single-phase 120V/230V grids with up to 10 units per branch at 230V. It handles 800W max input power (2x400W PV modules) with an MPPT range of 22-48V and >95% efficiency. Its IP65-rated design features dual MC4 connectors, Wi-Fi cloud monitoring, and natural convection cooling. Advanced protections and load-priority power transmission enhance safety and performance.
1000W PV Micro Inverter	The micro inverter supports single-phase 120V/230V grids with up to 5 units per branch at 230V. It features dual MC4 connectors, an MPPT range of 22-48V, and >95% efficiency with IP66 protection and natural convection cooling. Advanced protections, Wi-Fi cloud monitoring, and load-priority power transmission ensure reliability and performance.
1200W PV Micro Inverter	The micro inverter supports single-phase 120V/230V grids with up to 4 units per branch at 230V and 1,200W input power (4x300W PV modules). It offers an MPPT range of 22-48V, >95% efficiency, and IP65 protection with natural cooling. Features include Wi-Fi monitoring, load-priority power transfer, and advanced safety protections.

PRODUCT/SERVICE PORTFOLIO

Products/Services	Description
1400W PV Micro Inverter	The micro inverter supports single-phase 120V/230V grids with up to 4 units per branch at 230V, handling 1,400W input power (4x350W PV modules) with an MPPT range of 22-48V. It features IP65 protection, natural convection cooling, and Wi-Fi cloud monitoring. The inverter ensures >95% efficiency, advanced safety protections, and load-priority power transmission for reliable performance.
1600W PV Micro Inverter	The micro inverter supports single-phase 120V/230V grids with up to 4 units per branch at 230V, handling 1,600W input power (4x400W PV modules) with an MPPT range of 22-48V. It features IP65-rated protection, natural convection cooling, and Wi-Fi cloud monitoring. Ensuring >95% efficiency, it incorporates advanced safety features and load-priority power transmission for reliable operation.
2000W PV Micro Inverter	The micro inverter supports single-phase 120V/230V grids with up to 2 units per branch at 230V, handling 2,000W input power (4x500W PV modules) with an MPPT range of 22-48V. It features IP66 protection, natural convection cooling, and Wi-Fi cloud monitoring. Offering >95% efficiency, it includes advanced protection functions and load-priority power transmission for reliable performance.

COMPANY DETAILS

Company Name
Ningbo Deye Inverter Technology Co., Ltd.

Established
2007

Website
www.deyeinverter.com

Key Management
Mr. Hejun Zhang (Chairman)

Website
www.deyeinverter.com

COMPANY OVERVIEW

- Ningbo Deye Inverter Technology Co., Ltd. caters to the solar micro inverter market, offering cutting-edge photovoltaic power system solutions
- The company provides specialized devices for various applications, from residential to commercial systems, ensuring optimal performance with grid-connected, standalone, and hybrid inverter systems
- The company offers products such as single-phase string inverters, three phase string inverters, inverter (LV), hybrid inverters, micro inverters, solar air conditioners, and accessory & monitoring
- The company also offers solutions for storage power plants, PV grid-tie plants, micro inverter plans, and solar air conditioners
- The company has its global presence in regions such as Europe, North America, and Asia Pacific

PRODUCT/SERVICE PORTFOLIO

Products/Services	Description
SUN-M60/80/100G4-EU-Q0 Micro Inverter	<p>➤ SUN-M60/80/100G4-EU-Q0 is a high-performance single-phase micro inverter designed for residential and commercial solar systems. It features dual MPP trackers, module-level monitoring, and an IP67 rating for durability. The inverter ensures safety with AC overcurrent, overvoltage, short-circuit, and thermal protection, along with rapid shutdown functionality. It integrates WiFi communication for real-time monitoring and boasts a high efficiency of 96.5%, with MPPT efficiency over 99%. Easy to install and compliant with DIN VDE V 0126-95 for human safety, it offers a 25-year design lifetime and a 15-year warranty, ensuring reliable performance.</p>
SUN-M30/40/50G4-EU-Q0	<p>➤ SUN-M30/40/50G4-EU-Q0 is a single-phase micro inverter with 1 MPP tracker, module-level monitoring, and IP67 protection, designed for residential and small-scale solar systems. It offers WiFi connectivity for real-time monitoring, rapid shutdown for safety, and supports easy installation for quick-plug balcony PV systems. With maximum efficiency of 96.5% and MPPT efficiency over 99%, it ensures optimal energy conversion. The inverter complies with safety standards like DIN VDE V 0126-95 for fast AC discharge and provides protection against overcurrent, overvoltage, and short circuits. With a 25-year design lifetime, 15-year warranty, and low-maintenance external relay, it guarantees long-term reliability and durability.</p>

