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# Opportunities in Vietnam

## Trade report for the Ministry of Foreign Affairs of Republic of Estonia

13 January 2025

REPUBLIC OF ESTONIA
MINISTRY OF FOREIGN AFFAIRS

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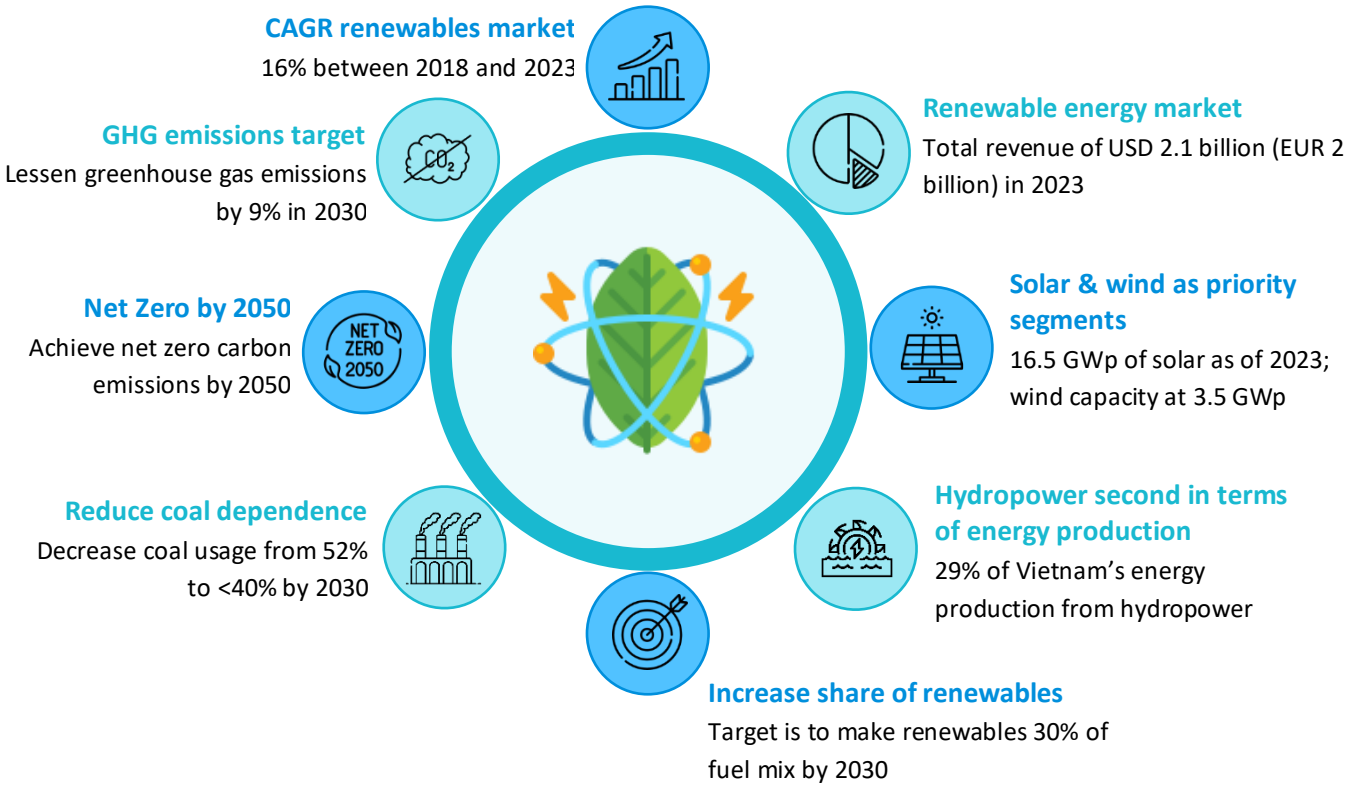
# Exchange rates used in the report

USD 1 = EUR 0.97

# Focus sector: CleanTech/GreenTech

## 1. CleanTech/GreenTech sector overview

**Figure 1: Snapshot of the CleanTech/GreenTech sector**




Vietnam is emerging as a leading force in the global green technology sector. The country ranks 2nd among developing economies around the world in attracting FDI in renewable energy over the 2015-2022, between Brazil and Chile. Central to Vietnam's sustainability efforts is its ambitious national climate target: achieving net-zero carbon emissions by 2050, as outlined in the National Strategy on Green Growth. This strategy places environmental technologies at the heart of the nation's economic restructuring, with a strong focus on renewable energy, waste management, and pollution control.

Interviewed in the context of this study, the Vietnam Clean Energy Association stressed how in recent years, Vietnam has achieved remarkable growth in renewable energy, particularly in solar and wind power, with a compound annual growth rate (CAGR) of over 16% over the past five years. Remarkably, Vietnam has emerged as the largest solar power producer in Southeast Asia. This trajectory is expected to continue, driven by supportive government policies and increasing foreign investments. In particular, the Vietnam Clean Energy Association expects the offshore wind energy segment to witness significant growth.

The country's CleanTech solutions are not only addressing pressing environmental issues, such as air pollution and plastic waste, but also reinforcing Vietnam's leadership in Southeast Asia's transition to a green economy.

## Market trends at a glance

**Expansion of the renewable energy portfolio**

**Critical need for energy storage and advanced grid management**

**Circular economy and biobased materials gaining momentum**

Vietnam is making significant strides in sustainable energy production, particularly in green hydrogen and solar energy. For instance, The Green Solutions partnered with Honeywell to inaugurate Vietnam's first green hydrogen plant, leveraging renewable sources like wind and solar. In the solar energy space, Vietnam's installed solar capacity surged from 4.5 GW in 2019 to over 16.5 GW by the end of 2020, driven by substantial government-backed projects. The Trung Nam Group's 450 MW solar farm, one of the largest in Southeast Asia, exemplifies the nation's commitment to expanding solar capacity. Hybrid renewable projects, such as those combining solar with wind, are also emerging, aiming to maximise energy efficiency and production. The country still has considerable untapped potential. According to the International Renewable Energy Agency, Vietnam's renewable energy potential is approximately 1.2 terawatts, which is 15 times the current installed capacity.

