

Invitation Letter

CSPE Environmental Technology & Facility Committee

The Thailand Wastewater Treatment Market focuses on the treatment and management of wastewater from municipal, industrial, and agricultural sources. With increasing environmental regulations, urbanization, and concerns over water scarcity, wastewater treatment solutions are essential for sustainable water management and pollution control. As water demand continues to rise globally, wastewater treatment solutions are becoming a priority for governments and industries seeking sustainable water management practices. Stringent Environmental Regulations and Compliance Requirements: Governments are enforcing strict wastewater discharge standards, driving investments in advanced treatment technologies. Rising Water Scarcity and Need for Water Reuse Solutions: Growing concerns over freshwater depletion are increasing demand for wastewater recycling and desalination. Rapid Urbanization and Infrastructure Development: Expanding urban populations and industrial zones require efficient wastewater treatment systems to manage water pollution. Advancements in Smart Water Treatment Technologies: IoT-enabled monitoring systems, AI-driven analytics, and automated treatment plants are enhancing efficiency and cost savings. Growth in Industrial Wastewater Management: Industries such as pharmaceuticals, chemicals, food processing, and power generation are investing in wastewater treatment to comply with regulations and minimize environmental impact. The wastewater treatment market in Thailand is evolving with key trends shaping efficiency, sustainability, and technological integration.

Expansion of Decentralized and Modular Wastewater Treatment Systems: Compact, on-site wastewater treatment solutions are gaining popularity in remote and off-grid locations. Growth in Water Reuse and Circular Economy Initiatives: Municipalities and industries are adopting water recycling technologies to reduce water consumption and improve sustainability. Increasing Adoption of Advanced Filtration and Membrane Technologies: Innovations in membrane bioreactors (MBR), RO, and UV disinfection are enhancing wastewater treatment effectiveness. Rising Investments in Energy-Efficient and Carbon-Neutral Treatment Solutions: Waste-to-energy systems, anaerobic digestion, and green chemistry approaches are reducing the carbon footprint of wastewater treatment plants. Integration of AI and Machine Learning in Wastewater Monitoring: Real-time data analytics and predictive maintenance are improving operational efficiency and reducing downtime in treatment facilities.

Thailand Introduces New Licensing Regime for Wastewater Treatment System Controllers and Service Providers. Section 70 of the Enhancement and Conservation of National Environmental Quality Act B.E. 2535 (1992) requires owners or operators of certain pollution sources to install or provide wastewater treatment systems and to appoint a person responsible for controlling and supervising such systems.

In addition, Section 73 of the Act requires wastewater treatment system controllers and wastewater treatment service providers to obtain a license from the relevant local authority before commencing operations.

To implement these requirements, the Ministry of Natural Resources and Environment issued the Ministerial Regulation on Wastewater Treatment System Controllers and Wastewater Treatment Service Providers B.E. 2567 (2024), which came into effect on 24 July 2025.

Thailand's Water and Wastewater Treatment Industry Scales up as Drought Pressures and Industrial Reuse Spark Urgent Investment. Thailand's water sector is leaning harder into treatment and reuse. The shift is visible in both enabling inputs and end-use demand. Thailand water treatment chemicals market at USD 250 million, linking the market to urbanization, industrial growth, and stricter rules. The same source highlights demand centers such as Bangkok, Chiang Mai, and Pattaya, where dense populations, industry, and tourism raise expectations for consistent water quality. Regulation is a direct investment driver as well. Thailand's Drinking Water Quality Control Act B.E. 2550 (2007) requires municipal suppliers to meet defined thresholds, including turbidity below 5 NTU and coliform bacteria absent in 100 ml samples, alongside licensing, regular testing, and compliance reporting.

Industrial water reuse is also becoming more central to procurement decisions. Technology choices across Asia Pacific illustrate why treatment suppliers are scaling their offerings, which matters for Thailand because many of the same solutions are deployed across municipal and industrial sites. In an APAC market analysis, membrane filtration is described as a leading technology because it removes contaminants efficiently and is used for both municipal and industrial applications. APAC membrane water and wastewater treatment expects the regional market to reach USD 4.23 billion in 2025 and to grow at a 7.26% CAGR to USD 6.01 billion by 2030. That report also notes that an industrial reverse osmosis reuse plant of 10,000 m³/d can require USD 8–12 million in upfront investment, with membrane swaps every 3–5 years adding USD 1.5–2 million, framing the cost profile that buyers evaluate.

Beyond traditional industrial users, water-intensive digital infrastructure is becoming a clearer planning factor for Thailand. Thailand's data center water consumption market at 10.68 billion liters in 2025, and projects it will reach 15.62 billion liters by 2030, growing at a 7.90% CAGR. The same report references reuse-water concepts in data centers, including greywater recycling, rainwater recycling, and cooling-tower or heat-exchanger water recycling, and lists common treatment methods for cooling water such as filtration, reverse osmosis, UV disinfection, chemical treatment, and softening. This matters for suppliers because the water quality expectations for cooling loops often push facilities toward more advanced treatment and monitoring, creating additional pull for services and chemicals alongside equipment.