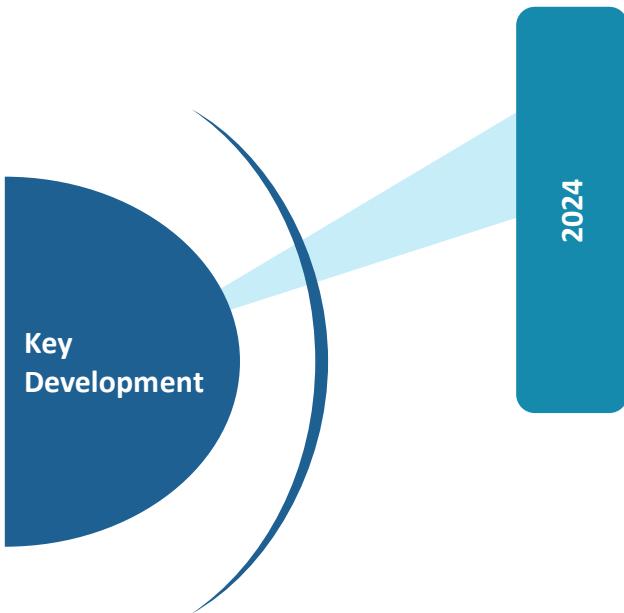
PRODUCT/SERVICE PORTFOLIO

Products/Services	Description
SUN-M130/160/180/200G4-EU-Q0	<p>➤ SUN-M130/160/180/200G4-EU-Q0 micro inverters are single-phase devices equipped with 4 MPP trackers, ensuring efficient module-level monitoring and higher energy yields. They offer IP67 protection, WiFi communication, and a rapid shutdown function for enhanced safety. These inverters are compatible with PV modules up to 700W and provide maximum DC input current of 18A. With rated power outputs ranging from 1,300W to 2000W and a maximum efficiency of 96.5%, they guarantee reliable energy conversion. The inverters are backed by a 10-year warranty and are designed with features such as overcurrent protection, thermal protection, and efficient grid connectivity.</p>
SUN-M220/225G4-EU-Q0	<p>➤ SUN-M220/225G4-EU-Q0 micro inverters are designed for single-phase systems with 4 MPP trackers, providing efficient module-level monitoring. They offer a power output range of 2,200W to 2,250W, with a maximum DC input current of 18A, supporting PV modules up to 790W. These inverters are equipped with WiFi communication, IP67 protection, and a rapid shutdown function for safety. With a 10-year warranty, they feature a high efficiency of 96.5% and excellent grid compatibility. Additional protective features include DC polarity reverse connection protection, overcurrent protection, and thermal protection.</p>

PRODUCT/SERVICE PORTFOLIO

Products/Services	Description
SUN-BK60/80/100/SG01-EU-AM2	<p>➤ SUN-BK60/80/100/SG01-EU-AM2 series is a micro hybrid inverter that supports both solar and battery systems, featuring a power output range from 600W to 1,000W with two MPP trackers. It is equipped with WiFi communication, and wireless CT, smart switches, and BMS communication, allowing for seamless integration with existing solar systems. The inverters offer a maximum charging and discharging current of 25A and can operate in micro inverter or storage inverter modes. They provide UPS load support with fast switching within 4ms. With an IP67 protection rating and a 10-15-year warranty, these inverters are designed for durability and efficiency, offering a maximum efficiency of 96.5% and comprehensive protection features, including overcurrent, overvoltage, and short circuit protection.</p>

KEY DEVELOPMENT



- On August 9, 2024, Ningbo Deye Inverter Technology Co., Ltd. achieved a significant milestone of 2GW in cumulative shipments to India by June 2024, after entering the market in 2018. The company's growth is driven by supportive government policies, a growing economy, and strong partnerships with distributors and installation networks. Ningbo Deye Inverter Technology Co., Ltd. offers a range of PV and energy storage solutions and continues to innovate, with new products like 80kW 3-phase HV solutions and 60/120kWh ESS coming soon. With a focus on affordability, reliability, and service, Ningbo Deye Inverter Technology Co., Ltd. expects to reach another milestone this year.

BUSINESS STRATEGIES

AGREEMENT

- On April 4, 2023, Ningbo Deye Inverter Technology Co., Ltd. announced a business cooperation agreement with Menlo Electric, a major distributor of solar components in Europe, the Middle East, and Africa. The company supplies versatile inverter systems to meet Europe's energy demands. Menlo Electric delivered over 600 MW of components to 30 countries in 2022 and is a key distributor for brands like Jinko Solar and Risen Energy. Ningbo Deye Inverter Technology Co., Ltd.'s hybrid inverters, popular for their diesel generator and AC coupling features, will now be part of Menlo Electric's portfolio. This partnership aims to enhance Ningbo Deye Inverter Technology Co., Ltd.'s brand visibility and provide local support across Europe.



