

Vietnam's Renewable Energy Strategy Can Make or Break Economy's Manufacturing Future

Leading Exporters Need Clean Energy To Compete Globally

Executive Summary

Last December, when the Danish toymaker Lego announced a USD1 billion greenfield investment in Vietnam, its sixth factory worldwide yet the first carbon neutral one, to be powered entirely on solar energy, the news sent a strong message to national governments in Southeast Asia.¹ A country's competitiveness as an investment destination for the global corporations now rests increasingly on its ability to provide clean energy. Vietnam seems ahead of the race, for now.

The past five years marked a spectacular first stage of development for Vietnam's solar and wind power sector. Generous incentives ushered the birth of an industry that barely existed before 2017, the year when the first feed-in-tariff (FIT) policy was introduced. Today, with nearly 21 gigawatts (GW) of solar and wind power connected to the national grid, Vietnam has become the renewable energy leader of the region, successfully rebranding itself away from a traditional coal-centric developing economy.

All eyes are now on how the next stage of growth will unfold, which will be decided by the upcoming power development master plan for 2021-2030 (also known as PDP8), and new contractual and procurement policies that will replace earlier FIT programs.

The anticipation has been particularly intense for multinational corporations whose existing and future manufacturing activities in Vietnam will bank on credible progress in operational sustainability. These companies, which are growing in

Three Key Takeaways

1. Vietnam's economy stands more exposed to multinational corporations and the global consumer market than any other country in developing Southeast Asia (SEA), given the size of its export-linked manufacturing industries.
2. The unparalleled exposure serves as an impetus for the Vietnamese government to align the country's power development policies with the corporates' decarbonization plans and make clean energy access a priority to support Vietnam's growth potential.
3. Corporate demand has been driving growth in Vietnam's distributed renewable energy installations, such as commercial and industrial rooftop solar power, as global brands face the immediate pressure of tackling supply chains' emissions.

¹ Lego. [The Lego Group announces plans to build new factory in Vietnam to support long-term growth.](#) December 2021.

number and climate ambition, have been prominent advocates of an ambitious and robust clean energy adoption plan in Vietnam.

Prime Minister Pham Minh Chinh committing Vietnam to a 2050 net-zero carbon emissions target at the 2021 United Nations Climate Change Conference (COP26) bodes well with the decarbonization ambition of the many multinationals his country is hosting. This reflects a pragmatic alignment with the global movement towards climate-responsible investment and consumption. Vietnam's unparalleled exposure to these investors and consumer markets in the west means that its senior officials cannot afford to be oblivious of the former's quest for clean electricity access.

For Vietnam, renewable energy is going beyond solving power supply security issues or the agenda of the energy ministry. As the availability of clean electricity becomes an additional, critical determinant of investment capital and export orders, renewable energy policy planning is now a concerted cross-agency effort that must reflect the priorities and interests of macroeconomic, foreign investment, and sectoral ministries.

Reaching consensus will not be easy, as long-term economic gains could only come at the expense of near-term growing pains and substantial upfront investments. However, successfully charting the right pathway towards clean energy adoption will influence Vietnam's ability to cement its position in the global supply chain for decades to come.

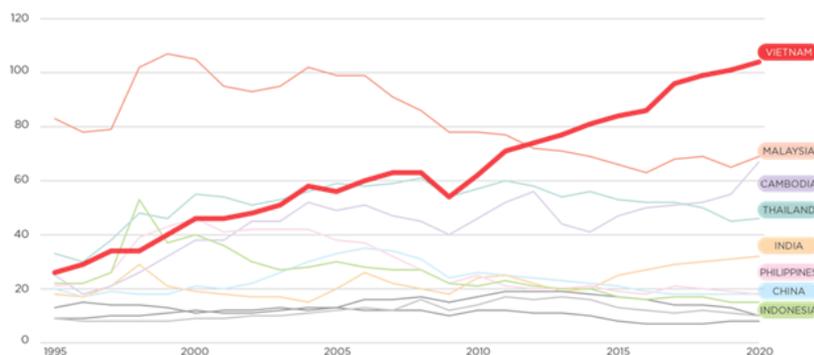
Renewable Energy as a Catalyst for Investment and Growth