Regional wastewater services trends also point to why Thailand's buildout and outsourcing opportunities are expanding. Market Data Forecast values the Asia Pacific wastewater treatment service market at USD 25.90 billion in 2025, estimating USD 28.35 billion in 2026 and projecting USD 58.47 billion by 2034 at a 9.47% CAGR. In that regional breakdown, filtration held 23.4% of the market in 2025, secondary treatment accounted for 45.6%, and municipal applications led with 54.9%.

the Thailand water and wastewater treatment industry is scaling up through three practical levers: compliance-driven municipal upgrades, reuse-focused industrial projects, and new demand from facilities that cannot tolerate interruptions in water quality. Thailand's chemical market signals continued purchasing for coagulants, disinfectants, and related products tied to regulatory thresholds. Meanwhile, membranes and reuse economics are shaping investment decisions, even when upfront costs are significant. Taken together, these signals show why treatment is being treated less as a utility expense and more as core infrastructure, with technology choices increasingly oriented toward reliable reuse outcomes.

The Bangkok Metropolitan Administration (BMA) and the Metropolitan Waterworks Authority (MWA) signed a memorandum of understanding on wastewater management, announcing that wastewater treatment fees will officially be levied on large enterprises and factories from early 2027: industrial enterprises using less than 2,000 m³ of water per month will be charged 4 baht/m³, while large factories using more than 2,000 m³ will be charged 8 baht/m³. First-year collections are expected to reach about 200 million baht, easing the reliance of the roughly 800 million baht annual wastewater treatment cost on general municipal tax revenue. Bangkok Governor Chadchart Sittipunt made clear that the core of the fee is the "Polluters Pay Principle," making polluters pay for environmental governance and avoiding passing costs on to ordinary citizens.

There are currently about 100 central domestic wastewater treatment (WWT) systems in operation in Thailand. To implement UN Sustainable Development Goal 6 (SDG 6), the Thai government has outlined an ambitious set of water-related targets within its national medium-to-long-term planning. These include providing clean drinking water to 75,032 villages, constructing 741 new wastewater treatment plants to combat pollution, adding 27.299 billion cubic meters of reservoir storage capacity, expanding the irrigated area to 4.96 million hectares, and developing 10,000 agricultural water sources. Estimates place the investment required for these projects alone at approximately US\$6.9 billion; Thailand explicitly aims to leverage models such as Public-Private Partnerships (PPPs) to attract private sector participation, thereby injecting significant structural growth into the water and environmental protection market.

Regarding implementation mechanisms, the Thai government is prioritizing PPPs to mobilize private capital. First, it is adopting a "project company" model—combining government funding with joint construction and operation by enterprises—for large-scale municipal wastewater treatment plants. Second, it is utilizing variants such as BT (Build-Transfer), BTL (Build-Transfer-Lease), and BLT (Build-Lease-Transfer) to attract private capital for the construction of treatment plants and associated pipeline networks. Third, it is lowering participation costs for the private sector by combining Board of Investment (BOI) incentives—such as an eight-year corporate income tax exemption for environmental protection machinery—with the special privileges associated with the Eastern Economic Corridor (EEC).

Existing WWT systems are often inefficiently managed, resulting in low performance, high operating costs and unfavourable effects on the climate. Managing and maintaining a reliable database with rapidly changing data relating to domestic wastewater treatment from various stakeholders is challenging. Although paper-based data management procedures may still be necessary in some cases, they lack convenience in terms of searching, editing, and monitoring the real-time operation of the plants. Moreover, it is difficult to maintain and utilise data in the long run.

As urbanization accelerates in Thailand, the importance of municipal wastewater treatment systems is increasingly evident. These systems play a critical role in protecting public health, preserving the environment, and building a foundation for sustainable development.

Pre-treatment: The first step in wastewater treatment is pre-treatment, which aims to remove larger solid debris to prevent blockages or damage to downstream equipment. Screens are essential pre-treatment devices, effectively intercepting plastics, branches, paper scraps, and other large debris in wastewater. Depending on the treatment needs, coarse or fine screens can be selected.

Biological Treatment: The treatment of organic matter in wastewater relies on biological degradation technologies, with stable aeration as the key. Blowers and aerators supply oxygen in biological treatment tanks, promoting the breakdown of organic matter by microorganisms. The energy efficiency and noise control of these devices are particularly critical for wastewater treatment plants located in urban areas.

Advanced Technologies: Membrane Bioreactor (MBR) systems and Dissolved Air Flotation (DAF) systems are widely applied in the advanced treatment stages. MBR systems can separate fine suspended solids and pathogens from water, ensuring high-quality effluent. DAF systems, using dissolved air technology, efficiently remove grease and solid particles, making them ideal for large municipal wastewater treatment plants.

Water Quality Monitoring: PH/ORP controllers monitor the pH and oxidation-reduction potential of wastewater in real-time, ensuring process stability. Their precise control capabilities are especially important when handling varying concentrations of pollutants.