The expanding renewable energy sector has intensified the need for advanced energy storage solutions and improved grid management. VinES Energy Solutions JSC, in collaboration with SolarBK, is pioneering the integration of rooftop solar and battery energy storage systems (BESS) under the "Make in Vietnam" initiative. This aligns with the growing reliance on renewables, necessitating sophisticated battery technologies to store excess energy and ensure a stable supply during peak demand and low generation periods. The complexity of managing a renewable-heavy grid has led to increased investment in smart grid technologies, with EVN (Vietnam Electricity) investing in digital tools to enhance grid stability and integrate new energy forms into the national grid.

Vietnam is also advancing circular economy initiatives and developing biobased alternative materials, signalling a broader commitment to sustainability. The country promotes energy-saving solutions across industries, evidenced by the National Energy Efficiency Program (VNEEP), which aims to reduce energy consumption by 5-7% between 2019 and 2030. Sustainable packaging is gaining traction, with companies like Tetra Pak Vietnam pioneering the use of biodegradable and recyclable materials to reduce plastic waste. Additionally, biobased materials derived from agricultural waste, such as rice husk-based products by Ecolife Vietnam, present new opportunities in the packaging and construction sectors.

The integration of data-driven solutions in CleanTech is another growing trend, enabling better energy forecasting and optimised management of renewable systems. The use of AI and machine learning in projects like ABB's smart grid solutions is improving grid management and identifying energy efficiency opportunities. This data-centric approach is essential for accelerating Vietnam's transition to a low-carbon economy, supporting both environmental sustainability and economic growth.

# 2. National strategies and policies

**Strategies and policies at a glance**

- National Climate Change Strategy
- National Strategy for Green Growth
- Hydrogen Energy Development Strategy
- National Technology Innovation Fund
- Zero Waste Masterplan
- R&D Centres for Greentech

## 2.1. Sector strategies and policies

Vietnam has established comprehensive strategies and policies aimed at fostering its CleanTech sector, driven by the urgency to address environmental challenges and promote sustainable development. The National Climate Change Strategy (NCCS) is central to these efforts, targeting a 9% reduction in greenhouse gas emissions by 2030, with an ambition to cut emissions by up to 27% contingent on international support. This strategy prioritises key sectors like energy, agriculture, and waste management, underscoring Vietnam’s commitment to enhancing climate resilience and reducing its carbon footprint.

The Environmental Protection Strategy to 2030 (Decision 450/QD-TTg) outlines Vietnam's long-term vision for environmental sustainability, emphasising the transition to a circular economy. This policy envisions Vietnam achieving carbon neutrality by 2050 and has led to significant developments in renewable energy, particularly in wind and solar power projects. On the other hand, the National Strategy on Environmental Protection (Decision 1675/QD-TTg) reinforces Vietnam's commitment to environmental sustainability by focusing on pollution control, especially in urban areas and industrial zones. The policy advocates for investments in modern waste management technologies and sets a target to phase out single-use plastics by 2025. These initiatives are crucial for reducing environmental degradation and promoting sustainable urbanisation.

Under the National Strategy for Green Growth, Vietnam aims to improve energy efficiency and reduce carbon intensity in critical sectors. The strategy promotes the use of renewable energy sources, advances green building practices, and enhances resource efficiency. As a result, Vietnam has seen an increase in green-certified buildings and the adoption of energy-efficient technologies, contributing to the overall sustainability of its industrial and urban development.

Decision 1658/QD-TTg, part of the National Strategy for Green Growth, specifically emphasises the role of green industries and technologies in the national economy. The strategy includes targets for expanding the renewable energy sector, particularly focusing on green hydrogen and other clean energy sources. This has led to pilot projects in green hydrogen production, positioning Vietnam as a potential leader in the region for decarbonising heavy industries.

Lastly, Vietnam's Hydrogen Energy Development Strategy, announced in early 2024, outlines a comprehensive plan to integrate hydrogen into the country's renewable energy landscape. This aligns with the national goal of achieving net-zero emissions by 2050. The strategy prioritises green, clean, and sustainable hydrogen production, storage, and utilisation. It aims to diversify investment sources, enhance technology, and foster international cooperation to create a thriving hydrogen ecosystem. This strategic initiative aims to position Vietnam as a key player in the global hydrogen energy transition.

## 2.2. Regulatory environment

Vietnam's regulatory framework for the CleanTech sector is shaped by a mix of mandatory requirements and ongoing initiatives to ensure sustainable development while facilitating green technology innovation. The Law on Environmental Protection (2020) forms the backbone of these regulations, imposing stringent environmental impact assessments (EIA) for all major projects. This law ensures that industrial and infrastructure developments comply with environmental standards, thereby safeguarding natural resources and public health.

In addition to EIAs, specific permits are required for CleanTech and GreenTech projects. Renewable Energy Development Permits are crucial for establishing renewable energy plants, covering essential aspects like land use, grid connection, and construction. These permits are part of the government's broader strategy to streamline the development of renewable energy, which has seen Vietnam emerge as a regional leader in solar and wind power.

Waste Management Permits are mandatory for businesses involved in waste management. These permits regulate the collection, recycling, and disposal of waste, encouraging companies to adopt modern waste treatment technologies. This aligns with Vietnam's ongoing efforts to phase out single-use plastics in urban areas by 2025 and nationwide by 2030. While a nationwide ban on single-use plastics has not yet been implemented, the government is actively promoting sustainable packaging through various initiatives and pilot projects.