No country in developing Asia has benefitted from the growth of the global consumer market as much as Vietnam. Since it acceded to the World Trade Organization in 2007, Vietnam's merchandise exports, which include anything from seafood to sneakers and smartphones, have been steadily and resiliently rising, fuelling economic growth. By 2020, at USD282 billion in turnover, a six-fold increase from 2007, Vietnam's exports were the highest in developing Southeast Asia.

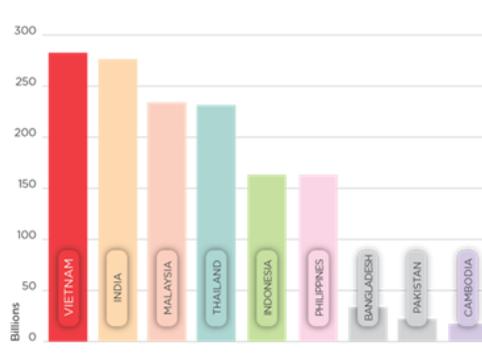
Relative to the size of the economy, the sector also stands out from the crowd. Countries such as India, Bangladesh and Indonesia are also part of the global supply chain, but none of their economies are as fully exposed to external demand as Vietnam. At a ratio of 104%, Vietnam's merchandise export revenue has grown to be larger than the country's gross domestic output. It remains on an upward trajectory despite successive global geopolitical and health crises.

Figure 1: Vietnam's Global Market Exposure

Export of goods (% of GDP)



(in USD billion, 2020)



Source: World Development Indicators.

The composition and ownership of these export-linked industries have shaped the structure of the Vietnamese economy. They benefit some parts of the economy but also introduce some risks.

Nearly 60% of the country's exports are manufactured goods, not commodities, with most of them coming from factories belonging to foreign investors. Big corporations such as Samsung and Intel set up shop in Vietnam almost two decades ago, gradually turning local industrial parks into their global production base. Others, such as Apple or Nike, in the meantime, have been sourcing from a network of local suppliers, typically also foreign-owned, that assemble products shipped to consumers worldwide.

Official government data shows that by the end of 2021, as much as USD242 billion, or 59% of Vietnam's total foreign direct investment accumulated to date, was committed for the manufacturing and processing industries.

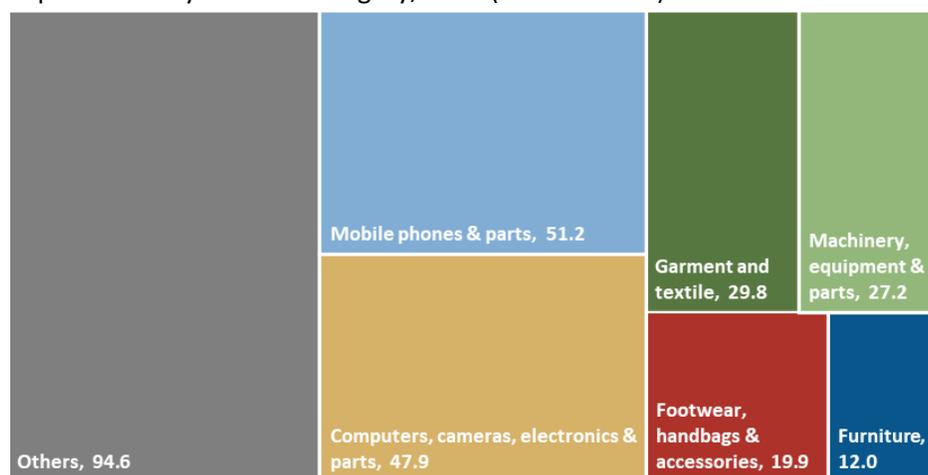
Vietnam's growth engine—its manufacturing industries—has been standing on the shoulders of the multinationals. Some have grown to play an outsized role in the economy, employing large workforces and generating hefty tax revenues and hard currency income.

