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THAILAND INVESTMENT REVIEW

Issue 4/2025

INVESTING IN SUSTAINABILITY:

The Next Era of Renewable Energy

THAILAND BOARD OF INVESTMENT

BOI NET APPLICATION

January-September 2025

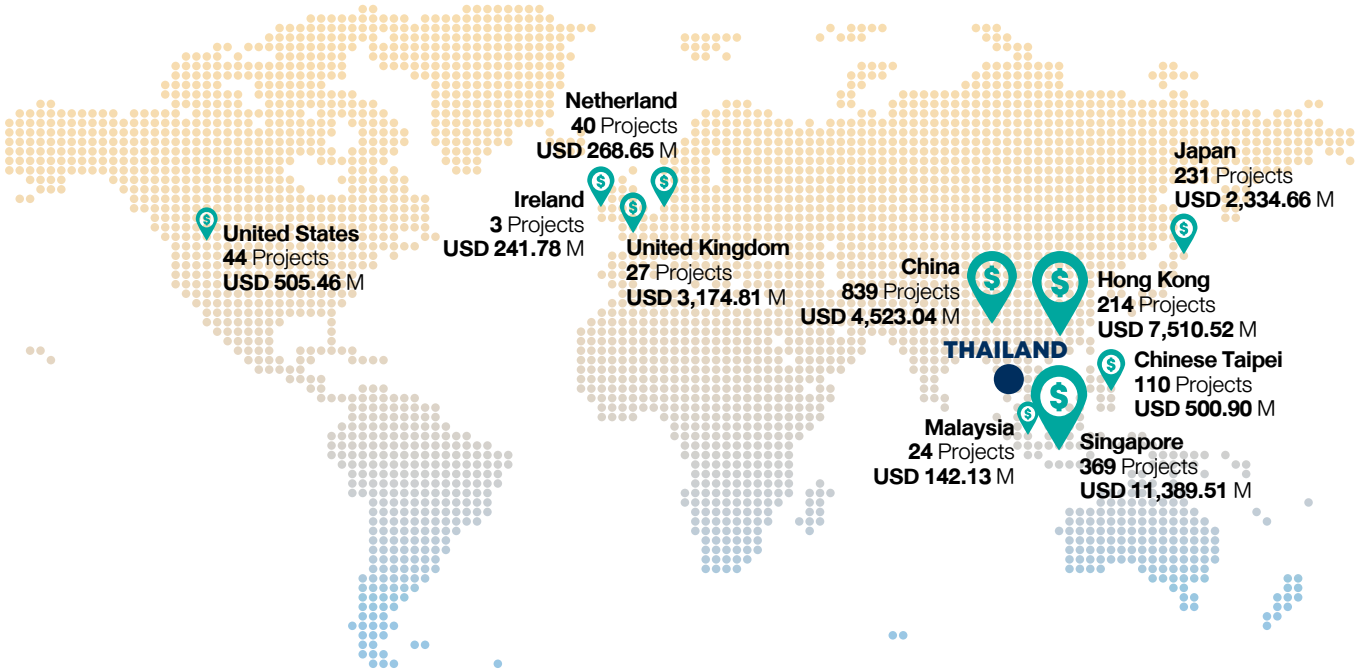
Total Investment
2,622 Projects
USD 43.51 Billion

Total Foreign Investment
1,947 Projects
USD 31.19 Billion

FOREIGN INVESTMENT BY TARGET SECTORS

First S-Curve	New S-Curve
Electronics 363 Projects | USD 5,750.71 M	**Digital** 83 Projects | USD 15,589.20 M
Automotive & Parts 208 Projects | USD 2,207.06 M	**Medical** 43 Project | USD 521.89 M
Petrochemicals & Chemicals 204 Projects | USD 1,089.49 M	**Automation & Robotics** 26 Projects | USD 242.32 M
Agriculture & Food Processing 84 Projects | USD 592.86 M	**Biotechnology** 14 Projects | USD 202.12 M
Tourism 7 Projects | USD 201.55 M	**Aerospace** 6 Projects | USD 156.60 M

FOREIGN INVESTMENT BY MAJOR ECONOMIES



Unit: USD (1 USD = 31.5909 THB as of 19 Dember 2025)

Note: Investment projects with foreign equity participation from more than one economy are reported in the figures for both economies. Statistics on net applications are adjusted whenever applications are returned to applicants due to insufficient information. For more details, please visit **www.boi.go.th**

CONTENT

Powering a Greener Tomorrow: Thailand's Renewable Energy Ambition

As a result of the excessive use of fossil fuels driven by rapid industrial development, climate change has undeniably become one of the most pressing global challenges. Climate change is a complex issue that affects human lives and economies worldwide in multiple dimensions, and Thailand is no exception. In recent years, Thailand has experienced rising temperatures, severe floods from increased rainfall as well as harsher droughts. These natural disasters don't just impact the environment, but also disrupt Thailand's economy, ranging from unpredictable agricultural yields, flood risk for manufacturing facilities, water shortage for factories, to the disruption of tourism[1], all clear reminders of the urgent need for change.

