

Security	Enphase Energy, INC
Ticker symbol	NASDAQ: ENPH
Market	NASDAQ
Analysts	Anastasia Pipi Eleonora Kekkou Izaur Khatataev
Sector	Energy and Utilities
Sub-industry	Solar Energy
Sector-heads	Aditya Rudrapatna Angus Stewart
Recommendation	BUY
Target price	\$140
Upside	\$17.47
Stop loss	\$50

## KEY FIGURES

Price **122.53**

Market Cap **GBP 12,454 MN**

P/E **14.58**

TEV/EBITDA **138.31x**

Quick Ratio **2.1x**

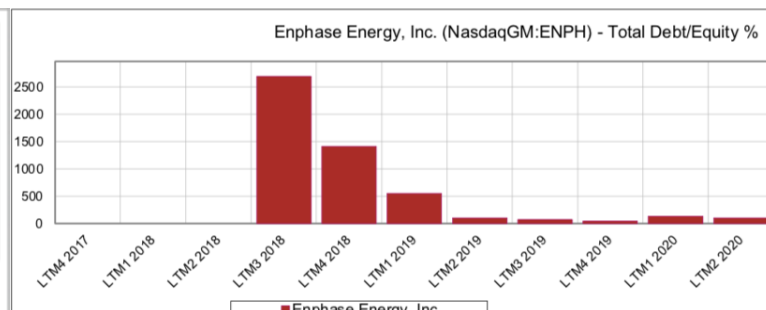
Beta **1.04**

Div. Yield **0%**

ROE **36.8%**

Current Ratio **2.5x**

D/E **66%**



# INVESTMENT THESIS

Enphase Energy, INC. is a North American company based in Fremont, California with a global influence. We believe it has great investment potential and should be a BUY rating for these reasons:

1. **Leader in the Microinverter Market:** Enphase should be a buy stock, because of its leading role in the solar energy sector. A microinverter is a device that converts direct current to alternating current, meaning solar energy can be converted to electrical. The main advantage of using micro-inverters instead of string inverters, which also converts direct current to alternating, arises from the fact that each solar panel is independent. In certain cases, solar panels will be producing different amounts of electricity at different times of the day, but micro-inverters will ensure that all of the energy is harvested, while with a standard inverter, some of this production will be lost. Having pioneered the original concept and developed the latest models of microinverters, they have ensured they are technologically ahead of their competitors. The company is determined to keep themselves in the lead by ever improving the energy conversion efficiency which has reached 95.5% in the latest models of microinverters. As people are moving towards creating a greener home, building and homeowners are looking for energy solutions that will be beneficial for the environment and cheaper for them. Enphase will attract these customers as their services and products are in the forefront and are cheaper long-term investments. These customers will allow the company to continue growing and expand their already dominating presence.
2. **Strong Geographic Presence:** Enphase has deployed over 1.1 million systems in more than 130 countries and has partnered with various companies all around the world. This increases its global market presence and diversifies its customer base which makes it more resilient to unprecedented situations. Recently it has partnered with Excel Power for projects in Australia and Natura Living, one of Thailand's leading residential and commercial solar installers for a solar installation project for PepsiCo Thailand. Increasing its activity and presence in Southeast Asia will be a key strategy for the company to increase its profits. Southeast Asian nations are stepping up plans to invest in and deploy solar power as the cost has dropped below that for gas-fired power plants. Demand for Enphase's products will therefore increase in the coming years as it builds relations with Southeast Asian solar installation firms.
3. **Transition from a microinverter company to a "home energy management systems company":** Enphase is currently focused on the production of microinverters and will continue to do so. However, it began extending its technological advancements. In 2019 the company introduced the Ensemble energy system which became available in July 2020. The Ensemble technology delivers the first solution that includes inverters, batteries, and monitoring systems all in one platform. This technology represents a transformative opportunity to increase their revenue potential per home from approximately \$2,000 to \$10,000. This will allow Enphase to diversify its business and create some optionality into another major growth market that's going to drive renewables over the next decade. In the meantime, they can continue improving and developing specialisation in microinverters, which will soon become just one pillar of their ecosystem.