Vietnam's commitment to reducing plastic waste is also reflected in the planned phase-out of single-use plastics. Although penalties and specific incentives are still under development, the government aims to eliminate single-use plastics in urban areas by 2025, extending to the entire country by 2030. This regulatory push encourages businesses to transition to sustainable packaging solutions, with pilot projects serving as test beds for broader adoption.

## 2.3. Incentives

Vietnam offers a range of incentives to accelerate the adoption of CleanTech and drive investment in the sector. The Prime Minister's Decision 13/2020/QD-TTg introduced preferential feed-in tariffs for solar power projects, which have been instrumental in attracting foreign investment and boosting solar capacity in the country. These incentives have enabled Vietnam to rapidly scale up its renewable energy sector, making it a key player in the regional energy market.

In addition to feed-in tariffs, Vietnam provides tax incentives for green technology investments under the Law on Investment (2020). Companies investing in renewable energy, energy efficiency, and waste treatment technologies can benefit from reduced corporate income tax rates, land rent exemptions, and import duty exemptions on equipment. These incentives have spurred the development of numerous renewable energy projects, particularly in solar and wind power, contributing to Vietnam's goal of achieving 27% renewable energy in its energy mix by 2030.

## 2.4. R&D funding for CleanTech/GreenTech

Some important R&D funding initiatives that Estonian companies should be aware of include:

- The National Technology Innovation Fund (NATIF), established under the Ministry of Science and Technology, supports innovative projects in areas such as renewable energy, energy storage, and environmental protection. The fund provides grants and financial support to businesses and research institutions working on innovative solutions that align with Vietnam's sustainable development goals. By providing financial support for R&D, Vietnam aims to foster the development of cutting-edge technologies that can address its environmental challenges and enhance the competitiveness of its CleanTech sector on the global stage.
- Global tech giants like Samsung and Qualcomm have set up R&D centres in Vietnam, focusing on advanced technologies, including those relevant to the green tech sector. For instance, Samsung's EUR 200.2 million R&D centre in Hanoi, completed in 2022, is part of a broader effort to position Vietnam as a hub for technological

innovation across various sectors, including CleanTech. These R&D centres not only focus on immediate tech needs but also long-term sustainable development, aligning with Vietnam's green growth goals.

- The United Nations Development Programme (UNDP) and Vietnam's Ministry of Science and Technology have launched initiatives like the Viet Nam SDG Investor Map, which identifies priority areas for sustainable development investments, including renewable energy and other green tech sectors. This map is designed to attract private sector funding to areas with high potential for impact, thereby supplementing public R&D funding. In 2024, Vietnam also received a grant from the World Bank's Green Climate Fund for the Vietnam Scaling Up Energy Efficiency Project, which is now in the consultation phase.

It should be highlighted that the government directs R&D funding to Vietnamese companies, and therefore this area does not represent an immediate opportunity for Estonian companies. Partnering with local players could nonetheless give access to some support in the context of specific projects.

# 3. The CleanTech/GreenTech ecosystem

## 3.1. Private sector CleanTech/GreenTech stakeholders

In Vietnam's CleanTech/GreenTech ecosystem, several key players are driving innovation and growth. Leading the charge are a mix of dynamic startups, established local enterprises, and international firms. Prominent Vietnamese companies are pioneering advancements in renewable energy, energy efficiency, and sustainable practices, while global players bring cutting-edge solutions and investment.

Below is a list of renewable energy companies, developers, and other service providers in Vietnam.

**Table 1: Key private sector CleanTech/GreenTech stakeholders**

| Organisation name | Type | Profile |
|---|---|---|
| **Vietnam Electricity Group (EVN)** | Integrator/ Developer | ○ A major state-owned utility in Vietnam, EVN is central to the country's energy sector, with significant investments in renewable energy, including hydro, wind, and solar power. This commitment supports Vietnam's goals to lower carbon emissions and enhance energy efficiency, positioning EVN as a key player in the nation's shift towards sustainable energy practices.<br>○ https://www.evn.com.vn/ |
| **Bamboo Capital Group (BCG Energy)** | Renewable energy company | ○ BCG Energy leads with substantial investments in solar and wind energy projects. As a subsidiary of Bamboo Capital Group, BCG Energy supports Vietnam's CleanTech ambitions by developing large-scale renewable projects that reduce dependence on fossil fuels and cut greenhouse gas emissions.<br>○ https://bamboocap.com.vn/ |
| **Trung Nam Group** | Integrator/ Developer | ○ Trung Nam Group has invested extensively in solar and wind power, significantly boosting the country's energy production capabilities. Trung Nam plays a key role in modernising Vietnam's energy grid and advancing its industrial sectors through sustainable practices.<br>○ https://trungnamgroup.com.vn/ |
| **SolarBK** | Integrator/ Developer | ○ SolarBK provides innovative solar solutions for both residential and commercial use. Renowned for its technological innovation and sustainability, the company enhances energy access and promotes solar adoption across Vietnam. SolarBK's efforts are central to advancing energy independence and supporting the country's transition to a low-carbon economy.<br>○ https://solarbk.vn/ |
| **TTC Energy** | Integrator/ Developer | ○ TTC Energy, a division of the Thanh Thanh Cong Group, focuses on solar and biomass power projects in Vietnam. The company is dedicated to harnessing Vietnam's natural resources to produce clean energy, aiming to boost the share of renewables in the national energy mix.<br>○ https://www.ttcenergy.vn/ |