To tackle these challenges, the global community has established several key international agreements under the **UN Framework Convention on Climate Change (UNFCCC)** designed to reduce greenhouse gas emissions and promote sustainable development. Notably, **the Kyoto Protocol** introduced binding emission targets, while **the Paris Agreement**, adopted in 2015, set a global framework to limit temperature rise to well below 2 degrees Celsius above pre-industrial levels, with efforts to further constrain the increase to 1.5 degrees. Countries, including Thailand, reaffirmed their commitments at COP26 and COP27 by submitting updated **Nationally Determined Contributions (NDCs)** outlining strategies to reduce emissions and enhance climate resilience. Complementing these efforts, the United Nations Sustainable Development Goals (SDGs), a universal agenda for peace, prosperity, and sustainability by 2030, emphasize this global priority through two key goals: Affordable and Clean Energy (SDG7) and Climate Action (SDG 13). Together, these frameworks embody a shared global commitment to a low-carbon and sustainable future.

[1] United Nations Development Programme (UNDP), "NC 4: Global Boiling and Climate Change: Impacting every life across Thailand"

Building upon global climate commitments, advanced economies such as the European Union (EU) are implementing additional measures to promote low-carbon and sustainable production. **The EU Emissions Trading System (EU ETS)**, introduced in 2005, was the first major initiative to monetize the cost of carbon emissions into product pricing. This mechanism has since been extended to imported goods through the **Carbon Border Adjustment Mechanism (CBAM)**, which ensures that the carbon cost applied to certain products entering the EU aligns with the EU ETS, particularly where environmental pricing has not been imposed in the country of origin. Similarly, the **EU Deforestation Regulation (EUDR)** requires that products sold in the EU are proven not to contribute to deforestation or forest degradation anywhere in the world. Together, these frameworks not only shape global trade but also underscore the growing importance of renewable energy availability and transparent carbon management.

In alignment with these global commitments and reflecting Thailand's ambition to advance the global sustainability agenda, the country has set clear goals for a greener and more resilient economy. Under its NDCs and updated **Long-Term Low Greenhouse Gas Emission Development Strategy (LT-LEDS)**, Thailand is targeting an unconditional 30% reduction in greenhouse gas emissions by 2030. The nation has also pledged to achieve net-zero emissions by 2050[2].

To realize these ambitions, Thailand's forthcoming **Power Development Plan (PDP)** outlines a significant shift toward clean energy, aiming to increase the share of renewables to 51% by 2037 and 74% by 2050. Supporting this transition, two new mechanisms, developed in collaboration with **the Energy Regulatory Commission (ERC), Electricity Generating Authority of Thailand (EGAT), Metropolitan Electricity Authority (MEA), and Provincial Electricity Authority (PEA)**, are being introduced to expand renewable energy access.

The Utility Green Tariff (UGT) program provides businesses with a transparent pathway to purchase renewable electricity directly from state utilities through power purchase agreements. UGT includes renewable energy certification to verify clean energy contributions, offered at a premium electricity price. Depending on the program, the source of electricity may be **traceable (UGT2)** or **non-traceable (UGT1)**. Meanwhile, the **Direct Power Purchase Agreement (Direct PPA)** enables investors to source renewable electricity directly from private generators through the national grid, promoting clean energy use without relying solely on state utilities. These programs and mechanisms establish a robust foundation for Thailand's transition toward sustainable energy leadership and support the nation's climate goals while aligning with evolving global standards for green growth.

To support these mechanisms, Thailand is also advancing its long-term **Smart Grid Master Plan (2015–2036)**, which provides the strategic framework for modernizing the national electricity system and enabling a more flexible, resilient, and technology-driven grid. Building on this foundation, the Medium-Term Smart Grid Action Plan (2022–2031) outlines key priorities for accelerating implementation. It focuses on enhancing grid flexibility and readiness to accommodate rising shares of renewable energy. The plan is structured around five strategic pillars: demand response and energy management systems (DR & EMS), renewable energy forecasting, microgrid development and prosumer participation, energy storage systems (ESS), and electric vehicle (EV) integration. These efforts are essential for enabling efficient power distribution, improving system resilience, and unlocking new opportunities for clean energy innovation[3].

[2] Thaipublica, "Government accelerates net-zero target by 15 years – a major turning point shaking the future of Thai industry."
[3] Palungnganwanni, "The Energy Policy and Planning Office (EPPO) is moving forward with the "Smart Grid Development Plan 2022-2031" to propel Thailand towards prosperity, stability, and sustainability."

In practice, Thailand's renewable energy capacity has been expanding at a remarkable pace. In 2023, solar, wind, biomass, and small-scale hydropower accounted for 10.4% of Thailand's total electricity production, a significant increase from just 2.1% in 2010[4]. Factoring in large hydropower and imported renewable energy sources, the overall share of renewables in national energy consumption reaches approximately 20%. Beyond grid-based electricity, Thailand is also advancing the domestic production of Sustainable Aviation Fuel (SAF), starting with a mandatory minimum blending rate of 1% and planning to gradually increase this proportion as local production capacity grows[5].

The Thailand Board of Investment (BOI) plays a pivotal role in advancing Thailand's clean and renewable energy transition by offering robust incentives to attract both domestic and international investors. Eligible activities can receive up to 8 years of corporate income tax (CIT) exemption, alongside additional tax and non-tax benefits. Notably, electricity generation from garbage qualifies for the maximum eight-year exemption without a profit cap, while projects utilizing renewable sources such as solar, wind, biomass, biogas, and hydrogen enjoy 8 years exemption period. The BOI also recognizes the importance of energy service companies (ESCOs), granting up to 8 years of tax exemption without a profit cap to further stimulate the sector's growth. By the third quarter of 2025, the BOI received promotion applications for renewable energy electricity production projects with a combined investment value of 2,283.50 million USD (74 billion THB), a testament to the significant influx of capital into Thailand's burgeoning clean energy landscape[6].