SECTION 11

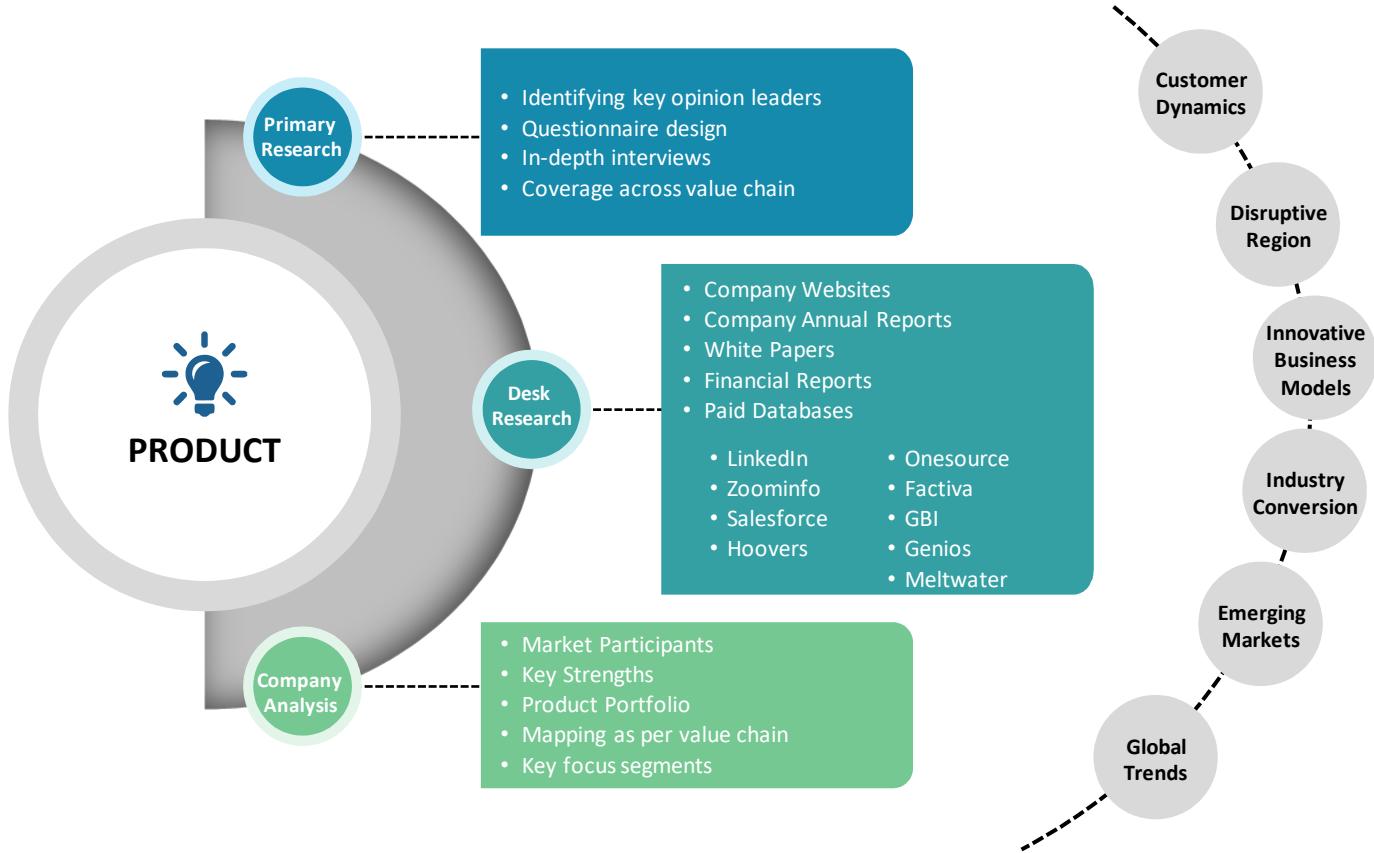
RESEARCH METHODOLOGY, ABOUT US & SERVICES

RESEARCH PROCESS

Our research is an optimum culmination of secondary and primary research, with the latter playing a major role. We also have an in-house repository and access to a number of external regional and global paid databases to help address specific requirements of our clients. The research process begins with a holistic secondary research, followed by expert interviews. The information gathered is then comprehensively analyzed by our highly experienced in-house research panel.