Samsung's output in Vietnam was estimated in some years as equivalent to a quarter of its host's gross domestic output,² while Taiwan's Pou Chen, the world's largest shoemaker that is a top-tier outsourced supplier for the big brands, is the biggest private employer in Vietnam. Shifts in the business strategies and preferences of global brands and their key suppliers could therefore reverberate across the wider economy.

² Vietnambiz. [Samsung in Vietnam: USD4 billion in profit, revenue equivalent to 25% GDP](#). 18 April 2021.

Figure 2: Consumer Goods Dominate Vietnam's Exports

Export Value by Product Category, 2020 (in USD billion)



Source: Vietnam General Department of Customs.

When this group of global corporations began to ask the government for a liberalized power procurement mechanism that would facilitate clean electricity access to their premises, the call to action was hard to ignore.³

For these corporates, access to clean energy is less about immediate cost savings—Vietnam already offers one of the most competitive industrial electricity tariffs in the region—but is instead part of a wider, more pressing carbon footprint reduction effort without which their bottom lines, ability to access lower-cost capital, and reputation can be put at risk.^{4 5 6} Supply chain dynamics are increasingly sensitive to public pressure on climate-responsible behaviour and the ESG-focused investment appetite of institutional investors. This is

Global corporations responsible for up to USD150 billion of Vietnam's export revenues have made specific commitments on carbon neutrality or decarbonization.

³ In November 2017, a group of 26 major corporations with a combined USD1.4 billion investment in Vietnam released a DPPA Declaration on the sidelines of the Asia-Pacific Economic Cooperation Summit, calling the Vietnamese government for “more options for procuring renewable energy such as the announced DPPA mechanism”. Source: Center for Strategic and International Studies, [Clean Industry: Renewable Energy in Manufacturing](#), July 2020.

⁴ MSCI. [ESG and the cost of capital](#). 25 February 2022.

⁵ Nikkei Asia. [Samsung urged to use 100% green energy in South Korea and Vietnam](#). 29 June 2021.

⁶ Yahoo Finance. [Stand.earth annual scorecard fails fashion industry on efforts to tackle climate change](#). 24 August 2021.

increasing the pressure on Vietnam's foreign manufacturers to demonstrate their ability to align with the Paris Agreement's 1.5 degrees pathway by developing the concrete timelines and credible action plans that have become essential in the global corporate world.

IEEFA estimates that global corporations responsible for up to USD150 billion of Vietnam's export revenues have made specific commitments to carbon neutrality or decarbonization of varying scope and timelines. Some are bold enough to target a 100% renewable energy consumption profile as early as 2025. The numbers of businesses and pledges can only go up from here and include owners of big apparel, footwear, electronics, and consumer brands, with a direct manufacturing presence or supplier clusters in the country.

Their pledges often extend to cover Scope 3 emissions, which are emissions occurring in the value chain, such as from outsourced cut-and-sew factories or chip assembly plants based in Vietnam, suggesting that more operational adjustments should be expected. With supply chains' emissions accounting for 70-90% of the total emissions owned by these companies, tackling them is front and center of their decarbonization strategy.

Given the interdependency, these brands' journey toward sustainability progress is one which Vietnam can hardly afford to ignore or miss out on. This is especially true because investment and sourcing decisions now reflect the ability of top-tier suppliers to capture improvements in production costs and sustainability variables in the countries where they hope to increase production.

According to a 2021 study by Standard Chartered of 400 multinational corporations, 78% of the companies believed they would start removing slow-to-transition suppliers by 2025, with expectations that a third of the current partners would not make the cut. By contrast, early movers that can adapt to energy transition could gain access to over USD1.6 trillion in export opportunities.⁷

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⁷ Standard Chartered. [Multinational companies planning to cut suppliers by 2025](#). 7 June 2021.