Thailand is poised to become a leading force in the renewable energy sector, demonstrating unwavering commitment and readiness to drive the transition toward a cleaner, more sustainable future. With robust support and forward-thinking initiatives from key government agencies such as EGAT, MEA, PEA, and the BOI, the country offers a wealth of opportunities for industries seeking reliable access to renewable and clean energy, especially data centers and cloud services. These ongoing development schemes, including innovative mechanisms like UGT and Direct PPA, create a favorable ecosystem that not only attracts investment but also empowers businesses to thrive while meeting global sustainability standards. As Thailand continues to enhance its policy framework and infrastructure, it stands at the forefront of renewable energy advancement in the region, ready to meet the evolving needs of global industries and to lead by example in the journey toward carbon neutrality and green economic growth. Explore the story inside. ■

4 Krungsri Research, "Industry Outlook 2025-2027: Power Generation"
5 The Civil Aviation Authority of Thailand (CAAT)
6 The Board of Investment of Thailand

Thailand's Clean Energy Landscape: Trends, Data, and Global Rankings

Amid intensifying global climate action and ASEAN's accelerating energy transition, Thailand is emerging as a regional front-runner committed to both environmental responsibility and economic resilience. The country's updated Nationally Determined Contribution (NDC 3.0)—submitted to the UNFCCC in 2025—reinforces its pledge to achieve carbon neutrality by 2050 and net-zero greenhouse gas (GHG) emissions by 2050, with a near-term target to cut net emissions 47% by 2035 from 2019 baseline. Intergovernmental Panel on Climate Change (IPCC)'s 1.5°C pathway and reflects Thailand's determination to peak its national emissions before 2030, setting a clear trajectory toward a sustainable, low-carbon future.

Renewable Energy Expansion and Transition Pathways

Over the past decade, Thailand has made remarkable progress in expanding renewable energy generation. In 2024, solar, wind, biomass, and small hydropower contributed 22.3% of national electricity output, up from just 2.1% in 2010. When large hydropower and imported renewables are included, the share rises to around 20% of total energy consumption[1]. As of 2024, the country's installed renewable capacity reached 23% of total power generation, with solar power capacity at approximately 3.3 GW—projected to increase nearly fourfold to 12 GW by 2037[2] under the Alternative Energy Development Plan (AEDP)[3].

Complementing the AEDP, the **Power Development Plan (PDP 2024–2037)** sets ambitious goals for renewables to grow from 26% of the power mix in 2024 to 51% by 2037, and further to 74% by 2050, driving cumulative investment of roughly USD 22 billion in renewable energy projects between 2022 and 2037. Together, these frameworks place Thailand firmly on track to meet its NDC 3.0 targets while ensuring long-term energy security and competitiveness[4].

1 International Trade Administration U.S. Department of Commerce
2 The Swedish Trade and Invest Council (Business Sweden), "Thailand's renewable energy transition"
3 Intellify Industry Report, "Thailand's energy industry outlook 2025-2030"
4 The Swedish Trade and Invest Council (Business Sweden), "Thailand's renewable energy transition"

Technology Innovation and Emerging Solutions

To achieve deep decarbonization, Thailand's NDC 3.0 highlights the importance of technological innovation alongside renewable expansion. The energy sector, which contributes roughly two-thirds of national emissions, is prioritized for transformation through **carbon capture utilization and storage (CCUS), hydrogen co-firing, small modular reactors (SMRs), and battery energy storage systems (BESS)**. These technologies, supported by public–private partnerships and international collaboration, will strengthen energy security while driving emissions reduction.

In the power sector, the **Electricity Generating Authority of Thailand (EGAT)** continues to scale its floating solar-hydro hybrid projects following the success of the 45 MW installation at Sirindhorn Dam. The newest Ubol Ratana Dam hybrid solar project, inaugurated in 2024, demonstrates Thailand's world-class innovation in combining hydropower and solar for round-the-clock renewable energy. EGAT's long-term plan includes 15 hybrid floating solar projects totaling 2.7 GW across six reservoirs nationwide.

At the same time, smart grid modernization, with investments of over USD 6.4 billion by 2036, is enhancing system flexibility, digital control, and grid resilience to accommodate variable renewable generation. These developments collectively illustrate how Thailand is building an adaptive, high-efficiency power network capable of supporting future demand.

Investment and Climate Finance Opportunities

Thailand's path to carbon neutrality will require significant financial resources. The NDC 3.0 estimates total investment needs of approximately USD 7.05 billion by 2035, with USD 6.11 billion allocated to the energy transition—spanning green power, transport, and industry—and USD 0.94 billion directed toward agriculture, waste, and other sectors. The government is pursuing both domestic financing and international climate finance, including cooperation under Article 6 of the Paris Agreement, which enables countries to exchange internationally transferred mitigation outcomes (ITMOs) and mobilize private investment.

These mechanisms are crucial for bridging Thailand's climate finance gap and ensuring that green growth is not only technologically feasible but also economically viable. In parallel, the government is fostering enabling conditions for **public–private partnerships, green bonds, and sustainable finance instruments**, signaling an open environment for investors seeking opportunities in clean energy and low-carbon technologies.

