

CEO Letter to Shareholders 2023



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Use of forward-looking statements

This presentation contains forward-looking statements made pursuant to the Safe Harbor provisions of the Private Securities Litigation Reform Act of 1995, including but not limited to statements concerning our future financial performance; our business strategies, including our operations and anticipated trends and developments in markets in which we operate and in the markets in which we plan to expand: our expectations as to the impact and evolving current geopolitical issues and macroeconomic trends; the anticipated release, shipment, and market adoption of Enphase's new products and technologies; the capabilities, performance and benefits of our technology and products, including future products, features and services, and the reduction of commissioning times for installers: the ability to optimize and customize products, load disaggregation, monitoring and management; our performance in operations, including manufacturing, product capacity, training, and customer service; and statements concerning manufacturing strategies and potential for market growth. These statements are based upon current expectations that involve risks and uncertainties. Any statements that are not of historical fact, may be forward-looking statements. Words used such as "anticipates," "believes," "continues," "designed," "estimates," "expects," "goal," "intends," "likely," "may," "ongoing," "plans," "projects," "pursuing," "seeks," "should," "will," "would" and similar expressions are intended to identify forward looking statements, although not all forward-looking statements contain these words. All forward-looking statements are based on our current assumptions, expectations and beliefs, and involve substantial risks and uncertainties that may cause results, performance or achievement to materially differ from those expressed or implied by these forward-looking statements. Therefore, you should not place undue reliance on our forward-looking statements. A detailed discussion of risk factors that affect our business is included in the filings we make with the Securities and Exchange Commission (SEC) from time to time, including our most recent reports on Form 10-K and Form 10-Q, particularly under the heading "Risk Factors." Copies of these filings are available on the Enphase website at http://investor.enphase.com/sec.cfm, or on the SEC website at www.sec.gov. All forward-looking statements in this presentation are based on information currently available to us, and we assume no obligation to update these forward-looking statements in light of new information or future events.

Industry Information

Information regarding market and industry statistics in this presentation is based on information available to us that we believe is accurate. It is generally based on publications that are not produced for purposes of economic analysis.

Non-GAAP Financial Metrics

- We have presented certain non-GAAP financial measures in this presentation. Generally, a non-GAAP financial measure is a numerical measure of a company's performance, financial position, or cash flows that either exclude or include amounts that are not normally excluded or included in the most directly comparable measure calculated and presented in accordance with generally accepted accounting principles in the United States (GAAP). Reconciliation of each non-GAAP financial measure to the most directly comparable GAAP financial measure can be found in the accompanying tables to this presentation. Non-GAAP financial measures presented by us include non-GAAP gross profit, gross margin, operating expenses, income from operations, net income, net income per share (basic and diluted) and free cash flow.
- These non-GAAP financial measures do not reflect a comprehensive system of accounting, differ from GAAP measures with the same captions and may differ from non-GAAP financial measures with the same or similar captions that are used by other companies. In addition, these non-GAAP measures have limitations in that they do not reflect all of the amounts associated with our results of operations as determined in accordance with GAAP. As such, these non-GAAP measures should be considered as a supplement to, and not as a substitute for, or superior to, financial measures calculated in accordance with GAAP. We use these non-GAAP financial measures to analyze our operating performance and future prospects, develop internal budgets and financial goals, and to facilitate period-to-period comparisons. We believe that these non-GAAP financial measures reflect an additional way of viewing aspects of our operations that, when viewed with our GAAP results, provide a more complete understanding of factors and trends affecting our business.
- · As presented in the "Reconciliation of Non-GAAP Financial Measures" page,

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each of the non-GAAP financial measures excludes one or more of the following items for purposes of calculating non-GAAP financial measures to facilitate an evaluation of our current operating performance and a comparison to our past operating performance:

- Stock-based compensation expense. We exclude stock-based compensation expense from our non-GAAP measures primarily because they are non-cash in nature. Moreover, the impact of this expense is significantly affected by our stock price at the time of an award over which management has limited to no control.
- Acquisition related expenses and amortization. This item represents expenses incurred related to our business acquisitions, which are non-recurring in nature, and amortization of acquired intangible assets, which is a non-cash expense. Acquisition related expenses and amortization of acquired intangible assets are not reflective of our ongoing financial performance.
- Restructuring and asset impairment charges. We exclude restructuring and asset impairment charges due to the nature of the expenses being unusual and arising outside the ordinary course of continuing operations. These costs primarily consist of fees paid for cash-based severance costs and asset write-downs of property and equipment and acquired intangible assets, and other contract termination costs resulting from restructuring initiatives.
- Reserve for non-recurring legal matter. This item represents a charge taken for the potential settlement cost related to a dispute with a vendor. This item is excluded as it relates to a specific matter and is not reflective of our ongoing financial performance.
- Non-cash interest expense. This item consists primarily of amortization
 of debt issuance costs and accretion of debt discount because these
 expenses do not represent a cash outflow for us except in the period
 the financing was secured and such amortization expense is not
 reflective of our ongoing financial performance.
- Non-GAAP income tax adjustment. This item represents the amount adjusted to our GAAP tax provision or benefit to present the non-GAAP tax amount based on cash tax expense and reserves for periods prior to 2023. Effective January 1, 2023, we updated our methodology of computing the non-GAAP income tax adjustment from reporting cash tax expense and reserves to the projected non-GAAP annualized effective tax rate as we utilized most of our net operating loss and tax credit carryforwards in the year ended December 31, 2022, and became a significant cash taxpayer in the United States. Going forward, we will exclude the income tax effects of GAAP adjustments such as stock-based compensation, amortization of purchased intangibles, and other non-recurring items that are not reflective of our ongoing financial performance.
- Non-GAAP net income per share, diluted. We exclude the dilutive effect of in-the-money portion of convertible senior notes as they are covered by convertible note hedge transactions that reduce potential dilution to our common stock upon conversion of the Notes due 2025, Notes due 2026 and Notes due 2028, and includes the dilutive effect of employee's stock-based awards and the dilutive effect of warrants. We believe these adjustments provide useful supplemental information to the ongoing financial performance.
- Net IRA benefit. This item represents the advanced manufacturing production tax credit ("AMPTC") from the IRA for manufacturing microinverters in the United States, partially offset by the incremental manufacturing cost incurred in the United States relative to manufacturing in Mexico, India, and China. The AMPTC is accounted for by us as an income-based government grants that reduces cost of revenues in the consolidated statements of operations.
- Free cash flow. This item represents net cash flows from operating activities less purchases of property and equipment.