4. **A key member of the solar energy industry and a good fit for the sector:** Solar energy is currently the most popular form of renewable energy with its market expected to reach from a value of \$52.5 billion in 2018 to \$223.3 billion by 2026, growing at a CAGR of 20.5%. Countries with a large economy, such as Japan, China, USA and India, choose to invest the most money on solar power out of all of the other renewable energy options. Furthermore, solar power is considered 'the cheapest energy in the world' and its cost is predicted to decrease even further as new and more efficient products are being launched. Thus, sales of solar energy companies are expected to grow as demand for solar energy increases. The future of the solar energy market seems bright and having two solar energy companies that complement each other in the fund's portfolio – Enphase and SolarEdge - will produce great returns.

## EXECUTIVE SUMMARY

Enphase is an evolving solar energy company that has managed to achieve remarkable success in the year of 2019 due to their production of their innovative microinverters. The

company has a promising future as seen from their latest performance.

2019 has been an exciting year for Enphase. They introduced the Ensemble energy management technology, that allows solar panel owners to easily generate and store clean power from solar installation, which can all be controlled with a single mobile app. Ensemble is completely grid agnostic enabling solar systems to operate even in the absence of a grid. This eliminates one of Solar's biggest challenges - being "grid-tied", meaning that it relies on the existing utility electrical grid as an essential system component. Grid-tied systems will automatically shut off when the grid goes down whereas the Ensemble technology provides continuous, uninterrupted power – day and night – when connected to the grid or even when the grid is down.

Furthermore, Enphase has increased its worldwide net promoter score from 37% in 2018 to 52% in 2019 with customer contact centres in Australia, France and India achieving high levels of customer satisfaction.

The company's revenue nearly doubled in 2019 to \$624.3 million, where a large portion of the revenue came from North America where they focused on small-and medium-sized installers.

Additionally, it has been the first year of GAAP profitability in Enphase's history; a result of their great pricing and cost management. This financial success has been the result of a potent combination of the IQ7 microinverter family of products along with great customer experience.

In addition, Enphase also implemented their ASIC (application-specific integrated circuit), which is a digital version of their control technique for power conversion. The pursuit of the ASIC approach has paid Enphase big dividends, as it is efficient, scalable and cost effective for its microinverters.

Enphase is also planning to launch their new series of microinverters, the IQ8 micro-inverter which is 1000 times faster in response time than the IQ7 microinverter with its grid agnostic capability.

This improvement in the response time will make Enphase's microinverters more competitive as energy generation will be much more efficient. As a result, the company can create a strong brand name for their microinverters which will allow them to increase market share. An outstanding improvement was seen from their first generation microinverter to the IQ7, which had an increase



in power from 175W to 366W and an increase in efficiency from 94% to 97%. The IQ 8 microinverter is expected to follow the same path of refinement and success

Priorities for 2020 are to partner with installers and distributors so that they can provide exceptional service to homeowners and business owners. They are doing well in the U.S, and are intensifying their focus on international regions like Europe and Australia to increase headcount in the coming years. During 2020 they announced partnerships with Sonnenstromfabrik (CS Wismar GmbH) one of Europe's most modern, high-quality manufacturers of solar modules, to develop the first high-efficiency Enphase Energized™ AC module (ACM) utilizing the Enphase IQ 7+™ microinverters for European residential solar markets. They have also announced that Solargain, one of Australia's largest and most experienced solar energy providers, selected Enphase microinverters as the premium inverter solution for offer in Australia. Lastly, partnerships with three solar distribution companies in Belgium and the Netherlands – Carbomat Group, Libra Energy and Solarclarity - will further strengthen their presence in the European solar market.

Enphase's dedication towards expanding market presence and continuously improving their technology will provide a steady growth in their revenues and sales.

## COMPANY OVERVIEW

Enphase is a global energy management technology company and the world's leading supplier of micro-inverter-based solar-plus-storage systems. They deliver smart, easy-to-use solutions by connecting solar generation, storage and management on one intelligent platform using their four main products: Microinverters, Battery Storage, Envoy and Enlighten.