| Organisation name | Type | Profile |
|---|---|---|
| **Hanoi Urban Environment Company – URENCO** | Recycling/ Waste management company | ○ URENCO specialises in providing waste management and recycling services. Its operations focus on collecting, transporting, processing, and recycling different types of waste to enhance environmental sustainability in urban areas.<br>○ https://urenco.com.vn/ |
| **Selex Motors** | Integrator/ Developer | ○ Selex Motors offers a range of affordable EVs complemented by an innovative battery-swapping network. This setup enhances the convenience and affordability of EV ownership, aiming to replace traditional petrol-powered vehicles and reduce urban pollution.<br>○ https://selex.vn/ |
| **Stride** | Integrator/ Developer | o Stride is a dynamic player in Vietnam's clean energy sector, focused on making renewable energy solutions accessible and affordable for households and small businesses. Specialising in solar installations and energy-efficient products, Stride provides innovative financing options, including zero-interest payments at the point of sale and a streamlined online consumer process.<br>o https://www.stride.vn/ |
| **VertZero** | Carbon emissions reporting platform | o Belonged to FPT, one of the biggest ICT solutions providers in Vietnam, VertZero is a pioneer in developing carbon emissions reporting platform across Southeast Asia. The company contributes to carbon-neutral solutions by leveraging technology.<br>o https://vertzero.eco/en |
| **VinES** | Energy storage solution provider | o VinES is a transformative energy solution provider, specialising in advanced battery technologies and energy storage systems. The company caters to diverse sectors, including electric vehicles and commercial applications.<br>o https://vines.net.vn/ |

## 3.2. Public sector CleanTech/GreenTech stakeholders

Below is a list of government agencies, technology incubators, and industry associations that Team Estonia and Estonian companies can collaborate with. In addition to being facilitators, these government agencies are also potential buyers of Estonian solutions.

**Table 2: Key public sector CleanTech/GreenTech stakeholders**

| Organisation name | Type | About |
|---|---|---|
| **Ministry of Planning and Investment (MPI)** | Government agency | o MPI oversees the integration of environmental sustainability into national development strategies. This includes the regulation of the CleanTech sector, ensuring that all projects align with the country's environmental laws and policies<br>o https://www.mpi.gov.vn/en |

| Organisation name | Type | About |
|---|---|---|
| **Vietnam National Innovation Center (NIC)** | Government agency | o NIC supports innovation and startup ecosystems, provides grants, and fosters partnerships with foreign companies. Cleantech is a key focus of innovation in Vietnam.<br>o https://nic.gov.vn/ |
| **Ministry of Natural Resources and Environment (MONRE)** | Government agency | o MONRE oversees the integration of environmental sustainability into national development strategies. This includes the regulation of the CleanTech sector, ensuring that all projects align with the country's environmental laws and policies<br>o https://www.monre.gov.vn/English |
| **Electricity and Renewable Energy Authority (EREA)** | Government agency | o EREA promotes and regulates energy conservation and renewable energy initiatives. EREA develops policies and strategies that encourage the adoption of renewable energy and energy efficiency measures across various sectors. It also collaborates with domestic and international partners to implement projects and programmes that advance Vietnam's energy goals, focusing on sustainable development and reducing environmental impact.<br>o http://www.erea.gov.vn/ |
| **Vietnam Clean Energy Association (VCEA)** | Industry association | o VCEA is a key pivotal organisation within Vietnam's CleanTech sector, fostering collaboration among businesses, government entities, and international partners. VCEA advocates for policies that promote the growth and development of clean energy technologies across the country.<br>o https://nangluongsachvietnam.vn/ |
| **Vietnam Energy Association (VEA)** | Industry association | o VEA engages in activities across the energy sector, advocating for energy policies and frameworks that support sustainable development. This organisation collaborates with various stakeholders, including government bodies, industry groups, and international organisations, to promote efficient energy use and the expansion of renewable energy sources in Vietnam.<br>o https://nangluongvietnam.vn/ |
| **Hanoi University of Natural Resources and Environment (HUNRE)** | University | ○ HUNRE is a Vietnamese higher education institution dedicated to the study and research of natural resources and environmental sciences. It offers a range of academic programmes aimed at developing skilled professionals who can contribute to sustainable development, clean energy and technology, and environmental conservation in Vietnam.<br>○ https://hunre.edu.vn/ |
| **Green Tech Landing Pad** | Greentech incubator programme | ○ The Green Tech Landing Pad, supported by German development cooperation and implemented by GIZ in collaboration with Vietnam's National Innovation Centre, advances Vietnam's textile sector by promoting the integration of green technologies. This programme offers technical support, business development training, networking, and market entry resources, helping companies enhance their competitiveness in both Vietnamese and EU markets.<br>○ https://www.bmz-digital.global/en/ |

Below are some examples of government agencies that have recently issued Cleantech/ Greentech-related tenders.

## 3.3. Recent CleanTech/GreenTech tenders

**Table 3: Recent CleanTech/GreenTech tenders**

| Organisation name | About | Contact Info |
|---|---|---|
| **TNG Investment and Trading Joint Stock Company** | ○ TNG invites bids for the supply of rooftop solar power for its operations in 2024. | ○ Email: info@tng.vn |
| **Ho Chi Minh City Department of Industry and Trade** | ○ The project invites bids to install rooftop solar panels at 440 government buildings in Ho Chi Minh City. | ○ Email: csid.sct@tphcm.gov.vn |
| **Vietnam Electricity Group (EVN)** | ○ EVN in Long An Province invites bids for three 110kV power grid projects in 2024. | ○ Email: bbt@evn.com.vn |
| **Hanoi Health Department** | ○ Hanoi Health Department invites bids for solar power system installation at Van Dinh General Hospital | ○ Email: vanthu_soyt@hanoi.gov.vn |

# 4. Competitive landscape

## 4.1. Porter's five forces analysis of the CleanTech/GreenTech sector

**Competition in sector: MEDIUM**

- While the CleanTech/GreenTech sector in Vietnam is growing, it is still relatively new and developing. Some segments, such as hydrogen production, marine energy, and low-carbon mobility, remain in the early stages of development.
- The market still offers many opportunities for providers of advanced technologies, given the increasing demand for sustainable solutions in Vietnam

**Potential of new entrants: MEDIUM**

- While the Vietnamese government encourages investment in green technologies, navigating the regulatory environment for CleanTech solutions can be complex.
- Demand is strong, but many CleanTech segments, such as hydrogen production and advanced renewable energy systems, require substantial initial investment in technology and infrastructure, creating a barrier for new entrants.