Badri Kothandaraman President and CEO

"Our employees around the world worked tirelessly to deliver innovative products and services to our customers as we navigated through the macroeconomic conditions."

Dear fellow shareholders,

2023 was challenging. The solar industry suffered through a period of slowdown in overall demand. This was primarily because of high interest rates in the United States, the NEM 3.0 transition in California, and macroeconomic conditions in Europe. Our installer and distributor partners faced a tough time due to the reduced demand. Many of them were forced to reorganize their businesses and some unfortunately had to shut down.

Our revenue for 2023 was flat compared to 2022. The second half of the year was more difficult than the first half. We collaborated closely with our installer partners to assist them as much as possible. We made several improvements to our quality and service. We released many new products into Europe and other countries. We maintained pricing discipline, free cash flow, and profitability. We undertook restructuring actions to reduce our spending. We developed business processes to better forecast our business and manage our channel.

We remain unfazed in our efforts to advance a sustainable future for all. Our strategy is unchanged. We are more determined than ever before to create solar and battery systems powering energy independence for consumers that enable them to make, use, save, and sell their own power. We view the macroeconomic slowdown as no more than a minor blip and are confident in the solar industry's resilience to return to sustained growth.

Our employees around the world worked tirelessly to deliver innovative products and services to our customers as we navigated through the macroeconomic conditions. As a result of their collective efforts, we managed to maintain our operational excellence during 2023. Our culture playbook is a reminder of how we work together and achieve results.

As is customary, this letter offers insights into our past year's performance, reinforces our strategic priorities, and outlines our key focus areas for 2024.



Our 2023 performance

"We shipped 15.5 million microinverters in 2023, compared to 15.4 million microinverters in 2022."

For the full year 2023, our revenue saw a modest sequential decline of 1.7% to \$2.29 billion, compared to \$2.33 billion in 2022. We shipped 15.5 million microinverters in 2023, compared to 15.4 million microinverters in 2022. Notably, our non-GAAP gross margin expanded to 45.3%,¹ excluding the Inflation Reduction Act (IRA) net benefit and surged to 47.1%,¹ when factoring in the IRA net benefit - achieved through the domestic manufacturing of our microinverters in the United States. In addition, we generated positive free cash flow for all quarters in 2023 and exited the year with approximately \$1.70 billion in cash, cash equivalents, and marketable securities, an increase of over \$80 million from 2022. Despite the working capital constraints faced by our customers, our team excelled in collaborating with them, resulting in a healthy cash balance and positive free cash flow.

In July 2023, our Board of Directors approved a share repurchase program with authorization to purchase up to \$1.0 billion worth of shares of our common stock. In 2023, we repurchased 3,284,368 shares of our common stock, representing 2.4% of our outstanding shares, at an average price of \$124.83 per share for a total of \$410.0 million. Our approach to stock repurchases is methodical, prioritizing the needs of our business while maintaining adequate reserves for potential acquisitions and strategic investments. Only then do we engage in opportunistic share repurchases if we believe that our share price is less than a conservatively calculated intrinsic value.

Our global regional revenue was mixed, with Europe growing and the United States declining

Our revenue distribution between the United States and international markets in 2023 stood at 64% and 36%, respectively.

During 2023, we managed through a correction in the U.S. solar market after three years of phenomenal growth - a period in which the residential solar market had doubled, and Enphase sales had tripled. In 2023, our revenue in the United States decreased 17% from 2022. As I mentioned in my introduction, high interest rates and the NEM 3.0 transition in California were the main drivers for the decrease. Starting in the second guarter of 2023, we faced elevated inventory in the channel as a result of the slowdown. In response, we took prudent actions in the United States to curtail shipments and decrease channel inventory through the rest of 2023. California transitioned to NEM 3.0 in the second quarter of 2023. While solar installations in California suffered as a result in the second half of the year, the battery attach rate increased to greater than 80% for NEM 3.0 systems.

ENPHASE CEO LETTER TO SHAREHOLDERS 2023

Our European business was strong overall in 2023 with a 60% increase from 2022, despite plummeting demand in the second half of 2023, which required us to make rapid inventory corrections in the channel. Our three largest markets in Europe continued to be in the Netherlands, France, and Germany. In the Netherlands, demand was impacted because consumers were fearing an export penalty for solar, along with confusion around the ending of net metering. We expect our business to improve as we offer a comprehensive solution with solar-plus-batteries and energy management software that we believe will help unlock the potential of the Dutch energy market. We also believe other markets will have great possibilities. In France, we see potential for the market to grow and evolve into a solar-plus-battery market as utility rates moved higher in 2023 and are expected to increase even more in 2024. In Germany, the residential solar market, the largest in Europe, is around 3 GW and storage attach rates are approximately 80%. We also introduced products into the United Kingdom, Italy, and several other countries in Europe.



We integrated the IQ[®] Energy Router products from our GreenCom Networks acquisition into our home energy management systems (HEMS) in Germany, Austria, and Switzerland during 2023. These products have the ability to network third-party EV chargers and heat pumps with Enphase solar-plusbattery systems. The benefit to homeowners is reduced electricity bills due to increased self-consumption, and control via the Enphase® App. As we think about our competitive positioning in Europe, we see complex power markets such as dynamic tariffs and home energy management needs play right into our strengths. Our complete HEMS solutions can help homeowners navigate these complex tariffs and manage EVs and heat pumps, all from their Enphase App.

Coming to the international regions, we introduced our IQ8™ family of microinverters and third-generation batteries in Australia. We also started shipping our 480 W IQ8P™ Microinverters to support the growing demand for high-powered solar panels in Brazil, India, and Mexico.





Enphase App showing solar, battery, EV, and heat pump



"The IRA legislation enabled Enphase to begin manufacturing in the United States, bring back hightechnology jobs, and advance the country's clean energy economy."