<b><u>Microinverters</u></b>	<b><u>Battery storage</u></b>	<b><u>Envoy</u></b>	<b><u>Enlighten</u></b>
<ul style="list-style-type: none"> <li>•Convert DC power to AC</li> <li>•Latest model: Seventh generation microinverters that are powered by their unique software-defined architecture.</li> <li>•The company has shipped over 28 million microinverters.</li> </ul>	<ul style="list-style-type: none"> <li>•Integrated energy storage systems that uses Lithium ion phosphate chemistry</li> <li>•Available in two usable capacities of 3.4 kWh and 10.1 kWh.</li> </ul>	<ul style="list-style-type: none"> <li>•Delivers performance data from the microinverters to the Web and carries system updates from the Web to the microinverters.</li> </ul>	<ul style="list-style-type: none"> <li>•Web application that can track energy production, monitors system's health, and shares data.</li> </ul>

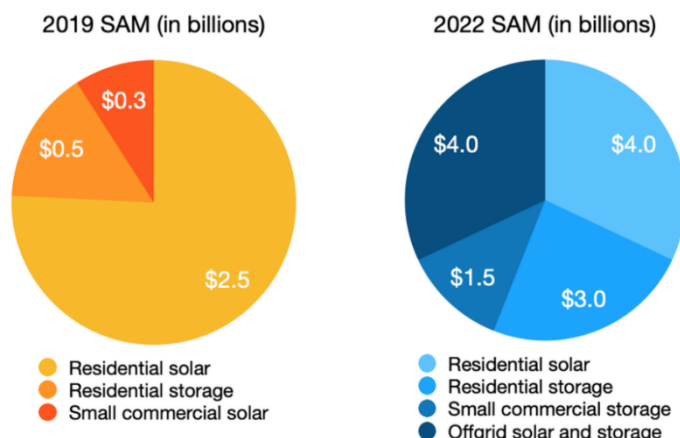
Combining these products together, Enphase launched the Ensemble technology in 2019, the world's first all-in-one smart energy system that was a breakthrough product to the market and differentiates the company from its competitors. It is the result of over a decade of research during which time Enphase secured over 300 patents and produced eight generations of microinverters which proves their effective use of resources and dedication to improving their products. The new technology is believed to increase Enphase's serviceable available market (SAM) from \$3.3 billion

in 2020 to \$12.5 billion in 2022, providing an opportunity for meaningful top line growth and profitability.

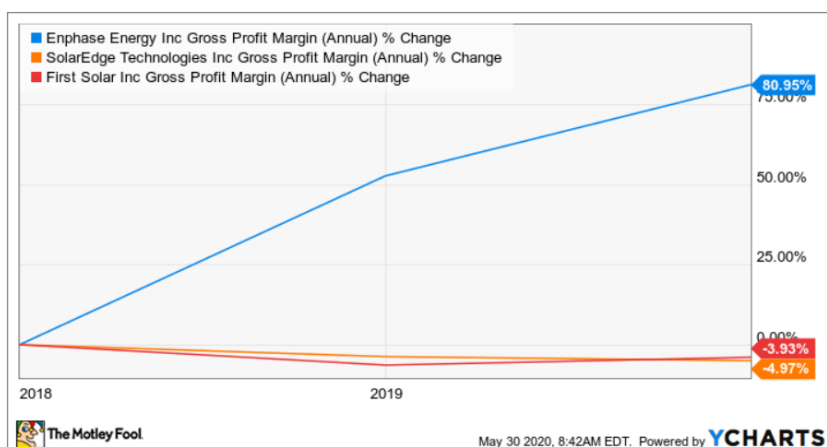
Enphase outsources the manufacturing of their products to third party manufacturers from different regions. Its partners include Flextronics International, an American-Singaporean-domiciled multinational that tests and assembles Enphase's products, and ELIY Power Co., Ltd a Japanese manufacturer that provides lithium-ion battery cell packs. Enphase is trying to expand its strategic manufacturing capabilities through an expanded manufacturing agreement with Flex Group in Mexico that will allow them to diversify their supply chain and cut down delivery times.

Enphase is headquartered in the USA and with the outcome of this year's presidential elections, the company will benefit greatly. President- Elect Joe Biden has pledged to re-join the Paris accord within 24 hours of arriving in the White House, with a plan to spend at least \$2trn on climate-related actions and

decarbonise US power by 2035. This will shape a clearer and more prosperous energy future. Despite this the company is also in the process of expanding its market presence in Europe which suggests a promising future and it believes that their SAM (serviceable addressable market) will increase to \$12.5 billion in 2022.