**Power of suppliers: MEDIUM**

- In segments where Vietnamese companies control the technology (i.e. energy management, bio-based materials, etc.), the power of suppliers is medium because the market features a broad array of similar companies.
- For advanced greentech products that rely on specialised technologies, certain foreign suppliers can exert significant leverage due to their unique offerings.

**Power of customers: LOW**

- In emerging segments, there are relatively few suppliers offering cutting-edge technologies and similar products, reducing the power of customers.
- Many CleanTech solutions involve long-term contracts and strategic partnerships (such as energy management for a building), which can lock customers into extended relationships with suppliers.

**Threat of substitute products: LOW**

- The energy efficiency management segment experiences significant competition, with numerous companies offering similar products.
- However, emerging segments such as hydrogen production, electric vehicle (EV) charging infrastructure, carbon capture technologies, and membrane production currently offer fewer alternatives for customers, which reduces the threat of substitution.

### 4.1.1. Competitor analysis

The CleanTech/GreenTech sector in Vietnam is marked by a growing number of players, with foreign entities having a significant presence, particularly in sub-sectors like renewable energy. The ratio of local versus international

players is skewed towards foreign companies in high-tech areas such as wind and solar power, where Chinese and Japanese firms dominate due to their advanced technology and innovation. Domestic companies, on the other hand, primarily engage in the distribution, installation, and maintenance of these systems, rather than in pioneering new technologies. Competition in energy storage and battery solutions is intensifying, with local firms like VinES and foreign companies forming strategic partnerships to develop integrated solutions.

Conversely, sub-sectors such as green hydrogen production and carbon-related solutions are still emerging, presenting fewer competitors and opportunities for new entrants, particularly from Estonia. These areas are currently less saturated, with only a few international collaborations, such as the hydrogen plant by The Green Solutions and Honeywell. In contrast, the bio-based materials and smart farming segments are more competitive, driven by Vietnam's strong agricultural base and focus on sustainability. These sectors benefit from active collaboration between Vietnamese startups and international players, making them more competitive and innovation-driven.

The table below illustrates examples of companies within the CleanTech/GreenTech sector that could potentially compete with Estonian companies. It is important to note that this is not an exhaustive list but rather a strategic starting point for understanding the competitive landscape.

**Table 4: Competitor map of the CleanTech/GreenTech sector**

| Energy solutions | Renewable energy | Circular economy solutions | Waste management |
|---|---|---|---|
| Energy production: TRUNGNAM Group; REE Corporation; KOSY | Smart grid systems: SES; Schneider Electric | Carbon credit: ECOTREE GROUP; CCTPA | Upcycle & Recycle: mGreen; Grac ĐÔ THỊ KHÔNG RÁC |

| Energy solutions | Renewable energy | Circular economy solutions | Waste management |
|---|---|---|---|
| **Energy storage**<br>SELEX<br>VUPHONG Energy Group | **Solar energy solutions**<br>PLINK<br>stride SOLAR<br>Trinasolar<br>SOLANO | **Bio-based products and materials**<br>ECOSOI<br>Mama-st<br>Agrivari<br>MINH HÔNG | **Water management**<br>Viet An Enviro<br>SWM<br>NATURAL STAR VINA<br>flowmetric |
| **Energy efficiency solutions**<br>greenyellow<br>VINERGY<br>IOT.TEAM.VN | **Hydrogen production**<br>THE GREEN SOLUTIONS | **Smart farming**<br>AGRHUB<br>HACHI<br>APPA GROUP | **Membrane production**<br>nx filtration |
| **Green transport and EV charging**<br>DAT.BIKE<br>EBOOST<br>SELEX | **Battery solution**<br>Solar9K<br>VinES | **Carbon tracking**<br>KarbonMap<br>zéro | **Food waste**<br>ECOVIETNAM |

# 5. Export opportunities

Vietnam presents a significant opportunity for Estonian clean technology companies, particularly in the emerging bio-based product sector and green hydrogen market. The country's agricultural strengths and government support for renewable energy initiatives offer a promising environment for foreign investors to introduce advanced technologies and establish a market presence. Additionally, Vietnam's early stages in green hydrogen development and energy sector liberalisation provide a strategic advantage for Estonian firms to become pioneers in these nascent yet rapidly evolving segments.

### Case study

In 2017, Elcogen, a prominent Estonian clean technology company, participated in a demonstration project in Vietnam. This project focused on demonstrating sustainable power production using a Solid Oxide Fuel Cell (SOFC) system that utilised biogas generated from local agricultural waste, specifically at a shrimp farm in Ben Tre, Vietnam. Elcogen's anode-supported cell was employed to generate 1 kW of green electricity, which powered aeration systems in the shrimp pond to enhance oxygen levels. Its project is a prime example of the bottom-up approach to power generation modernisation in Vietnam, where a combination of technologies facilitates local energy production in ways that are economical, sustainable, and enhance systemic resilience.