Our operations team did an outstanding job in enabling microinverter shipments from our contract manufacturing facilities in the United States

The microinverter supply landscape remained stable throughout 2023. As for Enphase IQ[®] Batteries, we have two cell pack suppliers, both in China, which have ample manufacturing capacity to support our ramp in 2024. In addition, we will have the capability to manufacture IQ Batteries in the United States in the second half of 2024 at the Salcomp, Texas facility.

On August 12, 2022, President Biden signed the IRA into law, marking the most significant action the U.S. Congress has taken on clean energy and climate change in the nation's history. The IRA legislation enabled Enphase to begin manufacturing in the United States, bring back high-technology jobs, and advance the country's clean energy economy. Starting in the second quarter of 2023, we began shipments from our contract manufacturing partners in the United States. We are pleased that U.S. President Biden was able to visit the Flex South Carolina facility on July 6, 2023 and inaugurate the function. Our other contract manufacturer in the United States, Salcomp, commenced microinverter shipments from its Texas facility in August 2023.

In line with our efforts to streamline manufacturing, we ceased operations at our contract manufacturing site in Romania. We now have five contract manufacturing locations for microinverters - Flex China, Flex Mexico, Flex South Carolina, Salcomp India, and Salcomp Texas. Collectively, once fully ramped these facilities will have a global capacity of approximately 7.25 million microinverter units per guarter, of which 5 million units will be in the United States.



President Joe Biden at the Flex manufacturing facility event in Columbia, South Carolina

Our smartest microinverters yet



We ramped up shipments of IQ8 Microinverters worldwide and introduced a new high-power variant for emerging residential markets

Throughout 2023, we significantly expanded the distribution of our IQ8 Microinverters, reaching 21 countries worldwide. In 2024, we plan to introduce IQ8 Microinverters into several additional countries across Europe and Asia.

In 2023, we introduced the IQ8P Microinverter, boasting a peak output AC power of 480 W tailored for residential segments in emerging markets. Designed to support panels of up to 650 W DC, we launched IQ8P in Brazil, Mexico, India, and Vietnam, with plans for further expansion in 2024.

Another variant of the IQ8P Microinverter, featuring a new 3-phase cabling system, caters to small commercial 208 V solar installations ranging from 20 to 200 KW and is currently shipping to customers in North America. With the global small commercial market estimated at over 11 GW, we are confident in the value our microinverter systems bring to business owners and installers. We believe our commitment to high quality, rapid shutdown capability, and microgrid-forming capability positions us well to serve the small commercial market.

We started shipping our IQ Smart EV Chargers in the United States and Canada

We launched our IQ[®] Smart EV chargers in the United States and Canada in the fourth quarter of 2023. The Wi-Fi enabled charger is now integrated into the Enphase[®] Energy System. This enables use cases such as selfconsumption and green charging and allows homeowners visibility into their systems through their Enphase App. Looking ahead, we are developing IQ Smart EV chargers for Europe. In addition, we are diligently working on our bi-directional EV charger that we expect to introduce in 2025.

"We believe our commitment to high

quality, rapid shutdown capability,

and microgrid-forming capability positions us well to serve the small

commercial market."

We shipped 351.6 megawatt hours of IQ Batteries during the year

Enphase IQ Batteries are microinverter-based storage systems built on our Ensemble[™] energy management technology. At the close of 2023, we were shipping our IQ Batteries to customers across North America, Belgium, Germany, Austria, France, the Netherlands, Switzerland, Spain, Portugal, Sweden, Denmark, Greece, the United Kingdom, and Australia.

"At the close of 2023, we were shipping our IQ Batteries to customers across North America, Belgium, Germany, Austria, France, the Netherlands, Switzerland, Spain, Portugal, Sweden, Denmark, Greece, the United Kingdom, and Australia."

Our IQ Batteries are AC-coupled and feature safe Lithium Iron Phosphate (LFP) chemistry, low voltage DC operation, modularity in 3.3 kWh or 5 kWh units, and air cooling. The microinverter architecture of the batteries improves serviceability and redundancy. The AC architecture enhances self-consumption by allowing solar and storage to collectively power home loads. The IQ® Load Controller gives homeowners the ability to choose which appliances to power during a grid outage, with the ability to shed up to four loads.



Enphase IQ Batteries have lithium iron phosphate (LFP) chemistry for maximum safety

"The IQ Battery 5P has a modularity of 5 kWh and delivers the best power specs and commissioning times of any Enphase battery to date, at an industry-leading 15-year warranty."

In May 2023, we introduced our third-generation IQ[®] Battery 5P, which has been well-received by installers. The IQ Battery 5P has a modularity of 5 kWh and delivers the best power specs and commissioning times of any Enphase battery to date, at an industry-leading 15-year warranty. By the end of 2023, we were shipping the IQ Battery 5P to customers in the United States, Puerto Rico, Australia, and the United Kingdom. We also launched this battery into Italy during the fourth guarter of 2023 and expect to start shipping to more countries in 2024. Battery adoption rates are on the rise globally, and we believe we are well-positioned to grow our battery sales in 2024.

We continued to partner with aggregators and utilities to enable grid services during 2023. Grid services help utility companies avoid using electricity from expensive, polluting power plants when electricity demand is high. In return, homeowners in certain locations can receive hundreds to thousands of dollars from the utilities towards the purchase of IQ Batteries or as annual incentive payments.



Grid services events can be managed by homeowners from the Enphase App

We remained unwavering in our dedication to enhancing customer experience, fortified our training initiatives globally, and broadened the reach of our installer network

Our worldwide customer service Net Promoter Score (NPS) surged to 77 in 2023, compared to 69 in 2022. We worked on root cause fixes to eliminate problems, trained our customer service personnel, expanded our field service teams globally, and improved our business processes. In addition, we made good progress on solving customer problems by using the data streaming from our systems to the cloud, identifying problem patterns and rolling out software fixes to the fleet. Our data science team works proactively to identify fleet problems and fix them before customers call us.

"Quality is at the forefront in every step of our design and manufacturing process, and we have established some of the industry's most rigorous quality standards." Quality and reliability remained integral to Enphase in 2023. Our goal is to provide the most reliable and resilient energy systems. Quality is at the forefront in every step of our design and manufacturing process, and we have established some of the industry's most rigorous quality standards. For microinverters, our target is less than 500 defective parts per million (DPPM), which translates to a failure rate of less than 0.05%, shipped on an annualized basis. In practice, we operate close to the target. Our target is similar for IQ Batteries.

