

Enphase Energy, Inc

(ENPH)

Update (03/11/2025)

- Company is going to introduce 4th generation systems, and ENPH expects **estimated reduction from installation cost is \$300 per KW**. Company believes that will make ENPH's products very competitive.

Summary

- The Solar Industry will continue its forward progress to transform the energy usage toward renewable energy resources. The industry as all will benefit from the continuous transformation, and Enphase Energy Inc will be a great candidate to benefit and improve the industry.
- Enphase is directly competing with SolarEdge; however, they have significant business distinctions
 - o Both string inverter from SolarEdge and microinverter from Enphase can be applied to household and commercial solar systems.
 - o Both optimizer from SolarEdge and microinverter from Enphase have the function to maximize energy output due to imperfection of sunlight from all kinds of shades.

- o SolarEdge is paying more attention to the market of industry and mini scale utility graded inverters and eventually, the inverters for the utility industry.
 - o Enphase is focusing on the household market globally.
- Microinverter is slightly advantageous because it acts as an inverter and can optimize the benefit from imperfect sunlight. However, products from SolarEdge are required to combine Optimizer and inverter to achieve the same effect.
- A year of stock price decline is mainly due to
 - o High multiple valuation at around 60 p/e ratio
 - o Solar budget is defeated in competition for other household budgets because of high interest rate and high inflation.
 - o New California's lower net metering rate for excess solar electricity. Grid providers will pay 50% less than prior for excessive solar electricity.

Business

- Enphase, formerly PVI Solution, was founded in 2006 in Delaware and changed name to Enphase Energy. Enphase Energy Inc is a solar-technology-add company who provides microinverter for solar panels.
- Microinverter is attached to each solar panel and converts electricity DC (direct current) generated by solar panels into AC (Alternating current) for household use with built-in rapid shutdown capability. For understanding the story behind DC vs AC, see [the Current War](#).
- Enphase is in the business of designing, developing, manufacturing, marketing home energy solutions which include microinverter and battery storage systems and energy management.
- Company has shipped 58 million microinverters over 3.0 million residential and commercial systems to more 145 countries by the end of 2022.
- Enphase's key elements of strategy

- o Partner better with service providers, installers, distributors, module partners, and bring end users better experience.
 - o [Grow market shares. Enphase is the number one microinverter provider in the U.S.](#)
 - o Expand product offerings. Expand microinverter product into energy management system which includes microinverter, battery storage, communication control and cloud-based. [Especially battery storage for electricity.](#)
 - o Better products to increase power and efficiency and reduce cost per watt.
 - o Increase energy storage density and reduce installation time and cost.
 - o Focus on homeowners and installer partners.
- Higher capacity microinverter can have high power solar module such 450W DC panel in 2019.
- **The IQ8 microinverter makes using solar power without a battery possible during the blackout.** Until now, it is untruth that an in-grid solar system without a battery can be a backup system during blackouts. On grid solar systems have to be shutdown during blackout to prevent solar power flow back to the grid and harm electricians when they are repairing the grid. [Solar systems with IQ8 microinverter can switch to off-grid from on-grid and continue using sunlight to power the house.](#) This is significant because customers really need a system that will work during a blackout not a shutdown with grid blackout.
- An off-grid solar system is a solar system which runs independently without connecting to the electric grid.
- AC Module: a solar panel with microinverter attached during the manufacturing process in order to reduce the time of installation.
- IQ Battery is an AC battery system.
- IQ Load controller allows homeowners to decide which part of home gets backup electricity during grid blackout.
- **Sunlight Backup™ provides an important part of a more integrated solar system to fill up the gap during grid blackout.**