PROPOSAL & MARKET TAXONOMY	MARKET ANALYSIS	MARKET EVALUATION & FORECASTING	DATA VERIFICATION AND VALIDATION	SERVICE/REPORT LAUNCH
<ul style="list-style-type: none">▪ Market Scope▪ Technical Analysis▪ Market Taxonomy▪ Prospect Database	<ul style="list-style-type: none">▪ Future Growth Prospects▪ Market Trend Analysis▪ Competitive Landscape▪ Absolute dollar opportunity▪ Ecosystem Analysis▪ Regional Trends and Analysis	<ul style="list-style-type: none">▪ Historic Data▪ Current Market Size▪ Future Market Potential	<ul style="list-style-type: none">▪ Primary Research▪ Data Standardization▪ Expert Panel Interviews▪ Response Analysis▪ Holistic analysis using Data Triangulation Methodology	<ul style="list-style-type: none">▪ Press Release▪ Whitepaper▪ Social Media▪ Campaigns Consultation
<ul style="list-style-type: none">▪ Pilot Prospect		<ul style="list-style-type: none">▪ Reconsideration▪ Value Addition		

RESEARCH APPROACH



SYSTEMATIC RESEARCH APPROACH

Market profiling

1

In-depth secondary research is used to ascertain overall market size, top industry players, top products, industry associations, etc

Formulating discussion guide

2

In order to conduct expert and industry interviews, We formulates a detailed discussion guide

Developing list of respondents

3

List of entities in the ecosystem and industry experts is developed

Data collection

4

We conducts interviews with entities in the ecosystem and independent veterans

Data validation

5

Data is validated by triangulation method, in which secondary, primary and Internal analysis contribute to the final data

Data analysis

6

The data is scrutinized using MS-Excel to obtain qualitative and quantitative insights about the industry

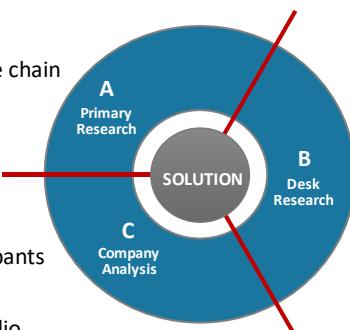
Insights

7

We delivers industry insights and information in the required format (PDF)



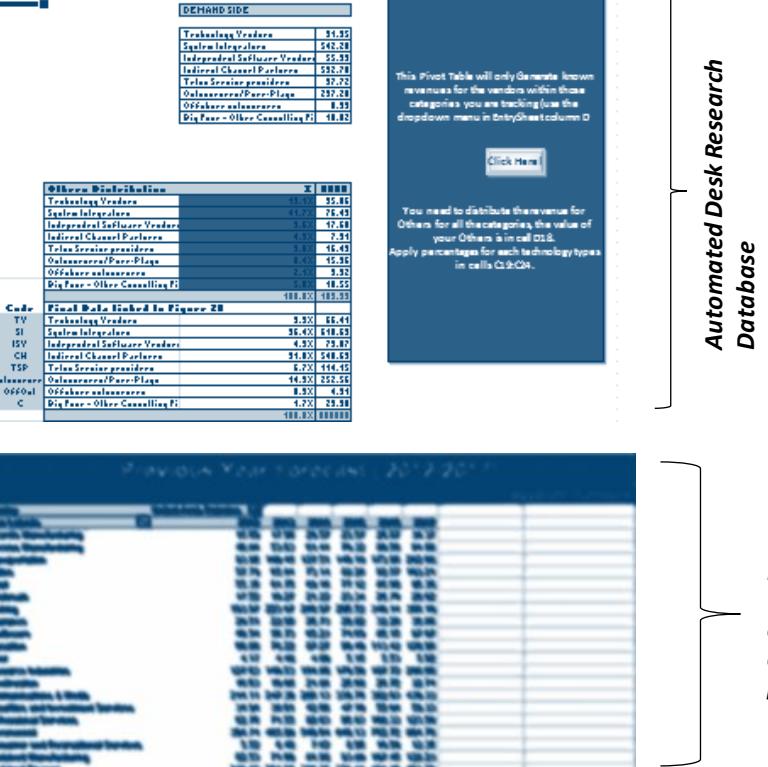
- Identifying key opinion leaders
- Questionnaire design
- In-depth interviews
- Coverage across value chain



- Market Participants
- Key Strengths
- Product Portfolio
- Mapping as per Value Chain
- Key Focus Segments

- Key Industry Experts
- Channel Study
- Developments
- Market Dynamics
- Products
- Conclusions

RESEARCH METHODOLOGY



includes sources of databases



THANK YOU



To know more about us, visit our website:

www.coherentmarketinsights.com



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RELIABILITY & REPUTATION:



860519526

ESOMAR²⁴
Individual

Clutch
4.5 ★★★★☆



Ranked among the Top 3 Globally in
Top Market Research Agencies
by Reverb



9001:2015



27001:2022



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