Some of Enphase's main competitors are SolarEdge, a provider of power optimizers headquartered in Israel. SolarEdge's revenue for 2019 was \$1.43 billion while Enphase's revenue for the respective year was \$0.624 billion. Another competitor is SMA Solar Technologies, a German solar energy equipment supplier. Their revenue for 2019 was \$0.915 million, although last year they had paid a dividend while reporting negative free cash flow. Lastly, SunPower is an American company that designs and manufactures crystalline silicon photovoltaic cells and solar panels with a revenue of \$1.8 billion. In 2018, Enphase and SunPower collaborated with SunPower agreeing to sell its micro-inverter business to Enphase in exchange for US\$25 million and 7.5 million shares of Enphase stock. By dominating the supply of inverters to a major residential solar company, Enphase has practically guaranteed itself a set portion of this market, and one that comes with no additional sales effort. This was reflected by the fact that in 2019, Enphase's revenue doubled. Enphase has therefore limited its number of competitors and with its efforts to increase market presence the company's sales and profits are expected to increase further in the future.



# INDUSTRY OVERVIEW

## Porter's Five Forces:

### Bargaining power of buyers:

The renewable energy sector especially in solar energy is becoming more and more popular across many countries. In fact, solar is now the cheapest and most abundant energy source in the world which is attracting a lot of new customers. Enphase has a monopoly over the microinverter market as they invented this new, effective technology. Plus, this technology appears to be more efficient than other inverter technologies. For instance, Enphase microinverters stand up to extreme heat. Moreover, Enphase technology provides a better value as they produce more energy with lower operations and maintenance costs, which substantially racks up the savings over a system's lifetime. Furthermore, Enphase systems include critical consumption monitoring functionality as their solution includes easy-to-install consumption monitoring. Finally, Enphase's microinverters are more reliable as microinverters have no moving parts, which leads to improved reliability. With all these advantages, it seems that buyers have a low bargaining power as they won't be able to find the same results and advantages from inverters manufactured by other companies. Plus, as Enphase will have more and more customers throughout the coming years because of its technology and the demand for renewable energy, the bargaining power of buyers will further decrease as a consequence.

### Bargaining power of suppliers:

Enphase's microinverters are designed in the United States but are manufactured in China. They only have three main suppliers, which are Flextronics International Ltd., Phoenix Contact GmbH & Co and ELIY Power. As the renewable energy sector is yet to be at its peak, there are few companies that are specialized in microinverter energy. Due to the small number of suppliers, it would be assumed they are able to control the price and quality of their products. However, in the same way, the suppliers have few clients and so are risking losing their clients if they were to regulate their prices intensely.

### Competition in the industry:

The markets for inverter products are highly competitive. Enphase competes with traditional inverter manufacturers and new technology start-ups. The principal areas in which they compete with other companies include: Product performance and features, total cost of ownership, reliability and duration of product warranty and local sales and distribution capabilities. Competitors in the inverter market are, amongst others, SMA Solar Technology AG, Fronius International GmbH, ABB Ltd., SolarEdge Technologies, and other emerging companies offering alternative microinverters. Enphase microinverter solutions offer significant advantages as stated above, and competitive differentiation relative to traditional central or string inverter technology. As the inverter market is always competitive, companies have been trying to differentiate their products in various ways. For example, now companies are focusing on diversifying their offerings by including comprehensive internet-of-things (IoT) platforms with inverters. Enphase is rolling out a whole-home, IoT-connected solution unlike any before, called Ensemble. The system is capable of powering homes even during power outages. Customers can also add batteries to have a whole-home backup if the grid goes down at any time of day. Ensemble comes with the Enlighten Cloud Software, which is responsible for monitoring the system. Therefore, the heterogeneity of its products helps Enphase to not engage into a price war with its competitors and keep a competitive advantage.