Global Clean Energy Rankings and Sustainability Performance

Thailand's commitment to clean energy and sustainable development continues to gain global recognition. The country ranked **43rd out of 167 countries** in the **2025 Sustainable Development Report's SDG Index**[5], maintaining its position as ASEAN's top performer. On the **World Economic Forum's Energy Transition Index (ETI) 2025)**, Thailand climbed to **51st globally**[6], ahead of Singapore and Indonesia, reflecting growing international confidence in its clean energy readiness.

Beyond rankings, Thailand's leadership is increasingly visible through flagship clean energy initiatives that demonstrate real-world implementation. The country has launched plans to **produce Sustainable Aviation Fuel (SAF)** domestically, introducing a **minimum blending mandate of 1%** that will gradually increase in line with production capacity—positioning Thailand as a regional hub for low-carbon aviation. Parallel advancements in **smart grid systems** are enabling digitalized, efficient energy distribution, while exploratory work on **Small Modular Reactors (SMRs)** signifies Thailand's openness to future clean baseload solutions.

[5] The Nation News, "SDG Index 2025: Thailand tops ASEAN with reduced poverty and better education"
[6] World Economic Forum, "Fostering Effective Energy Transition 2025"

Notably, the **Hydro-Floating Solar Hybrid at Ubol Ratana Dam**—a 24 MW project following the Sirindhorn model—underscores Thailand's capacity to integrate cutting-edge renewable technologies. Together, these initiatives demonstrate Thailand's evolution from a policy-driven approach to a technology-enabled clean energy leader in Asia.

Future Outlook

Beyond the power sector, Thailand's energy transition is also being shaped by industrial development trend, particularly in electric vehicles and digital infrastructure. EV adoption, expected to surpass 200,000 units by 2024[7], is driving new demand that the government is meeting with expanded charging networks and renewable power supply. At the same time, the fast-growing data center industry and high-tech manufacturing sectors require reliable green electricity, prompting investment in grid upgrades and renewable procurement options such as direct power purchase agreements. Policymakers are also fostering an EV and battery ecosystem that supports storage and second-life uses, strengthening both industrial competitiveness and grid stability.

Thailand's clean energy transition is gathering unstoppable momentum. Projections indicate that the country could reach its **36% renewable energy target for 2037 ahead of schedule**, propelled by expanding solar capacity, advancement of energy storage technology, and continued investor confidence. With clear policy direction, advancing technology, and strong international cooperation, Thailand is poised to define Southeast Asia's next chapter in sustainable growth.

From green hydrogen and SAF production to smart grids and hybrid solar dams, Thailand's path forward exemplifies how emerging economies can lead the global shift toward carbon neutrality. For international investors, it offers a compelling case: a stable policy environment, accelerating clean energy demand, and a transparent roadmap toward a net-zero economy by 2050. ■

[7] Krungsri Research, "Industry Outlook 2025-2027: Power Generation"

Green Incentives: Powering Investment through Policy

Thailand is emerging as a regional leader in sustainable energy, combining market reforms, strategic planning, and investment incentives to accelerate the clean energy transition. The government is building a clear pathway for investors in sustainable energy by offering a range of measures that help businesses cut carbon footprints, secure reliable power, and seize growth opportunities in one of Asia's most dynamic markets.

Making Green Electricity Accessible

A breakthrough in Thailand's clean energy landscape is the UGT program, launched earlier this year by the Energy Regulatory Commission (ERC). The UGT provides businesses with a transparent pathway to purchase renewable electricity directly from state utilities through power purchase agreements. In UGT1, about 2,000 GWh/Year, equivalent to around two million Renewable Energy Certificates (RECs), are being supplied from seven EGAT hydropower plants, with implementation expected in 2025[1].

Participating companies enter into one-year contracts and pay a tariff of THB 4.21 per unit, which is only slightly higher than conventional electricity rates[2]. The additional premium supports renewable generation, while users receive RECs that confirm the clean origin of their electricity consumption. This mechanism gives companies a verifiable tool to meet global sustainability commitments such as RE100 and to strengthen their ESG reporting. Importantly, it allows them to do so without building their own renewable plants, making clean energy adoption more accessible and cost-efficient.

Building this momentum, UGT2 will source electricity from new and existing renewable plants, primarily solar and wind. The program covers 175 power plants with a total portfolio of about 4,000 GWh/Year, equivalent to four million RECs once all facilities reach full commercial operation[3]. In the longer term, the program will evolve toward enabling direct corporate power purchase agreements with private renewable developers, giving businesses greater choices in selecting their preferred energy sources, such as solar or wind.

1 Electricity Generating Authority of Thailand, "Thailand's Utility Green Tariff"
2 Reccessary News, "Thailand launches Utility Green Tariff, offering 2 billion kWh for SMEs"
3 Electricity Generating Authority of Thailand, "Thailand's Utility Green Tariff"

Planning a Carbon-Neutral Future

While the UGT addresses immediate market needs, Thailand is also mapping out its long-term transition. Driven by a new Prime Ministerial policy to enhance global trade competitiveness and transition Thailand into a low-carbon society, the nation has decisively accelerated its net-zero greenhouse gas emissions target from 2065 to 2050, aligning seamlessly with its existing 2050 carbon neutrality goal. More importantly, the country is strengthening its framework to align national policies with international standards such as the Carbon Border Adjustment Mechanism, consistent with its efforts in the OECD accession process[4]. The NEP 2023–2037 serves as the backbone of this strategy, unifying five major policy frameworks: the **Power Development Plan (PDP), the Alternative Energy Development Plan (AEDP), the Energy Efficiency Plan (EEP), the Gas Plan, and the Oil Plan**. Together, these plans provide an integrated roadmap that ensures energy security, drives economic growth, and promotes environmental sustainability.