- In August 2022, Advanced manufacturing production tax credit (“AMPTC”), to incentivize clean energy component sourcing and production, including for the production of solar related components, battery cells and battery packs. The IRA provides for an AMPTC on microinverters of 11 cents per alternating current watt basis.
- In December 2022, California enacted a new net metering policy which reduced the compensation earned by solar customers to \$0.05-\$0.08/kWh from the then-current rate of \$0.25-\$0.35/kWh. This policy change may significantly affect the demand of solar systems in CA; however, it may increase the demand for energy storage batteries.
- As of December 31, 2022, Enphase had 2,821 full-time employees. Of the full-time employees, 952 were engaged in research and development, 1,169 in sales and marketing, 239 in general and administration, 316 in design permitting services and 145 in manufacturing and operations. Of these employees, 1,002 were in the United States, 1,424 in India, 107 in New Zealand, 161 in Europe, 43 in Canada, 26 in Australia, 25 in China, 23 in Mexico and 10 in Brazil. Employees in India primarily conduct research, development, procurement and service support.
- By the end of 2022, one customer counted for approximately 37% of total net revenue, and one customer counted for 24% of total account receivable balance.
- After inducing the IQ8 microinverter, the company continues its development of IQ9 and IQ10 microinverter which would increase higher DC and AC kWh capacity.
- Also, the company is developing higher capacity storage batteries and bi-directional EV chargers which can both charge and discharge an EV. It means EV can provide extra electricity to homes if grids are downed.

Note

- This is a reminder that investors should be mindful and do research themselves.

- o <https://finance.yahoo.com/news/enphase-energy-short-seller-double-s-175047843.html#:~:text=In%20the%20new%20report%2C%20Prescience,in%20FY%202019%20was%20fabricated.>
 - o [Short seller report 2018.](#)
 - o [Short seller report 2022.](#)
- In 2016-2017, Enphase encountered two major problems. First, the solar industry faced significant decline in demand and decrease of revenue. Second, the accumulated deficit reached hundreds of millions, and continuous negative cash flow brought the company [on the edge of bankruptcy](#) where the company had to rely on a hedge [fund's loan with two-digit interest rate](#). At that time, SolarEdge was picked as an investment, and Enphase was treated as a bankruptcy candidate. However, CEO Badri Kothandaraman, appointed in 2017, turned the company around and brought growth back to the company.
- The energy cost of driving an EV is cheaper than gasoline cars if EVs are charging at home according to the electricity rate today. It can even save more money for consumers if the electricity is sourced from renewable energy.
- **Convertible Notes:**
 - o Initial strike price \$370.33 for Note 2028, \$397.91 for Note 2026, \$106.94 for Note 2025.
 - o If a company's common stock price is not above the strike prices, debt holders may choose to redeem debt for cash. In which will increase strains on the company's finance.
 - o Debt balance:
 - Note 2028 - \$575 million, bear 0% interest;
 - Note 2026 - \$632.5 million, bear 0% interest;
 - Note 2025 - \$102.2 million, bear 0.25% interest.
- Company stated in a 10-K filing about product warranty's estimated return rate [“we expect that subsequent homeowners are less likely to file return than the homeowners who originally purchased the microinverters.”](#)
- **Company provides a generous term of product warranty:**

- o Microinverter units: 15 years for 1st and 2nd generation; 25 years for subsequent generation
 - o IQ Battery: 10 years
 - o IQ Gateway: 5 years
- It usually takes 3-9 months between the sale of products and the installation of products.
- Acquisition and goodwill:
 - o GreenCom Network AG, 2022: acquisition cost \$34.90 million, Goodwill \$16.54 million
 - o SolarLeadFactory LLC, 2022: Acquisition cost \$26.05 million, Goodwill \$12.6 million
 - o ClipperCreek Inc, 2021: Acquisition cost \$116.31 million, Goodwill \$70.12 million
 - o 365 Pronto, Inc, 2021: Acquisition cost \$69.91 million, Goodwill \$53.28 million
 - o DIN Engineer Service LLP's Solar Design Services Business, 2021: Acquisition cost \$24.79 million, Goodwill \$11.80 million
 - o Sofdesk Inc, 2021: Acquisition cost \$35.49, Goodwill \$24.39 million
- Enphase has a more aggressive accounting practice. Company recorded the conversion in convertible debt as equity in the company's balance sheet. That will essentially inflate equity value. See filings
 - o For the Notes due 2028, prior to adaption of ASU 2020-06 regulation, company recorded part of debt as equity \$160 million for its conversion right for debt holders.
 - o After the adoption, the company recorded a decrease of \$117.3 million in equity.
 - o Such practices were included in Notes due 2026, Notes due 2025,
- In 2017, the company turned business around, increasing price, reducing cost and increasing margin, and shipping less microinverters. Also, the company made positive operating cash flow for the first time in 3 years.