### **Threat of Substitute Products:**

The global need for greener sources of energy has compelled companies to invest in the field of renewable energy, particularly solar energy. The main substitute products have been from Solaredge, SMA Solar Technologies and Generac. The buyer propensity to switch to these options is rather low due to the higher productivity of the Enphase microinverter which stands at 96.5%. In addition, installation of the competitors' products is 19.6% more expensive than Enphase and over the system's lifespan it will cost less to operate, thus lowering the risk of substitute products being bought. Enphase has systematically been improving their technology, including their latest 7<sup>th</sup> generation microinverter, which has constantly been proving their technological superiority among competitors. Their flexibility to install few or thousands of microinverters has allowed them to work with residential or larger scale buildings, unlike competitors that have focused their products towards smaller buildings.

### **Threat of New Entrants:**

The energy sector is a competitive and ever-changing field that is constantly introducing new products; it is no surprise that competitors are consistently trying to break into the field and make a name for themselves. However realistically it is difficult to attempt to reach the economies of scale that Enphase has secured especially since they have made new agreements with the global manufacturer, Flex Group in Mexico, which is now producing a portion of their microinverters in an attempt to navigate away from tariffs levied on imports from China. Enphase has continued with their new partnerships by expanding their partnerships around Europe in countries such as Belgium and the Netherlands with Carbomat Group and Libra Energy, and in Australia with Solargain that is working closely with the likes of IKEA. These global partnerships are expanding Enphase's grasp over the sector and ensuring that they are a key player that is constantly updating their line of products, thus preventing newcomers into the market. For consumers, the cost of switching to a microinverter from a new entrant is substantially more expensive and this commits consumers to be loyal to Enphase, as it has 14 years of experience in the industry and the overall original and maintenance costs are less. Finally, Enphase owns lots of proprietary intellectual property, which is the result of a decade of research & development and is something unique to them.

## VALUATION: RATIOS

			Size	Profitability	Growth	
	Ticker	Company	market cap (mn GBP)	operating margin (%)	Sales growth (3yr CAGR)	eps growth (3yr CAGR)
Company	NASDAQ: ENPH	ENPHASE	12,454	16.9%	29.7%	N/A
Comp 1	SEDG	SolarEdge	9,364	15.5%	32.9%	-22.2%
Comp 2	<u>S92.DE</u>	SMA Solar Technologies	1,314	-0.9%	0.9%	N/A
Comp 3	GNRC	Generac Holdings Inc	11,107	16.9%	9.5%	16.9%
Aggregation method:		Harmonic Mean		12.1%	18.3%	-2.6%
Weighting:		Equal-Weighted				

			Valuation						
	Ticker	Company	Current P/E	Forward P/E	PEG	EV/EBITDA	EV/EBIT	P/B	P/S
Company	NASDAQ: ENPH	ENPHASE	88.79 x	85.69 x	24.50 x	138.31 x	154.07 x	59.44 x	25.91 x
Comp 1	SEDG	SolarEdge	83.01 x	100.80 x	12.00 x	47.76 x	69.99 x	14.98 x	8.53 x
Comp 2	<u>S92.DE</u>	SMA Solar Technologies	-169.18	192.41 x	0.90 x	45.02 x	-159.77 x	3.50 x	1.60 x
Comp 3	GNRC	Generac Holdings Inc	56.95 x	63.99 x	3.70 x	34.59 x	51.83 x	13.18 x	6.54 x
Aggregation method:	Harmonic Mean		#NUM!	97.57 x	1.51 x	30.46 x	#NUM!	7.01 x	3.35 x

			Returns			Debt	
	Ticker	Company	Dividend yield (%)	FCFy (%)	ROE (%)	Net debt/EBITDA	Debt/Equity
Company	NASDAQ: ENPH	ENPHASE	0.0%	0.8%	36.8%	-0.5	62.00%
Comp 1	SEDG	SolarEdge	0.0%	1.5%	29.1%	-1.0	55.00%
Comp 2	<u>S92.DE</u>	SMA Solar Technologies	0.0%	-1.1%	-0.9%	-4.6	10.00%
Comp 3	GNRC	Generac Holdings Inc	0.0%	1.7%	34.9%	0.9	68.00%
Aggregation method:		Harmonic Mean		0.0%	0.7%	25.0%	-1.3
Weighting:		Equal-Weighted					



Enphase has the highest market cap amongst its competitors and is considered a large cap company. Investing in large cap companies is more conservative and poses less risk as the company is expected to have a less aggressive growth potential. Nevertheless, the share price has seen a meteoric rise in the last few years.