Elcogen's project in Vietnam was a joint collaboration involving MAGNEX Co. Ltd. from Tokyo, Japan, and Kyushu University from Fukuoka, Japan. The initiative was supported by the Science and Technology Research Partnership for Sustainable Development (SATREPS), a programme conducted by the Japan Science and Technology Agency (JST) and the Japan International Cooperation Agency (JICA).

**Figure 2: Power generation from biogas with fuel cell technology in Vietnam**

Source: Elcogen website

A key factor in Elcogen's success has been its strategic partnerships, allowing the company to effectively adapt its technology to local conditions through close collaboration with both international and local stakeholders. This approach not only ensures optimal performance and customer satisfaction but also fosters knowledge transfer and capacity building. Moreover, by leveraging JICA's extensive network, Elcogen has enhanced its initiatives and strengthened its position in the Vietnamese renewable energy market.

Very importantly, the company continued to engage with the Vietnamese market. In 2019, it was part of an Estonian business delegation to Southeast Asia. The company, together with other Estonian business leaders and government representatives, visited Vietnam, Indonesia and the Philippines. The visit aimed to strengthen and establish new relationships with local partners. The visit was organised by the Estonian Chamber of Commerce and Industry in cooperation with the Ministry of Foreign Affairs of Estonia within the framework of the development cooperation project financed by the Ministry of Foreign Affairs of Estonia.

Enn Õunpuu, the CEO of Elcogen, highlighted in a 2019 interview the significant potential of Southeast Asia, attributing it to the region's rapid economic growth. He noted that this growth positions Southeast Asia advantageously to adopt smart solutions by learning from the mistakes of other regions. Õunpuu emphasised that this approach applies to both renewable energy and environmentally friendly power production initiatives.

Elcogen's business model is particularly relevant given Vietnam's rich biogas resources and a policy framework that encourages sustainable practices. Its foray into Vietnam underscores the potential for Estonian cleantech companies in Vietnam. By carefully analysing the Vietnamese market and adopting a strategic approach, Estonian companies can replicate Elcogen's achievements and contribute to the country's sustainable development goals.

## 5.1. Key opportunities and gap analysis

The following opportunities stand out when considering Estonia's strengths, Vietnam's goals, unmet demands, and emerging trends in the market:

- **Leverage Vietnam's strength in developing bio-based products and materials.** Vietnam's significant strengths in agricultural production and its emerging bio-based segments present a unique opportunity for foreign cleantech developers. For example, in 2023, Japan's Erex Co., Ltd. embarked on a significant clean energy project in Vietnam. In partnership with Sakura Green Energy JSC, the company is constructing a EUR 18.2 million biomass fuel plant in Yen Bai province. This facility, scheduled to be operational in late 2025, will produce wood pellets and wood chips for use in various applications, including thermal power plants and biomass power plants. The project is expected to be a pioneer in carbon decommissioning in Southeast Asia, promoting biomass technology development and contributing to Vietnam's renewable energy goals. Erex's commitment to Vietnam is further evident through its other planned projects in the province, totalling EUR 115.57 million in investment.
- **Position yourself as a pioneer in Vietnam's green hydrogen market**. As of 2024, this segment is in its initial stages of development, presenting a significant opportunity for Estonian investors to gain early market entry. With Vietnam just starting to invest in and construct its first green hydrogen plant, local expertise and technological advancements are still nascent, resulting in minimal competition. Additionally, at a recent

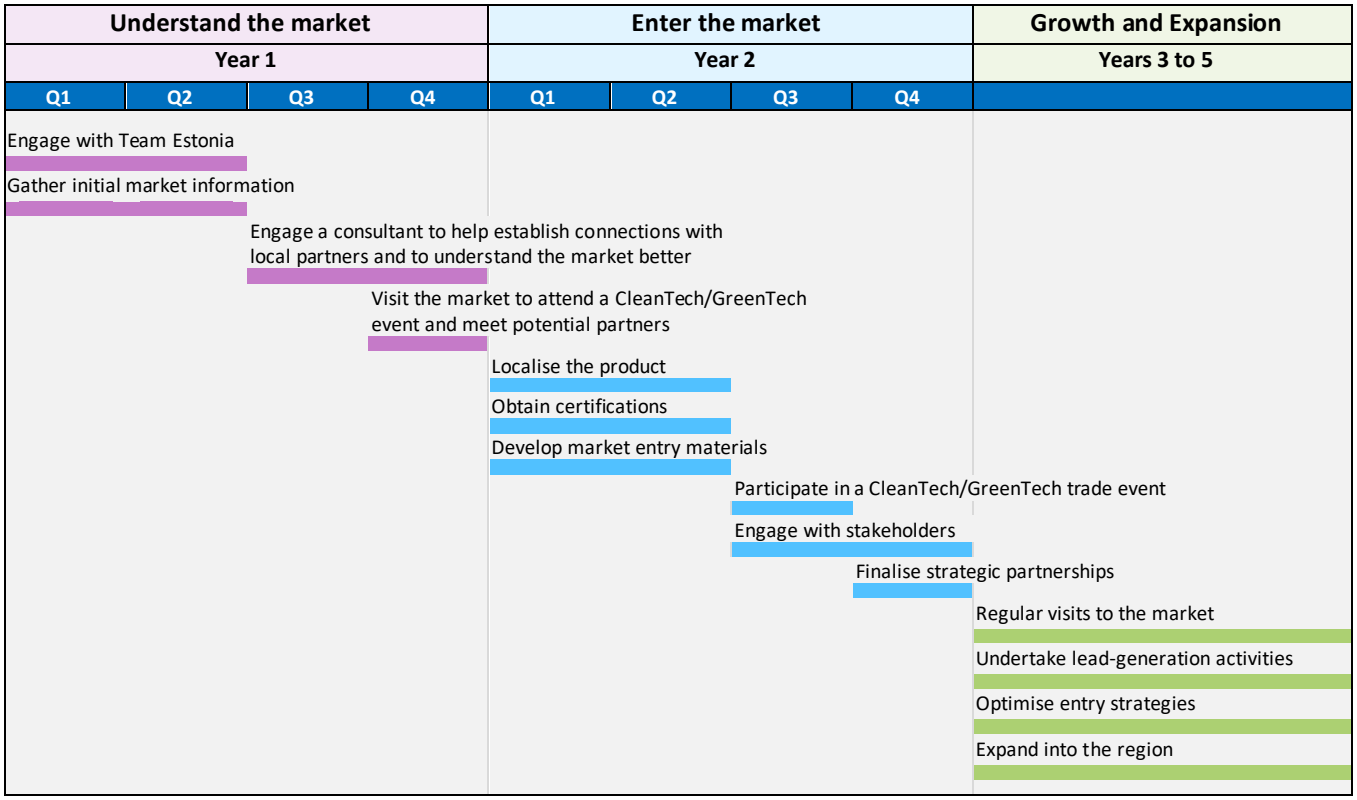
hydrogen summit, the South Korean conglomerate SK Group, known for its eco-friendly projects in Vietnam, expressed its commitment to supporting Vietnam's clean energy transition with advanced technologies such as hydrogen, carbon capture, and small modular reactors. Vietnam is also actively seeking international partnerships to enhance its energy sector, with countries like Saudi Arabia and the UAE positioned as potential collaborators.