Table 1: Selected Multinationals' Vietnam Exposure and Climate Targets

Industry	Company Name	Vietnam Manufacturing Exposure	Sustainability Commitment
Apparel and Footwear	Nike	~140 contracted manufacturing suppliers, responsible for 51% of total footwear produced globally.	30% and 90% reduction in Scope 3 emissions by 2030 and 2050, respectively (versus baseline year 2015).
Apparel and Footwear	Adidas	67 suppliers. Vietnam is among key sourcing countries.	30% emissions reduction across Scope 1, 2, and 3 by 2030 (baseline year 2017), aiming for net zero by 2050.
Apparel and Footwear	H&M	33 suppliers.	56% emissions reduction across Scope 1, 2, and 3 by 2030 (baseline year 2019).
Apparel and Footwear	Under Armour	~30 suppliers, responsible for 30% of its global footwear and clothing production.	30% emissions reduction across Scope 1, 2, and 3 by 2030 (baseline year 2018).
Apparel and Footwear	New Balance	~70 suppliers (tier 1 and tier 2).	30% emissions reduction across Scope 1, 2, and 3 by 2030 (baseline year 2017), aiming for net zero by 2050.
Apparel and Footwear	GAP	~150 contracted factories.	30% emissions reduction in Scope 3 by 2030 (baseline year 2017), targeting carbon neutrality across value chain by 2050.
Apparel and Footwear	Puma	54 contracted factories (tier 1 and tier 2). Vietnam and China main sourcing countries.	Reduction of Scope 3 emissions by 60% per million euro in sales between 2017 and 2030.
Apparel and Footwear	Levi Strauss & Co	40 contracted factories.	40% emissions reduction in Scope 3 by 2025 (baseline year 2016).
Apparel and Footwear	Fast Retailing (Uniqlo's parent company)	70 contracted factories. Annual export turnover from Vietnam around USD3 billion (2019).	20% emissions reduction in Scope 3 by 2030 (baseline year 2019). 90% emissions reduction in own stores and offices by 2030.
Apparel and Footwear	Inditex (owner of brands: Zara, Pull&Bear, Bershka)	149 contracted factories.	20% emissions reduction in Scope 3 by 2030 (baseline year 2018), aiming for carbon neutrality in 2040.
ICT/Electronics	Samsung	Six factories producing smartphones, computers, home electronics. Annual revenue USD74 billion (2021). Over 50% of global smartphones output produced in Vietnam.	No commitment re Vietnam's operations yet. In 2020, Samsung hit its target of 100% renewable energy use in China, Europe, and the United States.
ICT/Electronics	LG	Three factories producing TVs, displays, smartphones, home appliances.	100% renewable energy use by 2050.
ICT	Intel	One USD1.5 billion factory producing semiconductors. Annual export turnover USD13 billion (2020).	100% renewable energy use across manufacturing operations by 2030.
ICT/Electronics	Apple	21 suppliers including GoerTek, Foxconn, Luxshare, Intel, Samsung.	Carbon neutrality across supply chain and products by 2030.
ICT/E-commerce	Amazon	Vietnam among top 5 sourcing countries. To build a "local zone" data center in Vietnam.	Carbon neutrality by 2040. 100% renewable energy use in own operations by 2030.
Furniture	IKEA	Suppliers in Vietnam.	15% emissions reduction across value chain by 2030 (baseline year 2016). Targeting 100% renewable energy across value chain/at direct suppliers, starting with Poland, China and India.
Food and Beverages	Heineken	Six breweries in Vietnam, one of key markets.	100% renewable thermal and electrical energy use in all six breweries in Vietnam by 2025.
Consumer goods	Lego	One factory to start operation in 2024.	37% emissions reduction across Scope 1, 2, and 3 by 2032 (baseline year 2019). Targeting 100% renewable energy use across factories, offices and stores.