The current P/E ratio of the company is low compared to its competitors, which indicates that the company is undervalued. It is worth noting that SMA, whose products and pricing are very competitive, has a negative P/E value, indicating a negative earnings per share. The forward P/E ratio of the company is about 5.7x greater than its current P/E value which is a larger increase compared to the rest of the companies. This shows that the current price of the shares is expected to increase by a greater amount when compared to the other companies, hence buying at this price results in greater returns for investors. This might be an outcome of their current and future investments that are expected to bring more money into the company.

Income statement			
Revenue	286.200	624.300	
Operating expenses (Opex)		-519.000	
operating income (EBIT)		105.300	
Operating margin (%)		0.169	
Depreciation and amortisation		12.000	
EBITDA		117.300	
Net interest income (expense)		-7.200	
Net interest % of revenue		-0.012	
Pretax income		98.100	
Pretax income % of EBIT		0.932	
Tax		1.900	
Tax % of EBIT		-0.018	
Net income		100.000	
Net income margin (%)		0.160	
Net income available to common	-45.190	182.160	188.760
number of ordinary shares (mn)	83.000	132.000	132.000
eps (\$)	-0.544	1.380	1.430

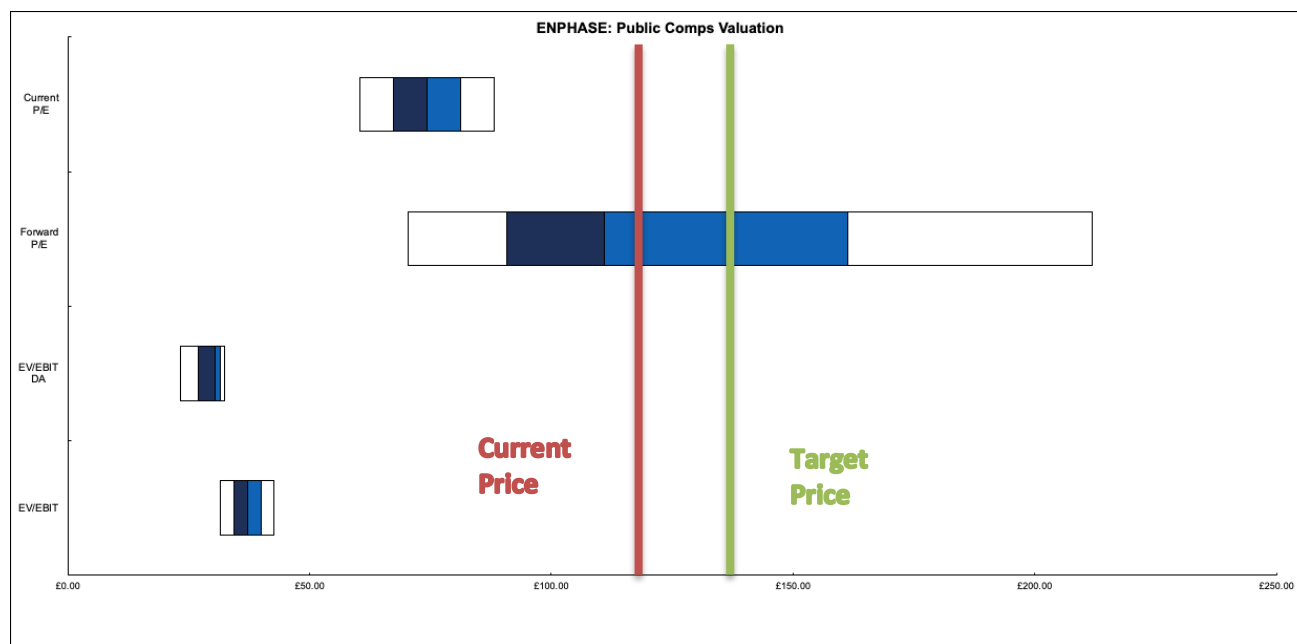
Balance sheet	
Cash, cash equivalent & st investments	251.400
All other current assets	248.300
Current assets	499.700
Property, plant and equipment	38.300
Intangible assets	31.400
All other non-current assets	143.800
Non-current asset	213.500
Total assets	713.200
Short-term debt	189.200
All Other current liabilities	10.110
Current liabilities	199.310
Long-term debt	112.200
Other long-term liabilities	129.590
Total non-current liabilities	241.790
Total liabilities	441.100
Shareholder's equity	272.100
Total liabilities and equity	713.200
Cash flow statement data	
Cash flows from operations	139.100
Capital expenditure	-14.800
Free cash flow	124.300