The targets are ambitious. According to PDP 2024, Thailand aims to increase the share of clean energy to 51% by 2037 and 74% by 2050. These goals reflect Thailand's commitments under the Paris Agreement, its Nationally Determined Contributions, and the SDGs, which guide the nation's vision for a sustainable future for both Thailand and the global community. To meet these commitments, renewables are projected to supply at least half of Thailand's electricity generation, up from 26% today. Achieving this will require large-scale investment in solar farms, wind power, hydro, and bioenergy, supported by expanded transmission networks and modernized energy storage systems. At the same time, the Energy Efficiency Plan aims to cut national energy consumption by 30% by 2030, ensuring that growth in demand does not undermine sustainability goals.

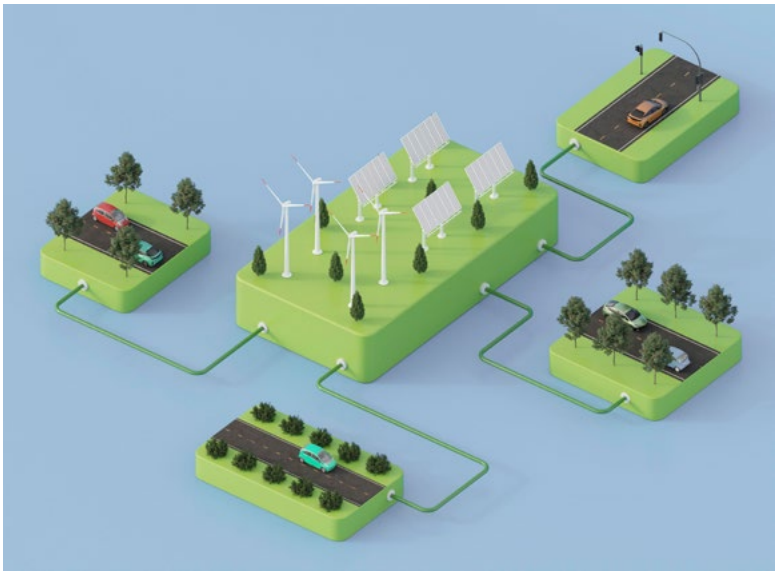
Innovation is central to the government's energy vision. Thailand plans to add two 300 MW small modular reactors (SMRs) under PDP 2024 to provide stable baseload power, boost energy security, and reduce fossil fuel reliance. Their passive safety systems and confined potential release zones also enhance safety. The Ministry of Energy and the nuclear regulator are developing regulatory and safety frameworks and already conducting workshops and consultations to build capacity and trust.

Complementing nuclear and hydrogen development, Thailand is also scaling up renewable generation. The country is constructing one of the world's largest floating solar–hydro hybrid systems across multiple reservoirs. When completed, the project will generate up to 2,725 MW of clean power, strengthening grid stability and expanding renewable supply nationwide.

Other priority areas include **smart grids, battery storage, and carbon capture** solutions. To enhance energy reliability and efficiency, the Metropolitan Electricity Authority is implementing a Smart Grid system to support emerging industries that demand clean and stable power. As of 2025, Thailand is in the third phase of its Smart Grid Development Blueprint, focusing on infrastructure expansion for full-scale integration. The plan aims to strengthen the grid's flexibility and resilience to accommodate growing renewable and distributed energy sources. More than a technological upgrade, the Smart Grid is a strategic foundation for a modern, intelligent, and sustainable electricity system that will secure Thailand's energy transition and investment confidence.

Incentivizing Clean Energy Investments

Complementing these policy directions, Thailand has strengthened its incentive framework to attract both foreign and domestic investors into the clean energy space. **The feed-in tariff (FiT)** program remains a cornerstone, providing renewable power producers with predictable returns through fixed long-term purchase agreements. This approach has proven successful in mobilizing private capital, with nearly seven gigawatts of renewable projects already in the pipeline.



[4] International Trade Administration U.S. Department of Commerce

At the same time, regulators are preparing to liberalize the electricity market to allow direct corporate power purchase agreements. This reform is particularly significant for international companies that must meet stringent sustainability standards in their global supply chains. Thailand is also expanding options for private sectors to access clean energy more easily, including Direct PPAs and Third-Party Access Agreements that enable investors to source renewable electricity suited to their operational needs. These measures are especially relevant for high-demand industries such as sustainable aviation fuel, data and digital infrastructure, and advanced electronics, all of which require reliable and verifiable green energy to drive their growth.

Coupled with strong government support for industrial transformation, Thailand is promoting cleaner production and sustained demand for renewable energy. Key measures include the EV 3.5 scheme, which accelerates electric-vehicle adoption; policies encouraging the aviation sector's shift toward Sustainable Aviation Fuel (SAF); and the development of Energy Storage Systems (ESS) to strengthen grid reliability. These initiatives not only reduce carbon emissions but also ensure continuous demand for clean power, aligning Thailand with the global move toward low-carbon industry.

The Board of Investment further enhances the appeal of clean energy investment with a wide range of tax and non-tax measures. High-priority activities, including waste-to-energy projects, hydrogen and green ammonia production, and advanced energy service companies, are eligible for up to eight years of corporate income tax (CIT) exemption without a profit cap. Solar, wind, biomass, and biogas projects also enjoy eight-year exemptions, while other energy-related ventures receive between three and five years, depending on the category. In addition, exemptions on import duties for machinery, raw materials for export production, and inputs for R&D significantly lower the cost of establishing operations in Thailand.