- **Take advantage of lucrative energy efficiency projects.** The case of the Vietnam Scaling Up Energy Efficiency Project (VSUEE Project) exemplifies the exciting opportunities in Vietnam's energy efficiency sector. Funded by the World Bank's Green Climate Fund, this project highlights the demand for expertise in benchmarking, standard development, and technical guidance. Similar initiatives are expected as Vietnam strives to meet its climate goals and modernise its industries. Estonian companies with experience in these areas, particularly those with a proven track record working with developing economies, could find significant partnerships and projects in Vietnam's burgeoning clean energy market.
- **Harness opportunities created by the country's clean electricity sector liberalisation.** In July 2024, Vietnam opened up new opportunities for major companies to purchase clean energy directly, a move aimed at helping them achieve their climate targets. Under a new government decree, large energy-consuming factories will now be able to buy electricity from wind and solar power producers. This policy shift will not only support companies in meeting their sustainability goals but also alleviate pressure on the country's overstretched power grid. This change is a significant development for businesses in the clean energy sector, especially those involved in solar and hydrogen power. For Estonian firms specialising in clean energy, this new regulatory environment presents a substantial market entry opportunity. The relaxation of regulations allows these companies to engage directly with Vietnamese businesses, offering advanced technologies and solutions that align with Vietnam's growing commitment to sustainable energy practices.
- **Recognise the shortage of local talent in Vietnam's cleantech sector**. Unlike the ICT sector, where the government has actively encouraged universities to focus on workforce development, the environmental sector has not yet received the same level of attention. As a result, there is a significant gap in specialised skills and knowledge needed to effectively develop, implement, and maintain advanced cleantech technologies. To address this, Estonian firms should not only introduce their cutting-edge technologies but also invest in building local capacity through targeted training programmes. By developing educational initiatives and partnerships with local institutions, these firms can help cultivate a skilled workforce that is equipped to handle the demands of the cleantech sector. This approach will be crucial for driving sector growth and ensuring that technology solutions are well-adapted to meet local needs.

## 5.2. Five-year roadmap

A 5-year plan will enable Estonian companies to build and maintain a robust presence in Vietnam's CleanTech/GreenTech sector.

**Table 5: A 5-year roadmap for Estonian companies for the CleanTech/GreenTech sector**




## Year 1: Understand the market

- **Engage with Team Estonia**: Consider contacting the Ministry of Foreign Affairs, the Ministry of Economic Affairs and Communications, Enterprise Estonia, and the Embassy in the region to obtain recommendations on strategic targets and assistance in facilitating introductions and exploring potential collaborations to extend your market reach.

- **Initial engagement to gather market information**: Engage with these entities, as well as others identified in Section 3 of this report, to gather initial feedback on your offerings, validate your route to market, and understand customer expectations within the CleanTech landscape in Vietnam. Familiarise oneself with ongoing and future green projects involving hydrogen, energy efficiency and biomass. Conduct a thorough analysis of the regulatory requirements and funding opportunities for CleanTech companies in Vietnam. Identify the necessary certifications and permits to build credibility and facilitate smoother market entry.

- **Engage a consultant**: CleanTech companies should seek guidance from local consultants who can assist with business matching services by identifying relevant local partners, distributors, and key stakeholders in the sector. Apart from Orissa International, market-entry consultants with offices in Vietnam and neighbouring counties include Dezan Shira & Associates and Asian Insiders. Consultants can facilitate introductions to potential collaborators, including government agencies, associations, and local manufacturers. Likewise, consultants can offer insights into regulatory compliance and advise on obtaining necessary certificates.

- **Attend/participate in a CleanTech/GreenTech event in Vietnam**: This will be useful for gaining visibility, making additional contacts, and gathering on-the-ground information. Use this opportunity to enhance your understanding of local market dynamics and to network with industry specialists. The table below provides information on some key events taking place in Vietnam.