Manufacturing line at our Flex contract manufacturing facility in Columbia, South Carolina

"We expanded our installer training programs for our batteries in 2023 and have certified more than 4,700 installers worldwide for our IQ Batteries." Our installer training programs continued to expand in 2023. We offered more than 45 different certification and qualification courses on our products, and they are available in 18 native languages across the United States, Latin America, Europe, South Africa, Australia, and Brazil. We expanded our installer training programs for our batteries in 2023 and have certified more than 4,700 installers worldwide for our IQ Batteries. We have more than 12 regional training centers spread across the United States, and use vans equipped with our products to bring training to installers in remote locations across the United States and Puerto Rico. We also have dedicated training events in the United Kingdom, the Netherlands, Belgium, France, Spain, Italy, Austria, Germany, Poland, Sweden, Denmark, South Africa, Australia, the Philippines, Thailand, India, and Brazil, with more planned in 2024. Training is also available on demand via our YouTube channels spanning the globe, where we currently have more than 6,000 subscribers.

In addition, by the end of 2023, we expanded our Enphase Installer Network (EIN) in the United States, Australia, the Netherlands, Belgium, France, the United Kingdom, Mexico, Puerto Rico, and India. Our EIN has been a highly successful initiative as we continue to add trusted installers who act as our product evangelists and are expected to provide exceptional experiences to homeowners across the globe. By the end of 2023, we had approximately 1,750 installers in our EIN worldwide through a highly selective process focused on installation quality and homeowner experience.



Installer training in the Sacramento, California regional training center

Your all-in-one design and proposal tool



In 2019, Enphase embarked on a mission to develop a comprehensive digital platform for installers, encompassing tools for designing, permitting, installing, monitoring, and maintaining solar and battery systems. Over the course of four years, we meticulously crafted a robust suite of tools and services on our digital platform, with the overarching goal of streamlining the sales process, reducing soft costs, and delivering an unparalleled experience to installers worldwide.

We rolled out numerous enhancements to the Solargraf® software platform for design, proposal, and permits throughout 2023. These updates included smart panel placement, battery design, document management, electrical design, and single line diagram features, alongside continued support for NEM 3.0 functionality in California. NEM 3.0 incentivizes homeowners to embrace solar and battery systems to avoid energy imports during peak-rate periods while compensating for energy export during the times when the grid is stressed. The Solargraf software simplifies NEM 3.0 proposals for installers by making solar and battery design easy, optimizing electricity bill offsets and payback.

2024.

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We continued to enhance our digital platform for installers

Solargraf is currently accessible to installers in the United States, Canada, Germany, Austria, and Brazil, with plans for expansion into additional markets including the Netherlands, France, Australia, and several other countries in

We upheld strong financial discipline despite navigating through difficult times

In 2023, we achieved a 47% gross margin, 17% operating expense, and 30% operating income, all calculated as a percentage of revenue on a non-GAAP basis,¹ including the net IRA benefit. Our improved gross margin is primarily due to pricing discipline and cost management along with executing the IQ8 transition globally. Our GAAP net income for 2023 amounted to \$438.9 million, resulting in diluted earnings per share of \$3.08. Our non-GAAP net income totalled \$613.2 million, resulting in diluted earnings per share of \$4.41.

Below is a summary of our financial performance for 2023 compared to 2022, with 2018 financials provided for a comprehensive five-year overview. All dollar amounts are presented in thousands, except for per share data and percentages:

	GAAP		
	2023	2022	2018
Revenue	\$ 2,290,786	\$ 2,330,853	\$ 316,159
Gross Margin	46.2 %	41.8 %	29.9 %
Operating Expense	26.7 %	22.6 %	29.4 %
Operating Income	\$ 445,741	\$ 448,261	\$ 1,596
Net Income (loss)	\$ 438,936	\$ 397,362	\$ (11,627)
Basic EPS	\$ 3.22	\$ 2.94	\$ (0.12)
Diluted EPS	\$ 3.08	\$ 2.77	\$ (0.12)
Cash, cash equivalents and marketable securities	\$ 1,695,034	\$ 1,612,843	\$ 106,237
Net cash provided by operating activities	\$ 696,780	\$ 744,817	\$ 16,132

	Non-GAAP		
	2023	2022	2018
Revenue	\$ 2,290,786	\$ 2,330,853	\$ 316,159
Gross Margin	47.1 %	42.6 %	30.2 %
Operating Expense	16.7 %	13.0 %	23.7 %
Operating Income	\$ 697,210	\$ 690,292	\$ 20,535
Net Income	\$ 613,241	\$ 647,424	\$ 10,013
Basic EPS	\$ 4.50	\$ 4.78	\$ 0.10
Diluted EPS	\$ 4.41	\$ 4.62	\$ 0.10
Cash, cash equivalents and marketable securities	\$ 1,695,034	\$ 1,612,843	\$ 106,237
Free Cash Flow	\$ 586,379	\$ 698,374	\$ 11,981

"As of December 31, 2023, we had 3,157 employees, and I am proud of their hard work and execution."

We executed on most of the priorities I highlighted in my letter a year ago

In summary, we made significant progress on our priorities, albeit falling short on revenue growth. We enhanced product quality and ensured around-the clock customer support, and achieved a global NPS score of 77. We introduced our third-generation IQ Battery 5P with higher power and reduced commissioning times, while the introduction of IQ8 Microinverters and IQ Batteries expanded our reach across multiple countries. In addition, we successfully launched our small commercial product and IQ Smart EV chargers in the United States. By maintaining a lean approach, we invested in innovation while remaining profitable and generating free cash flow. There is room for improvement in channel management and avoiding manufacturing closures; we are actively addressing these areas for future growth. As of December 31, 2023, we had 3,157 employees, and I am proud of their hard work and execution.



¹See Appendix for GAAP to non-GAAP reconciliation

Enphase employees at an industry tradeshow in Sinsheim, Germany

Our strategic focus



"We are in a historic transition from consumptive, fossil-fuel-based energy generation towards clean, renewable energy generation with zero environmental impact."