Beyond tax benefits, the BOI provides non-tax incentives designed to facilitate ease of business for international investors. These include permission for full foreign ownership of promoted projects, the right to own land, streamlined visa and work permit processes for skilled expatriates, and the ability to repatriate profits in foreign currency. Together, these incentives address both financial and regulatory barriers, ensuring that investors can focus on growth and innovation.

With strong government commitment and clear frameworks, the country is emerging as one of Asia's most attractive destinations for clean energy and low-carbon investment. ■

The Future Is Renewable: Inside the Strategy with EPPO

Thailand is charting a new course toward a sustainable, secure, and investment-ready energy future. Under the leadership of the Energy Policy and Planning Office (EPPO), the nation's energy transition is not just about decarbonization—it is about building the infrastructure, regulation, and confidence needed to attract long-term global investment. With the revised Power Development Plan (PDP) and a clear Net Zero 2050 target, Thailand is shaping an energy ecosystem that connects policy ambition with real industrial opportunity.

> Thailand's grid system is one of **the most reliable in ASEAN**, Our blackout and outage rates are among the lowest in the region, ensuring investors can **rely on stable, 24/7 power**
>
> **Mr. Wattanapong Kurovat**
> EPPO's Director General

Building a Future-Ready Energy Ecosystem

Thailand's energy landscape is undergoing one of its most dynamic transformations in decades. The government's updated PDP aims to increase the share of clean energy to over 51% of total generation capacity, while maintaining system reliability and affordability.

Unlike earlier plans that focused mainly on electricity supply, the new PDP reflects a comprehensive approach—balancing renewable expansion, digital infrastructure, grid modernization, and regional power integration.

EPPO's Director General, Mr. Wattanapong Kurovat, emphasizes that Thailand's strength lies in its readiness. The country's energy infrastructure—spanning modern transmission networks, sufficient generation reserve, and reliable power supply—gives investors a unique advantage. *"Thailand's grid system is one of the most reliable in ASEAN," he explained. "Our blackout and outage rates are among the lowest in the region, ensuring investors can rely on stable, 24/7 power."*

Even during the post-pandemic years, Thailand maintained a generation reserve of around 20%, ensuring energy security for industries and supporting new demand from high-growth sectors such as data centers, semiconductors, and electric vehicles (EVs).

Diverse and Resilient Clean Energy Portfolio

Thailand's clean energy policy goes beyond solar and wind. The government promotes a **diversified renewable mix** that includes **biomass, biogas, waste-to-energy, floating solar, and imported hydropower**. Projects such as the **5,200 MW renewable procurement** are now paving the way for large-scale solar and wind farms, while EGAT's **floating solar hybrid projects**—including the 45 MW Ubol Ratana Dam—demonstrate innovative use of land and water resources.

The cost of renewable energy has fallen dramatically due to technological improvement, making Thailand's renewable sector increasingly competitive. In addition, private developers are expanding production independently, reflecting a maturing market where clean energy is both feasible and profitable.

Meanwhile, **cross-border power connectivity** strengthens the country's energy resilience. Thailand currently imports up to **15,000 MW of hydropower** from neighboring Laos under the GMS framework and is exploring further interconnections with Myanmar and Cambodia. Initiatives like the **LTMS (Laos–Thailand–Malaysia–Singapore) Power Integration Project** showcase Thailand's pivotal role as a regional electricity hub, enabling clean power trade across ASEAN.

Regulatory Reforms Empowering Private Investment

Recognizing the growing demand for renewable energy from industrial and digital investors, Thailand has moved decisively toward **energy market liberalization**. Two major policy tools—the **Utility Green Tariff (UGT) and Direct Power Purchase Agreement (Direct PPA)**—have become catalysts for private sector participation.

The **UGT scheme** allows corporate users to purchase reliable, 24-hour clean electricity through the national grid. This ensures both stability and transparency of cost, particularly for data centers and semiconductor manufacturers that require uninterrupted power supply. At the same time, the government is piloting **Direct PPAs** through a **2,000 MW "Third-Party Access (TPA)"** framework, enabling private renewable producers to sell electricity directly to end-users via state-owned transmission lines. This policy marks a major step toward a **competitive and investor-friendly energy market**—one that aligns with global standards under the RE100 initiative.

The regulatory body is now finalizing tariff structures and wheeling charges, with full-scale liberalization expected within the next five years. As Mr. Wattanapong explained, *"This model allows businesses to generate or purchase green electricity more flexibly, while the state continues to ensure system reliability and grid stability."*

Smart Grid and Energy Storage for Tomorrow

EPPO's long-term strategy recognizes that renewable expansion must be paired with **advanced infrastructure investment**. To this end, the Electricity Generating Authority of Thailand (EGAT) has approved more than **THB 30 billion** for grid upgrades, automation systems, and **smart grid development**.

Short-term improvements—scheduled for completion by 2026—will strengthen high-voltage transmission lines in the **Eastern Economic Corridor (EEC)** to support over **40 confirmed data center projects**, while longer-term plans include the deployment of **large-scale energy storage systems**.

These include both **pumped-hydro storage** facilities—such as those at Lam Takhong and Chulabhorn dams—and containerized battery systems located at substations nationwide. Such investments will stabilize renewable output, reduce curtailment, and defer the need for new transmission expansion.