Source: Company reports and statements, data as of latest available.

Note: The above list of companies is not exhaustive.

The Vietnamese government has a role to play in making this transition happen, starting with expedited reforms in its power sector. As brand owners have found, switching to renewable energy usage helps to reduce Scope 3 emissions significantly.⁸ Weaning factories off a coal-heavy grid and pivoting toward clean energy is now a key factor in driving the foreign direct investment that policymakers must prioritize to support Vietnam's growth potential.

This context is critical to understand the drivers behind Vietnam's renewable energy strategy and could inform market watchers of likely longer-term outcomes.

Senior officials have spent the past decade working out ways to make the country more investment-worthy, broadening the export horizons and market access benefits for investors who choose the country as a production base. It would therefore be wrong to assume that the brands' call for clean energy access is taken lightly.

Nevertheless, ironing out regulatory and technical details to facilitate the process is no easy feat, given the complex legal architecture and risk-averse political climate. The good news is that these efforts have a better chance to earn the backing of Vietnamese leaders, who are realizing the long-term economic dividend of supporting the decarbonization agenda of their business partners. By contrast, renewables skeptics will now need to answer tough questions about a business-as-usual power development plan that continues to feed the grid and climate-conscious industrial offtakers with polluting electricity.

Distributed Renewable Energy – A Lifeline to Vietnam's Clean Energy-hungry Supply Chains

Greater focus on corporate clean energy needs can be seen in the rapid growth of distributed renewable power solutions, such as onsite rooftop solar panels. Despite a temporary policy pause imposed on utility-scale solar projects, the Ministry of Industry and Trade and state utility Electricity of Vietnam (EVN) have expressed continued support for commercial and industrial (C&I) rooftop solar systems, as they help to ease demand, grid congestion, and relieve EVN of the pressure of developing and funding new capacity, particularly in currently supply-tight areas in the north.

This segment, albeit substantially smaller in size than utility-scale, is quietly driving capacity growth this year amid the PDP8 policy limbo, as developers and their financiers tap onto Vietnam's largely under-served and growing industrial space. Rapid scalability is within sight.

The key here is that C&I rooftop solar development in Vietnam has evolved to a stage where it is largely detached from the PDP8 and tariff deliberations and uncertainties. Developers have progressed smoothly from a FIT-reliant business model back in 2020 to one that optimizes the host's electricity demand and

⁸ Financial Times. [Fashion fails to factor in supply chain carbon](#). 27 May 2021.

consumption pattern with the system output, ensuring the project’s economic viability even in the absence of storage and state subsidies (i.e. FIT for the overspill output), while still delivering cost savings for the corporate offtaker. Most developers are offering electricity to clients at a discounted tariff compared to that of EVN, which is guaranteed over a period of up to 20 years.

Table 2: Vietnam’s C&I Rooftop Solar Developers

Local Investor	Foreign Investor	Name of Company/ Joint Venture (if any)	Target C&I Rooftop Solar Capacity
VinaCapital	EDF Renewables	SkyX Solar	200MWp by 2023-2024.
REE	-	REE Solar Energy	500MWp by 2025. Operating capacity 93MWp (2021).
TTC Group	-	TTC Energy	Undisclosed. Operating capacity 50MWp (2022).
Bamboo Capital Group	SP Group	BCG Energy	500MWp by 2025.
Nami Energy	SK Group	-	250MWp, no timeline specified.
-	Shire Oak International	Shire Oak International	250MW in development. Operating capacity 52MW (2021).
-	TotalEnergies	TotalEnergies	30-50MWp per year.
-	Sojitz, Osaka Gas, Loop	SOL Energy	10MWp, no timeline specified.
-	GreenYellow	GreenYellow	Undisclosed. Operating capacity 70MWp (2022).
-	Norsk Solar	Norsk Solar	Undisclosed. Operating capacity 11MWp (2021).
Copper Mountain Energy	Oman Investment Authority	CME	1000MWp by 2024.