Our world is dependent on energy for almost every human activity. We are in a historic transition from consumptive, fossil-fuel-based energy generation towards clean, renewable energy generation with zero environmental impact. We believe that in most geographies, this transition involves local generation of electrical power at every home and business. Consumers will evolve to become prosumers who produce, store, and consume their own clean energy.

Our strategy is simple. We focus on making best-in-class home energy systems that enable homeowners to make, use, save, and sell their own power. We rely on great distribution partners who have a wide reach and can service installers with inventory and working capital. Installers are our lifeblood, and we rely on them to sell our products to homeowners. We recognize the problems that installers face such as soft costs, disparate sales and design tools, and manual processes. We are committed to building an end-to-end installer platform to help streamline and make the entire sales and design process more efficient.

Raghu Belur and Martin Fornage founded Enphase in 2006 based on their deep-rooted belief that an AC-coupled distributed architecture wins in the long run, based on cost, performance, and reliability. To build products based on this architecture, we developed core competencies in semiconductorbased power conversion, software-defined Internet of Things (IoT) systems, and energy management. We build our own application-specific integrated circuits (ASICs) that allow our solar and battery products to convert power efficiently, reliably, and intelligently. Our products are compatible with utility grid and microgrid conditions in virtually every place in the world. Our Ensemble technology can manage energy flows within a home and between homes. Ensemble technology coordinates distributed energy resources (DERs) such as solar microinverters, batteries, and EVs to deliver different use cases for the homeowner such as bill savings, resilience, or self-consumption.



Ensemble AC-coupled distributed architecture

IQ8 Microinverters, our latest product family, are inherently bi-directional and grid-forming, power-conversion devices. IQ8 Microinverters are completely software-defined, using a new ASIC that is approximately 1,000x faster than the previous ASIC used in IQ7™ Microinverters. This allows them to respond instantly to changing conditions and eliminates all sizing constraints between batteries and solar inverters. The grid-forming capability of IQ8 also enables Sunlight Jumpstart and Sunlight Backup, allowing solar systems to function when the utility grid has an outage, even when no batteries or EVs are present or have depleted batteries.

"IQ8 Microinverters pair seamlessly with solar panels up to 650 W of DC power and up to 14 amperes of DC current."

The IQ8 product family includes microinverters with peak output AC power ranging from 245 W to 480 W. IQ8 Microinverters pair seamlessly with solar panels up to 650 W of DC power and up to 14 amperes of DC current. The IQ8P Microinverter supports up to 480 W AC output power and solar panels rated up to 650 W DC, allowing us to address markets where larger format panels are popular, e.g. in Latin America and other emerging markets such as India. The IQ8P Microinverter, along with a new 3-phase cabling system and IQ® Gateway, is also available for U.S. small commercial solar installations ranging from 20 to 200 kW, which is ideal for gas stations, schools, hospitals, churches, small businesses, and other similar facilities.



The IQ8P-3P[™] Microinverter supports up to 480 AC output power

Enphase's AC coupled distributed architecture is beneficial for small photovolataic (PV) systems, such as those in social housing and plug-in balcony solar. There are approximately 2.4 million homes in the social housing segment in the Netherlands; each home could potentially install a PV system with six to nine panels. To improve installation cost, we developed a prewired solution for social housing which integrates the IQ Gateway, IQ[®] Relay, and cellular modem. We are also working on balcony solar solutions, where homeowners install one to two panels on their balconies, patios or gardens and connect the output, currently limited by regulation to 800 W, to a regular home AC socket. Our solution will also enable PV panel output, even when the grid is down, to support small loads during the day. We expect to introduce variants of this product for different geographic regions in 2025.



Solar panels on a social housing residence in the Netherlands

Beyond the IQ8 family of microinverters, we are working on the IQ9™ Microinverter family, which we expect to introduce to the market in 2025. The IQ9 family will support even higher DC input currents up to 18 amperes, as well as higher AC grid voltages including 480 V for the small commercial market. The IQ9 microinverters will use Gallium Nitride (GaN) high-voltage transistors to enable higher output power and lower cost. We are working closely with our GaN suppliers to maximize the benefits of this wide bandgap (WBG) technology for our application. We will also use a proprietary novel isolated driver technology and multiple innovations in magnetics, mechanical, and thermal design to deliver higher power at a lower cost.

After IQ9, we plan to introduce the IQ10[™] family of microinverters that will be built around a new ASIC chipset we believe will raise the bar for functional safety and security in the solar industry, including many features found today in automotive products. This new ASIC utilizes an advanced 22 nm CMOS process that enables a higher level of integration and performance without adding cost or power loss. IQ10 Microinverters will further reduce the cost and size by operating at 4x the switching frequency of IQ9 Microinverters, allowing us to maximize the benefits of GaN and use novel magnetics technologies. IQ10 is designed to support native 3-phase generation as well as neutralforming. IQ10 technology will be used to power our next generation of solar inverters, batteries, and bi-directional EV chargers.

We started shipping batteries to North America in 2020. Since then, we have received a lot of feedback from our installers asking for higher power and robust communication. In 2023, we introduced IQ Battery 5P, our thirdgeneration battery, which delivers higher continuous power and peak power at the same cost. This means homeowners are now able to start heavy loads such as air conditioners and pool pumps with ease. The higher charging and discharging rate of the third-generation battery is also uniquely beneficial to NEM 3.0 systems in California through its ability to generate revenue by exporting into the grid at the appropriate time. The battery uses a wired Controller Area Network (CAN) for increased robustness.

In 2025, we plan to introduce our fourth-generation battery, which is designed to increase energy density by 40%, reduce wall space area by 60%, and reduce cost. This is achieved primarily by optimizing the electronics inside the battery, utilizing our new 1.68 kW AC microinverter variant with integrated battery management and neutral-forming capability. We are also working closely with our battery cell suppliers to advance our battery design life up to 20 years, and to further improve battery safety and reliability. Starting in 2024, our batteries will include microinverters manufactured in our contract manufacturing facilities in the United States, leveraging the IRA.



10 kWh of storage | 12.4 sq. ft. of wall space 7.4 in. deep | 7.6 cu. ft. Max lifting weight is 146 lbs. (for 5 kWh unit)

10 kWh of storage | 4.7 sq. ft. of wall space 14.3 in. deep | 5.6 cu. ft.