Chulabhorn Dam / www.egat.co.th

> **“ Thailand’s energy transition is not a distant vision — it is already underway… We are building the infrastructure, regulations, and technology to ensure that clean energy is reliable, competitive, and accessible”**

Looking further ahead, Thailand is also studying Small Modular Reactors (SMRs) as a potential clean baseload option for the next decade, ensuring energy diversification and long-term supply security.

Thailand’s Green Investment Advantage

Energy reliability is one of Thailand’s strongest selling points. For investors in power-intensive sectors, electricity is not merely a cost—it is a strategic factor that determines site selection. Thailand’s consistent power supply, competitive tariffs, and supportive policy environment have positioned it as a preferred destination for multinational corporations seeking sustainable, uninterrupted, and cost-effective operations.

The Board of Investment (BOI) complements this effort with tax incentives and non-fiscal measures for clean energy adoption, data center construction, and advanced manufacturing. Combined with EPPO’s proactive policy framework, these incentives reinforce investor confidence in Thailand’s green transition.

As Mr. Wattanapong concluded, *“Thailand’s energy transition is not a distant vision—it is already underway. We are building the infrastructure, regulations, and technology to ensure that clean energy is reliable, competitive, and accessible. Investors can be confident that Thailand will continue to power growth sustainably and securely.”*

The Road Ahead

Over the next decade, Thailand’s energy roadmap will expand renewable generation, strengthen cross-border connectivity, and enhance system intelligence through digital technologies. By pairing green incentives with policy predictability, Thailand is ensuring that its energy transition becomes a driver of industrial competitiveness and global confidence. From data centers to electric mobility and smart manufacturing, Thailand’s evolving power ecosystem is ready—not only to meet the nation’s growing energy needs but to energize the next generation of sustainable investment. ■

Greening with Purpose: Investors Driving Thailand's Renewable Shift

For nearly a century and a half, B.Grimm has stood as one of Thailand's most enduring enterprises—an emblem of resilience, innovation, and purpose. From its humble beginnings as a first european dispensary in 1878 to becoming one of Asia's leading energy and infrastructure developers, the company has continuously evolved with Thailand's modernization. Today, it is a driving force behind the country's transition toward cleaner and renewable energy.

> **For over 147 years, B.Grimm has operated with Compassion as our core principle, we drive progress by providing reliable energy while fostering the well-being of communities and industries.**
>
> **Mr. Nopadej Karnasuta**
> President Thailand, Malaysia and Energy & Industrial Solutions Business, B.Grimm Power Public Company Limited

From Legacy to Leadership

"B.Grimm is a company built on compassion and positive progress," says Mr. Nopadej Karnasuta, who oversees B.Grimm Power's operations in Thailand, Malaysia, and its Industrial Solutions business. *"Our journey reflects Thailand's own transformation—from an agrarian society to an industrial powerhouse—and now toward a cleaner future, low-carbon economy."*

Over the decades, B.Grimm has played a pivotal role in shaping the nation's infrastructure, from the historic Rangsit Canals to Thailand's first telegraph and long-distance telephone line, and later the country's first inaugural electric train systems—BTS, MRT, and Airport Rail Link.

Today, energy remains the company's core business, contributing nearly 80 percent of B.Grimm's total revenue. B.Grimm Power operates more than 67 power plants across 15 countries, with a growing portfolio of renewable assets spanning solar, wind, and hydro. Each investment, Mr. Nopadej explains, is guided by a principle deeply rooted in the company's philosophy: to Empower the World Compassionately.

Powering a Sustainable Future

Thailand's energy transition is gaining momentum, and B.Grimm has been among its most active private-sector champions. The company pioneered Industrial Power Plant called Small Power Producer (SPP) projects using high-efficiency co-generation technology, supplying both electricity and steam to industrial customers

while serving reliable power to the national grid. This model, recognized for its reliability and efficiency, has long supported the country's manufacturing base and strengthened investor confidence.

In recent years, B.Grimm has accelerated its **renewable-energy portfolio**, from **floating solar farms and wind projects** to innovative **cross-border energy connectivity** in ASEAN. One milestone project involves facilitating electricity trade between **Lao PDR, Thailand, Vietnam, and Malaysia**—a regional first that demonstrates the company's leadership in promoting integrated, low-carbon power systems.

"We see energy as more than a commodity—it's a bridge to regional collaboration," Mr. Nopadej emphasizes. "Clean energy connects economies, empowers communities, and builds resilience for future generations."

Partnerships for Positive Progress

Partnership lies at the heart of B.Grimm's success. Collaborations with global technology leaders such as Siemens and General Electric (GE) have helped elevate the company's engineering capabilities to international standards. What once required foreign expertise can now be managed entirely by Thai engineers—a testament to B.Grimm's long-term investment in local talent development.

The company's commitment to future industries also extends into **digital infrastructure**. Through a joint venture with **Digital Edge**, a Singapore-based data-center developer, B.Grimm is helping Thailand position itself as a regional hub for cloud and AI-driven industries.

"The digital economy runs on power," Mr. Nopadej explains. *"As demand for data accelerates, the need for clean, stable, and smart energy will define competitiveness."*

Thailand's Advantage in the Green Transition

According to Mr. Nopadej, Thailand's renewable-investment climate is among the most promising in the region, supported by a rare combination of policy stability, infrastructure strength, and natural resilience.

1. Policy continuity and credible regulation – Long-term Power Purchase Agreements (PPAs) and consistent government frameworks enhance investor confidence and ensure transparent, predictable returns.