Source: Company reports and statements, data as of latest available.

Note: The above list of companies is not exhaustive.

Several high-profile investors have entered this market. The French utility group EDF and its local partner, investment fund VinaCapital, have committed USD100 million over the next three years for a pipeline of 200 megawatt peak (MWp) of C&I rooftop solar power systems.⁹ South Korean conglomerate SK Group has pledged USD200 million and a 250MWp installation target in the next few years, with local partner Nami Energy.¹⁰

Another emerging trend is how local industrial parks have become developers themselves, proactively exploring clean energy solutions within their grid to lure in ESG-conscious tenants. Eco-industrial parks are gaining traction and could be fertile ground for microgrid development in the very near future. Deep C’s Hai Phong I is targeting over 20MWp of new rooftop solar installation between 2022-2023, which will be distributed to its clients’ factories and machineries via the internal grid, as well as onsite windmills, solar farms, and battery storage further down the line.¹¹ More recently, Sembcorp-backed Vietnam Singapore Industrial Park’s expansion in Binh Duong province announced it would develop an onsite solar farm to help large tenants, such as the upcoming Lego factory, meet its 100% renewable energy usage target.¹²

⁹ VinaCapital. [EDF Renewables partners with VinaCapital to invest in SkyX](#). 13 October 2021

¹⁰ Nami Energy. [SK Ecoplant and Nami Solar launch joint venture to invest in Vietnam’s distributed solar energy](#). 24 January 2022.

¹¹ Deep C. [First step toward the wonderful world of renewable energy](#). 1 September 2021.

¹² Sembcorp. [Sembcorp breaks ground for new sustainable industrial park concept, VSIP Binh Duong III](#). 19 March 2022.

For energy-intensive consumers with aggressive clean energy targets, but without access to onsite resources, the answer lies in the much-anticipated offsite corporate renewable energy procurement scheme. The government has been undertaking regulatory and technical preparatory work for a pilot roll-out of direct power purchase agreements (DPPA), expected to be deployed between 2023-2024 with an initial cap of 1GW capacity. With price negotiations a matter between the corporate offtaker and power generator, the charm of DPPA is that it relieves EVN of tariff pressures once the power utility completes the soft and hard infrastructure required to become an independent system and market operator.

More ambition, however, could give Vietnam stronger positioning, given the available resources and demand. In the Asia Pacific, the corporate renewable procurement market is quickly evolving, with India, a competing manufacturing economy to Vietnam, currently leading the pack with 5.2GW in cumulative capacity.¹³

Closing

Over the past couple of years, much of the discussion around PDP8 and the role of renewables in Vietnam's future energy mix has given undue attention to the macroeconomic spillover effect of a credible renewable energy game plan.

Solar and wind power is no longer a simple matter of incremental electricity supply, but an insurance policy for jobs, hard currency earnings, economic growth, and a conduit for sustainable investments. Multinational corporations and the global consumer market, which Vietnam has more access and exposure than most developing economies in Asia, stand ready to reward Vietnam for playing its part in decarbonizing the global supply chain.

Until today, Vietnam has been capitalizing on a confluence of socio-demographic, geographic, political, and economic advantages to secure hundreds of billions of investment dollars and annual export turnover. The next decade's revenue streams, however, will rest on EVN's ability to plug the factories to a low-carbon grid.

¹³ Wood Mackenzie. [Corporate renewable PPAs playing bigger role in decarbonizing Asia Pacific](#). 18 August 2021.

About IEEFA

The Institute for Energy Economics and Financial Analysis (IEEFA) examines issues related to energy markets, trends and policies. The Institute's mission is to accelerate the transition to a diverse, sustainable and profitable energy economy. www.ieefa.org

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