Max lifting weight is 126 lbs. (for 5 kWh unit)

"In 2025, we plan to introduce our

fourth-generation battery, which

density by 40%, reduce wall space

is designed to increase energy

area by 60%, and reduce cost."

2 x IQ Battery 5P Third-generation IQ Battery



Fourth-generation IQ Battery

The adoption of EVs is growing rapidly worldwide, especially in Europe and the United States. EV adoption will nearly double the electricity consumption of a typical home, since 80% of charging takes place at home. The charging of EVs will require more solar and storage because in many geographies, the grid does not have the capacity to serve the increased demand this presents; we estimate that each EV requires an additional 10-15 kWh of stationary storage and around 2-3 kWp of solar.

"EV adoption will nearly double the electricity consumption of a typical home, since 80% of charging takes place at home."

We acquired ClipperCreek in 2021 and entered the EV charging market with a brand that stands for quality and service. In 2023, we introduced the IQ Smart EV charger into the United States and Canada, with plans to follow in Europe during 2024. This charger features internet connectivity and is integrated seamlessly into the Enphase home energy system, enabling use cases such as green charging, which means charging the EV only using clean energy. This charger also allows homeowners to view EV charging, solar, and batteries all in the Enphase App. The IQ Smart EV charger provides cost savings for homeowners, avoiding taking energy from the grid when utility tariff rates are high, such as NEM 3.0 in California.



The IQ Smart EV charger integrates seamlessly into the Enphase home energy system

We have also demonstrated bi-directional EV charging and its integration into our Ensemble technology. Using the same proven bi-directional inverter technology for solar and batteries, we created an IQ Smart EV charger that can both charge and discharge an EV based on CHArge de MOve (CHAdeMO) and the Combined Charging Standard (CCS) protocol. We demonstrated the vehicle-to-home (V2H) use case, where the vehicle is providing power to a home while the utility grid is down, and the vehicle-to-grid (V2G) use case where the vehicle is discharging and providing power back to the home for self-consumption or exporting to the utility grid to earn incentives. We continue to collaborate with car makers to ensure interoperability and plan to make the product available to the market in 2025 when more vehicles with bi-directional capability are released.





Enphase bi-directional EV chargers enables EVs to provide power to a home during an outage

We are partnering with aggregators and utilities to enable grid services in geographies where such programs are offered. Grid services programs enable homeowners with IQ Batteries to participate by discharging their batteries, thereby reducing their demand on the grid, and receive compensation in the form of incentives or rebates. As a result, utilities can reduce their dependency on expensive, polluting power plants that traditionally address peak power demand. In Europe, Australia, and other regions, we are seeing more opportunities to tap into additional value pools in the different energy markets like imbalance or ancillary services. Extending our grid services to generate additional benefits for homeowners and partners will be important for us in 2024 and beyond.

"We leverage our extensive knowledge of our large fleet's longterm performance and apply the latest data science and machine learning (ML) algorithms to it." Our Ensemble technology supports the use of generators. These devices fulfill a need when solar energy is insufficient, especially during the winter and in places such as the Northeast region of the United States. During extended outages in the winter season, battery storage may not last, and generators become invaluable. When combined with an Ensemble system, generators are used infrequently, which makes them a good option to enhance resilience in clean energy systems. We made our storage system able to accept generator inputs without the need for an external automatic transfer switch (ATS). A generator appears in the Enphase App and offers a seamless customer experience.

The combination of full home electrification, EVs, increasing energy prices, and complex tariff structures makes it essential that all DERs and major loads in the home are managed optimally. This means coordinating the charging and discharging of residential batteries, the charging and discharging of EVs and major home loads such as heat pumps, air conditioners, pool pumps, and domestic hot water heaters to ensure that the cost of electricity imported from the grid is minimized and the value of electricity exported to the grid is maximized. Optimizing energy flows in the home requires accurate forecasting of energy production, home energy consumption, and tariffs. We leverage our extensive knowledge of our large fleet's long-term performance and apply the latest data science and machine learning (ML) algorithms to it. In geographies where there is a large difference in tariffs between importing and exporting electricity, the difference between basic and optimal energy management can amount to \$1,000 annually per home or more.

Ensemble technology affords us ultimate flexibility in managing DERs and major loads in the home. Our solar and battery systems can work together to maximize savings, carbon offset, and resilience. Our acquisition of GreenCom Networks supports our efforts to provide a premier HEMS solution, bringing extensive experience integrating a diverse set of devices such as solar inverters, battery systems, EV chargers, and heat pumps. In 2023, GreenCom's software was integrated seamlessly in Ensemble to manage these devices intelligently. In addition, we started extending the Artificial Intelligence (AI)-

"The introduction of HEMS software not only allows us to optimally control equipment in the home, but also further extends the capability of our systems to participate in grid services programs." based forecasting and optimization logic of our HEMS solution to other product areas. We believe this AI-based logic will fuel all of our future product releases and will significantly differentiate us in the market. This optimization engine will be applied as well to support dynamic tariffs in different European markets as well as NEM 3.0 in California.

The introduction of HEMS software not only allows us to optimally control equipment in the home, but also further extends the capability of our systems to participate in grid services programs. Where most grid services programs today only allow utilities to leverage specific resources in the home, HEMS software can provide a coordinated response to utility requests, creating a larger and more reliable participation for the utility and more incentive value with less disruption for the homeowner. We are laying the foundation for becoming the intelligent site management behind the meter and being the technical aggregator across portfolios of sites. We will utilize our core strengths of having a deep understanding of the assets behind the meter and our Al-based forecasting and optimization engine.

We have discussed our strategy for all the AC-coupled elements of an Enphase home energy management system: microinverters, batteries, EV chargers, generators, HEMS software, and grid services.



Enphase's HEMS software integrates with third-party devices and uses AI to enhance savings

Today, the IQ[®] System Controller brings it all together, as it performs the functions of a microgrid interconnection device (MID) for safety, power aggregation, connectivity, and neutral-forming. It interfaces with the grid, solar microinverters, batteries, EV, home loads, and provides local control, as well as receives instructions from the cloud and dispatches them to the distributed energy resources onsite. The IQ Gateway uploads data to the Enphase cloud at a regular cadence and all this data is available at the homeowner's fingertips through the Enphase App. The Enphase App provides deep insight into the consumption and production of energy in the home and offers unprecedented control to the homeowner, including disconnecting the home from the utility grid on-demand, and controlling the operation of batteries, EV chargers, and home loads in the event of an outage and more.