2. Robust and reliable energy infrastructure – A mature power grid and strong industrial ecosystem provide a solid foundation for renewable integration and manufacturing expansion.

3. Strategic geographic positioning – Located at the heart of ASEAN, Thailand is naturally positioned as a hub for energy, logistics, and digital connectivity across Southeast Asia.

4. Low exposure to natural disasters – Unlike many regional peers, Thailand faces relatively low risks from earthquakes, typhoons, or volcanic activity—making it a safe and reliable base for long-term industrial and energy investments.

5. Skilled and adaptable human capital – Thai engineers and technicians have proven their expertise in managing complex energy systems and adopting global best practices.

Mr. Nopadej also praised the Board of Investment (BOI) for its proactive, investor-oriented approach: *"BOI understands industries deeply and moves with impressive speed. They make Thailand not only open for business—but ready for the future."*

Greening with Purpose: The Road Ahead

Looking to the future, Mr. Nopadej believes Thailand is entering a new phase of green industrial transformation—where clean energy, digital innovation, and advanced technologies converge to define the country's competitiveness.

"The future of energy is not only renewable—it's intelligent," he notes. "Digital technologies and AI will allow us to produce more with less, achieving higher efficiency, transparency, and sustainability."

He identifies several opportunity sectors that will attract global investors in the coming decade:

1. High-efficiency power generation – Continuous improvement in combined-cycle and co-generation technologies to reduce fuel use while maintaining reliability.

2. Next-generation energy systems – Exploration of Small Modular Reactors (SMRs) as a safe, flexible, and carbon-free baseload source that can complement renewables in the long term.

3. Digital-integrated industrial operations – Adoption of AI, data analytics, and smart-grid management to optimize energy use, storage, and distribution.

4. Green infrastructure and data centers – Expansion of clean-powered facilities supporting the digital economy, from cloud computing to AI training centers. These innovations, he says, will ensure that Thailand's energy transition not only reduces emissions but also enhances industrial productivity and economic resilience.

"Sustainability is no longer a choice—it's the pathway to competitiveness," Mr. Nopadej concludes. *"Thailand's vision of a low-carbon, technology-driven economy is where investors and innovators can truly grow together."* ■

THAI ECONOMY AT A GLANCE

Key Economic Figures

GDP (2024)
USD 526 Billion

GDP per Capita (2024)
USD 7,496 / Year

GDP Growth

2023 2.0% → 2024 2.5%

Source: NESDC
(Data as of Dec 2025)

Unemployment (2024)

0.76%

Inflation (2024)

0.4%

Source: NESDC
(Data as of Dec 2025)

Investment Growth

2023 1.2% → 2024 1.2%

Export Value of Goods Growth

2023 2.4% → 2024 7.8%

Source: NESDC
(Data as of Dec 2025)

Market Profile (2024)

Population
65.95 Million

Minimum Wage
THB 337-400

US$ Approximate
USD 10.64-12.63

Source: Ministry of Labour

Export Figures

Export value (USD million)
Jan-Dec 2022: 305,320
Jan-Dec 2023: 301,342
Jan-Dec 2024: 323,685
Jan-Oct 2025: 294,926

Top 10 Export Markets (Jan-Oct 2025)

Rank	Value (USD Million)	Share
United States	61,184.88	20.75%
China	35,207.48	11.94%
Japan	20,626.58	6.99%
India	13,763.63	4.67%
Malaysia	11,592.61	3.93%
Vietnam	11,091.31	3.76%
Australia	10,123.42	3.43%
Singapore	10,072.51	3.42%
Hong Kong	10,008.28	3.39%
Indonesia	8,238.95	2.79%

source: Ministry of Commerce, in cooperation with the Thai Customs Department (Date as of October 2025)

Top 10 Exports (Jan-Oct 2025)

Goods / Products	Value (US$ million)	Share
Computers and Parts	33,813.26	11.47%
Vehicles and Parts	27,324.86	9.26%
Jewelry Products	24,202.32	8.21%
Rubber Products	13,607.16	4.61%
Machinery and Parts	10,205.09	3.46%
Integrated Circuits	9,702.87	3.29%
Facsimile Machines, Telephones, Parts and Accessories	7,553.02	2.56%
Plastic Pellets	7,482.72	2.54%
Miscellaneous Industrial Goods	7,237.33	2.45%
Chemical Products	7,219.78	2.45%

source: Ministry of Commerce, in cooperation with the Thai Customs Department (Date as of October 2025)

Exchange Rates
(As of 13 June 2025)

$ THB 31.59 | £ THB 42.47 | € THB 37.16 | ¥ THB 20.47 (100 Yen) | ¥ THB 4.51

Source: Bank of Thailand

Tax Rate

Corporate Income Tax: 0 – 20%
Personal Income Tax: 5 – 35%
VAT: 7%
Witholding Tax: 1 – 15%

Source: the Revenue Department
(As of December 2025)

THAILAND BOARD OF INVESTMENT

Thailand Investment & Expat Services

Thailand Investment and Expat Services Center (TIESC)

TIESC serves as a one-stop center to support both investors and expatriates in Thailand. The center brings together key services under one roof, making it easier and faster to set up and operate businesses while ensuring smooth relocation and work arrangements.

Our Services include

- **One Start One Stop Investment Center (OSOS):** Comprehensive guidance and advisory on setting up operations in Thailand, including coordination with government agencies.
- **One Stop Service for Visa and Work Permit (OSS):** 1-Stop for visas & work permits in 3 hours

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