**Table 6: Key CleanTech/GreenTech trade events**

| Event name | Date | About |
|---|---|---|
| **Smart City Asia 2025** | 7-9 May 2025 | ○ Vietnam International Smart City Exhibition & Conference is the B2B Exhibition on technology in Vietnam, bringing together the leading corporations and companies in the field of technology, smart city solutions, and infrastructure, and sustainability<br>○ Over 15,227 trade visitors from 20 countries in 2024<br>○ https://smartcityasia.vn/en/ |
| **Enertec Expo 2025** | 16-18 July 2025 | ○ This is one of the largest exhibitions on electrical equipment and renewable energy in Vietnam. The exhibition will showcase advanced solutions across a variety of fields, including industrial electricity, smart, automation, and green energy.<br>○ More than 20,000 visitors registered in 2024.<br>○ https://vietnam-ete.com.vn/ |
| **Vietwater 2024** | 5-7 November 2025 | ○ This show is organised by Informa Markets Vietnam to offer business opportunities for companies in several sectors: water, wastewater treatment, and environmental technology.<br>○ Over 10,000 attendees from more than 25 countries estimated in 2025<br>○ https://vietwater.com/en/ |

## Year 2: Enter the market

- **Localise products**: Continue your collaboration with local experts aligning your CleanTech/GreenTech solutions with Vietnam's specific environmental regulations, sustainability goals, and its unique challenges. Ensure your technologies are fully compatible with local standards and regulations. Offering customisation options that align with Vietnam's specific sustainability goals and regulatory requirements will help build trust and enhance the adoption of your solutions in the market.

- **Obtain certifications**: Actively pursue relevant certifications and regulatory approvals necessary for operating in Vietnam's CleanTech/GreenTech sector, such as compliance with energy efficiency standards. Stay informed on regulatory changes related to renewable energy, waste management, and carbon emissions to ensure your products are compliant and can penetrate the market effectively.

- **Develop market entry materials**: Create compelling marketing materials and set competitive pricing strategies. Define your value proposition and develop proofs of concept (POCs) or free trials to effectively showcase the benefits of your products to potential partners and customers. Consider developing brochures, case studies,

and presentations in Vietnamese. Also, create educational content, such as webinars or video series, that address specific challenges in Vietnam and how your solutions can help.

- **Engage with stakeholders**: To effectively engage stakeholders in Vietnam, conduct targeted product demonstrations, preferably in person, to facilitate direct interaction and build trust. Engage in technical and commercial discussions to effectively address integration and market positioning. For example, discuss how your technologies can integrate with Vietnam's electricity grid or how your solutions align with Vietnam's sustainability goals.
- **Finalise strategic partnerships**: Establish partnerships in Vietnam, ensuring that the partner can also offer customer support to address local needs and resolve technical issues. Focus on ensuring your products are well-integrated into Vietnam's sustainability initiatives, ultimately leading to a better user experience and greater market success.

### Year 3 and beyond: Growth and expansion of the business

- **Undertake ongoing promotion for lead generation**: Continuously promote your products and services through targeted marketing campaigns and participation in industry events to generate leads and drive business growth. Utilise digital marketing tools and local media platforms to maintain visibility and engage potential customers consistently. Develop case studies and offer webinars or online demos showcasing the environmental and economic benefits of your products and services to generate qualified leads and maintain a strong market presence.
- **In-market visits**: Estonian companies must commit to regular visits to Vietnam to maintain momentum and build strong local relationships. Recurring market visits allow companies to engage in face-to-face meetings with local partners, participate in key industry events, and stay updated on market trends. This continuous presence is crucial for nurturing partnerships, gathering market insights, and demonstrating long-term commitment to the Vietnamese market, which is essential for gaining trust and securing successful collaborations in the competitive CleanTech/GreenTech sector.
- **Optimise market entry strategies**: Regularly review and refine your market entry strategies based on market feedback and performance data. Focus on enhancing product features that address evolving needs, such as energy efficiency, waste reduction, or renewable energy integration. Adjust your pricing models to reflect the competitive landscape in Vietnam, and consider expanding your customer support to include specialised services like environmental consulting, implementation support, and after-sales service to meet the demands of your clients better.
- **Expand into the region**: Leverage the insights and networks established in Vietnam to explore expansion opportunities in neighbouring countries within the region. Develop regional partnerships and tailor your offerings to meet the specific sustainability goals and regulatory requirements of each market.

## 5.3. Final recommendations

Vietnam's cleantech sector offers substantial growth potential, but understanding the competitive landscape is crucial. The market is becoming increasingly attractive due to a strong focus on renewable energy and government support. Estonian companies should focus on their most innovative and specialised solutions to differentiate themselves from local and international competitors.

To enter the market effectively, Estonian companies should consider engaging local distributors or resellers. These partners can manage onboarding, technical support, and customisation of solutions to meet local needs. They also provide valuable market insights and help navigate the regulatory environment.

Demonstrating how Estonian technologies address local issues and adapting them to Vietnam's specific conditions is essential. Companies should present their value proposition with quantifiable results, such as energy savings and cost reductions, to capture interest from key stakeholders and local partners.

Many consumers and businesses in Vietnam are unaware of how these technologies can improve their quality of life or reduce operational costs. Therefore, Estonian companies should implement strategic marketing campaigns alongside their product offerings. These campaigns should aim to educate the public about the benefits of environmental protection and demonstrate how their products and services can contribute to a healthier environment and leverage people's living standards. This will drive greater adoption of their CleanTech/GreenTech solutions.

Vietnam also offers various government incentives, including grants and subsidies for clean technology projects. Companies should explore these opportunities, noting that local partnerships or ownership may be required. Engaging with local consultants can aid in navigating these incentives and ensuring compliance.

Another option is collaborating with Vietnamese research institutions or government agencies, which can enhance market entry. Establishing a local office provides better access to market insights, regulatory frameworks, and networking opportunities. Alternatively, companies might consider using an Employer of Record (EOR) service or exploring cost-effective regional locations if setting up a physical office is challenging.

By integrating these strategies, Estonian companies can effectively enter and succeed in Vietnam's cleantech sector, capitalising on significant opportunities and contributing to the country's green growth goals.