The sales growth of the company is considered competitive with the rest of the companies. Its 3 yr CAGR is 29.7% which is closely related to that of SolarEdge, but considerably higher than SMA and Generic holdings. The EPS values further back up the stellar growth of Enphase since it started with an annual EPS of \$-1.34 in 2016 and reached \$1.23 in 2019. This is due to the fact that there has been a change in the electrical standards that have changed the requirements of just the number of inverters need relative to solar panels installed, which has really provided a tailwind for Enphase's business. On the other hand, SolarEdge had a surprisingly large decline of 22%. Apart from this, in 2018, Enphase reached a deal with SunPower resulting in Enphase becoming the exclusive provider of microinverters to SunPower. This competitive advantage will allow the company to accelerate its investments which can be easily financed as the company has a free cash flow of \$124 million.

The debt to equity ratio of Enphase is roughly in line with the rest of the companies and in the optimum range for the solar sector, which suggests that the company does not finance a significant share of its operations through debt.

The EV/EBIT ratio for Enphase is relatively high which might be considered as a drawback in investing in this company however, looking at the ratio in isolation does not give an accurate value of the company's worth as it does not include two significant liabilities in the form of deferred tax liabilities and off-balance sheet debt. Therefore, to get a clearer picture one must look at the current P/E and forward P/E.

As seen on the graph, the current price is in line with the forward P/E ratio which indicates that the company is undervalued. From all the above, and especially when we consider Enphase's strong market position and transition into a more diversified company, we believe that the stock is undervalued and will rise to \$140 in the short-medium term.



## **RISKS**

### **MANUFACTURING PROBLEMS**

Manufacturing problems such as delays, disruptions or quality control problems in their manufacturing operations may cause a decline in revenue and affect the company's reputation. These obstacles might rise due to unforeseen events, such as the most recent pandemic. These might affect their testing processes that are time consuming and complex. If such procedures fail to take place, the probability of products failing increases, which is a disadvantage to the consumer and will negatively affect the reputation of their products. Also, anything that results in shipment delays may cause buyers to be frustrated by the company's customer services and would not recommend the company's products.

### **DEMAND OF SOLAR ENERGY**

If the demand of solar energy solutions does not grow at the expected rate, the business may suffer. The solar energy industry is an evolving industry that has experienced substantial changes in recent years, therefore Enphase cannot be certain that customers and businesses will adopt their products, at sufficient levels to grow their business. Factors that might cause uncertainty are: the market acceptance of solar PV systems on Enphase's product platform, cost competitiveness, reliability and performance of solar PV systems compared to conventional and non-solar energy solutions etc.

### **COMPETITORS**

The rapid growth of the solar energy market gives rise to many competitors that introduce innovative products, which can negatively impact the results of the company's operations and market share. The emerging technologies that directly compete with the business may have a greater financial, marketing, distribution, and customer support resources and may have significantly broader brand recognition. This may allow competitors to sell their products in below-market pricing levels which could cause the company to lose sales or market share or require them to sell their products at a lower price to compete effectively.

### **ALTERNATIVE TECHNOLOGIES**

Significant developments in alternative technologies outside the solar energy market, such as the use of fuel cells, may cause an adverse effect to the business. The failure of the company to react quickly and produce new and enhanced products may result in loss of competitiveness of their products, decrease in revenue and loss of market share.

### **GLOBAL ECONOMY**

The threat of global economic, capital markets and credit distributions pose risk for the business. These risks include slower economic activity and investment in projects that make use of the company's products and services. These economic developments, particularly decreased credit availability, have in the past reduced demand for solar products.

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