The IQ System Controller 3 in Australia combines safety, power aggregation, and connectivity

"Beginning in 2025, we expect to move the MID into a meter collar to simplify backup installations in North America."

Beginning in 2025, we expect to move the MID into a meter collar to simplify backup installations in North America. This simplifies the installation cost particularly for meter-main combo panels in California, where the meter and the main load center are within the same structure. In addition, with the neutral-forming function present in the fourth-generation battery, an external transformer, which was previously embedded in the IQ System Controller is no longer needed. Once that is done, the IQ® Combiner can be used for connectivity and aggregating power obviating the need for an IQ System Controller in North America. In Europe and other international regions, we have already eliminated the IQ Combiner and integrated everything into the IQ System Controller including an MID, as the meter collar is not required.



Our fourth-generation home energy system in North America, planned for 2025

"The PES charges from the grid, or a car or portable solar panels via the back ports, while its front ports provide power to plugged-in loads."

Finally, we plan to introduce the IQ® Portable Energy System (PES) in 2024 for both energy security and energy-on-the-go. This product offers 1.5 kW of power, with 3.0 kW of surge power, from a 1.5 kWh LFP battery. We decided to use LFP battery chemistry in our product to leverage the safety and battery management knowledge we learned making our IQ Batteries. This product can be thought of as Ensemble-in-a-Box; we have integrated our battery management, power conversion, and control technologies into a single selfcontained product. The key differentiating features are its ability to allow a user to charge or discharge at high rates continuously even under warm conditions; compliance with UL safety standards; and usability in outdoor conditions. The PES has a connected user experience through Wi-Fi and cellular, providing insight into its state of charge and power flowing into and out of the product through a mobile app, in addition to the touchscreen on the product. This connectivity allows our users to have access to world class customer service 24x7 that provides remote troubleshooting and the latest software updates. The PES charges from the grid, or a car or portable solar panels via the back ports, while its front ports provide power to plugged-in loads. The PES offers a plug-and-play solution, as it does not require any installation or wiring.



The IQ Portable Energy System provides both energy security and energy-on-the-go

"Although we firmly believe in the value of direct human interaction in customer support, we see many opportunities to improve our homeowner and installer experience by using AI to recognize problems before the homeowner does and address them proactively." No strategy is complete without a discussion about the impact of AI on our business. We see AI as an enabling technology in our industry that will help us to simultaneously scale and improve our products and services. Besides improving how we develop new products and conduct business, we believe there are two specific areas where AI will play an increasingly important role for us. The first area is energy management, which was mentioned earlier. We can improve the quality and performance of our systems by better understanding the behaviors, needs, and patterns in the household, and AI is instrumental for that. The second area is customer and homeowner experience. Although we firmly believe in the value of direct human interaction in customer support, we see many opportunities to improve our homeowner and installer experience by using AI to recognize problems before the homeowner does and address them proactively.

Our 2024 priorities

As we progress in 2024, our primary focus revolves around three areas: customer experience, new products, and operational excellence.

Transform the customer experience

At Enphase, we take pride in serving our customers. Our commitment to delivering an exceptional customer experience begins with shipping value-added products with the highest quality and helping our customers 24x7 with any issues they encounter when using the products. We are striving to deliver world-class collateral to installers through a world-class website. We are aiming to provide a seamless installation and commissioning experience for our products. We also expect to improve the quality of our products by focusing relentlessly on the right metrics, identifying the root cause of returns, and implementing corrective actions. We are enabling better fleet management by bolstering our cloud infrastructure. We plan to collect a great deal of data on the vitals of the product and stream them to our cloud platform. We are anticipating potential product problems by using our data warehouse to organize this data and applying ML/AI techniques to uncover key insights. We are making our products software-defined so that such problems can be solved over-the-air most of the time.

Develop best-in-class new products

New products are our lifeblood. We are working on the next two generations of microinverters – IQ9 and IQ10 to improve the power, form factor, and efficiency of our microinverters to decrease the cost per watt for consumers. We are designing our fourth- and fifth-generation of IQ Batteries to minimize the form-factor, increase the energy density, and reduce the cost for consumers. We are also working on streamlining the balance of system for our batteries, reducing the number of boxes on the wall, and ensuring we pay attention to both product and labor costs for installers. We are working on EV chargers – the IQ Smart EV chargers for Europe and IQ bi-directional EV chargers with V2G and V2H capability. Finally, we are developing AI-based software to manage NEM 3.0 tariffs in California and dynamic tariffs in Europe along with third-party EV chargers and heat pumps. Our IP Portfolio currently includes more than 405 issued patents, and many additional pending worldwide – a testament to our product innovation.

Elevate operational excellence

We expect to elevate our operational excellence in 2024. We plan to focus on key metrics which give us comprehensive insight into the entire solar pipeline including proposals, permits, sell-through, and activations, and improving our channel management. These metrics are instrumental in forecasting our business and strengthening our distributor and installer relationships. We are going to manage product costs, new product transitions, and inventory to best-in-class levels. We will maintain our pricing discipline and continue to price products based on value. While we plan to leverage the IRA by manufacturing in the United States, we will strike a balance with respect to worldwide manufacturing. Finally, embracing a lean and frugal mindset will help us remain as a high-performance organization.

"We plan to focus on key metrics

which give us comprehensive

our channel management."

insight into the entire solar pipeline

through, and activations, improving

including proposals, permits, sell-

Our most powerful, all-in-one home energy solution yet

IQ Battery 5P



Two IQ Battery 5P, totaling 10 kWh capacity



The power of the sun at your fingertips

Make, use, save, and sell your own power



The Enphase App

Final thoughts

In summary, 2023 was a challenging year for the solar industry given the macroeconomic conditions. Despite these challenges, we managed to hold our ground compared to our industry peers. We maintained our market share and focused on supporting our customers. Notably, we started manufacturing our microinverters in the United States. We were profitable in 2023, but the highlight of the year was our introduction of new products in many new countries – IQ8 Microinverters, IQ8P small commercial microinverters, IQ Batteries, and IQ Smart EV chargers.

We are optimistic about what 2024 will bring. We expect that our worldwide channel inventory will return to normal levels as we enter the second half of the year. We also foresee potential relief as the Federal Reserve Board begins lowering interest rates within the same timeframe, easing pressure on solar economics for consumers. We expect utility rates to be on the rise around the world. While EVs appear out of favor today, we strongly believe that full home electrification is inevitable. Our strategy is to build best-in-class home energy systems to enable full home electrification while positively impacting climate change.

Our home energy systems, comprising of IQ Microinverters, IQ Batteries, IQ Smart EV chargers, and software, have seen remarkable adoption, with over 73 million solar microinverters and 1.2 GWh of IQ Batteries shipped at the end of 2023 since our company's inception. Approximately 4.0 million Enphase-based systems have been deployed in more than 150 countries, preventing 56 million metric tons of carbon dioxide equivalent.¹ We are laser focused on innovation, quality, and customer experience to make our systems provide high value to consumers at lower cost.

I extend my sincere gratitude to our employees for their dedication and hard work, and our customers, partners, and shareholders for their continued support.

To be continued,

Badri Kothandaraman President and CEO

May 20, 2024

 1 Estimate based on Enphase managed systems data as of December 31, 2023 grossed up for non-managed systems based on cumulative production records; CO₂e calculations based on <u>U.S. Environmental Protection Agency (U.S. EPA) GHG calculator</u>

Appendix

Enphase Energy, Inc. reconciliation of GAAP financial measures to non-GAAP financial measures

n thousands, except per share data and percentages			Year ended		
		2023	2022		2018
Gross profit (GAAP)	\$	1,058,388	\$ 974,595	\$	94,445
Stock-based compensation		13,357	13,097		1,071
Acquisition related amortization		7,580	6,324		-
Gross profit (Non-GAAP)	\$	1,079,325	\$ 994,016	\$	95,516
Gross margin (GAAP)		46.2 %	41.8 %		29.9 %
Stock-based compensation		0.6 %	0.5 %		0.3 %
Acquisition related amortization		0.3 %	0.3 %		- %
Gross margin (Non-GAAP)		47.1%	 42.6 %		30.2 %
Operating expenses (GAAP)	\$	612,647	\$ 526,334	\$	92,849
Stock-based compensation		(199,500)	(203,705)		(10,361)
Acquisition related expenses and amortization		(15,317)	(16,521)		(1,614)
Restructuring and asset impairment charges		(15,715)	(2,384)		(4,128)
Reserve for non-recurring legal matter		-	-		(1,765)
Operating expenses (Non-GAAP)	\$	382,115	\$ 303,724	\$	74,981
Operating expense % of revenue		16.7 %	13.0 %		23.7 %
Income from operations (GAAP)	\$	445,741	\$ 448,261	\$	1,596
Stock-based compensation		212,857	216,802		11,432
Acquisition related expenses and amortization		22,897	22,845		1,614
Restructuring and asset impairment charges		15,715	2,384		4,128
Reserve for non-recurring legal matter		-	-		1,765
Income from operations (Non-GAAP)	\$	697,210	\$ 690,292	\$	20,535
Net income (loss) (GAAP)	\$	438,936	\$ 397,362	\$	(11,627)
Stock-based compensation		212,857	216,802		11,432
Acquisition related expenses and amortization		22,897	22,845		1,614
Restructuring and asset impairment charges		15,715	2,384		4,128
Reserve for non-recurring legal matter		-	-		1,765
Non-cash interest expense		8,380	8,169		2,701
Non-GAAP income tax adjustment		(85,544)	(138)		-
Net income (Non-GAAP)	\$	613,241	\$ 647,424	\$	10,013

Enphase Energy, Inc. reconciliation of GAAP financial measures to non-GAAP financial measures (continued)

In thousands, except per share data and percentag	ges		Year ended			
		2023		2022		2018
Net income (loss) per share, basic (GAAP)	\$	3.22	\$	2.94	\$	(0.12)
Stock-based compensation		1.56		1.60		0.11
Acquisition related expenses and amortization		0.17		0.17		0.02
Restructuring and asset impairment charges		0.12		0.02		0.04
Reserve for non-recurring legal matter		-		-		0.02
Non-cash interest expense		0.06		0.06		0.03
Non-GAAP income tax adjustment		(0.63)		(0.01)		-
Net income per share, basic (Non-GAAP)	\$	4.50	\$	4.78	\$	0.10
Shares used in per share calculation, basic and diluted (GAAP and Non-GAAP)		136,376		135,349		99,619
Net income (loss) per share, diluted (GAAP)	\$	3.08	\$	2.77	\$	(0.12)
Stock-based compensation		1.57		1.55		0.11
Acquisition related expenses and amortization		0.16		0.16		0.02
Restructuring, asset impairment and other charges		0.11		0.02		0.04
Reserve for non-recurring legal matter		-		-		0.02
Non-cash interest expense		0.06		0.06		0.03
Non-GAAP income tax adjustment		(0.57)		0.06		-
Net income per share, diluted (Non-GAAP) ¹	\$	4.41	\$	4.62	\$	0.10
Shares used in per share calculation (GAAP)		143,290		144,390		99,619
Shares used in per share calculation (Non-GAAP)		139,214		140,315		111,696
Income-based government grants (GAAP)	\$	53,470	\$	-	\$	-
Incremental cost for manufacturing in U.S.		(11,603)		-		-
Net IRA benefit (Non-GAAP)	\$	41,867	\$	-	\$	-
Net cash provided by operating activities (GAAP)	\$	696,780	\$	744,817	\$	16,132
Purchases of property and equipment		(110,401)		(46,443)		(4,151)
Free cash flow (Non-GAAP)	\$	586,379	\$	698,374	\$	11,981

¹Calculation of non-GAAP diluted net income per share for the year ended December 31, 2023, 2022, and 2018, excludes convertible notes due 2023 expense, net of tax of approximately \$0.1 million, \$0.1 million, and \$0.7 million, respectively, from non-GAAP net income.



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Stock exchange listing

Enphase Energy, Inc. common stock trades on the NASDAQ Global Market under the symbol ENPH Financial and investor information is available on the company's investor relations website at investor.enphase.com