Storage Equipment: PE tanks, stainless steel tanks, fiberglass reinforced plastic tanks (FRP), and Glass-Fused-to-Steel tanks (GFS) are used for storing wastewater, treated sludge, and chemicals. Depending on the requirements, corrosion-resistant, easy-to-clean, and durable materials are selected for long-term storage.

Solid-Liquid Separation: Three common solid-liquid separation devices are screw press dehydrators, plate-and-frame filter presses, and belt filter presses. These devices efficiently remove water from sludge, reducing its volume and lowering treatment costs.

Additionally, treated sludge is transported via sludge pumps to storage facilities or further processing equipment. The performance of these pumps directly affects the efficiency and stability of sludge treatment.

Water Reuse: As awareness of water conservation increases, water recovery technologies are gaining importance. Reverse Osmosis (RO) systems and Electrodeionization (EDI) systems are applied in wastewater reuse stages, providing high-purity recycled water for industrial and municipal use. These systems alleviate water scarcity issues and support sustainable urban development.

The Thailand Industrial Wastewater Treatment Market focuses on technologies and processes aimed at removing contaminants from wastewater generated by industrial activities. These treatments are essential for reducing environmental impact, complying with regulatory standards, and promoting sustainable water use. The market supports industries such as manufacturing, chemicals, pharmaceuticals, textiles, food and beverage, and petroleum. The Thailand Industrial Wastewater Treatment Market is expanding due to stricter environmental regulations, increased industrial activity, and a growing focus on water conservation and reuse. Stricter Environmental Regulations: Governments and environmental bodies are enforcing stringent discharge standards, driving demand for advanced wastewater treatment solutions in Thailand.

Rising Industrial Activity: Increased manufacturing and industrial production in Thailand is resulting in higher volumes of wastewater that need effective treatment.

Focus on Water Reuse and Recycling: Industries are adopting wastewater recycling and reuse practices to reduce freshwater consumption and lower operational costs in Thailand.

Technological Advancements: The development of energy-efficient and cost-effective treatment technologies, such as membrane bioreactors and advanced oxidation processes, is promoting adoption in Thailand. Sustainability and Corporate Social Responsibility (CSR): Companies in Thailand are prioritizing sustainable practices to meet environmental, social, and governance (ESG) standards.

Adoption of Membrane Technologies: Advanced filtration methods like reverse osmosis and ultrafiltration are gaining popularity in Thailand for their efficiency in removing contaminants.

Integration of IoT and Automation: Smart sensors, remote monitoring, and automated control systems are being used to optimize treatment processes and improve water quality management in Thailand.

Zero Liquid Discharge (ZLD) Systems: ZLD technology, which aims to recover and reuse all wastewater, is growing in adoption among industries in Thailand looking to minimize waste and enhance sustainability.

Green and Eco-Friendly Treatments: The use of bioreactors, algae-based systems, and other eco-friendly methods are on the rise in Thailand to reduce energy use and chemical dependency.

Advanced Oxidation Processes (AOPs): AOPs are being increasingly employed for their effectiveness in breaking down complex organic pollutants and contaminants in Thailand.

Thailand's COD discharge limits for industrial wastewater employ a refined management system anchored by three factors: receiving water body classification, factory category, and industrial estate regulations. Key compliance requirements for 2026 include distinct limits for direct discharge into natural water bodies versus discharge into municipal sewer networks; a COD upper limit of 400 mg/L applies to only ten specific factory categories (subject to case-by-case approval), while IEAT industrial estates implement a dual-tier standard characterized by "lenient influent requirements but strict effluent standards." Understanding this dual-track framework is the first step in equipment selection and engineering design to ensure compliance.

Thailand's industrial sector—spanning manufacturing, food & beverage, chemicals, electronics, power, and textiles—relies heavily on water for production, utilities, and cooling. As industrial growth accelerates and environmental regulations tighten, effective industrial water treatment has become critical for operational continuity, cost control, and compliance. Today, understanding the right industrial water treatment methods is essential for every plant aiming to improve efficiency, protect equipment, and ensure sustainable operations.

Pre-treatment is the foundation of effective water management. Screening, sedimentation, and clarification remove suspended solids, turbidity, and coarse impurities from raw water. These steps protect downstream equipment and improve the efficiency of subsequent treatment processes. For industries using surface water sources in Thailand, robust pre-treatment is essential to handle seasonal variations in water quality.

Filtration plays a vital role in removing fine particles and colloidal matter. Common filtration methods include Sand and multimedia filters. Activated carbon filters for organic, chlorine, and odor removal

These systems are widely used in water purification processes in industry to improve water quality before advanced treatment or direct process use.

Membrane technologies have become a cornerstone of modern industrial water treatment systems. These include: Ultrafiltration (UF) for the removal of suspended solids and microorganisms

Reverse osmosis (RO) for dissolved salts, hardness, and contaminants. Membrane systems deliver consistent water quality and are widely applied in boiler feed, cooling make-up, process water, and water reuse applications across Thailand's industries. For applications requiring high-purity water, such as boilers and sensitive manufacturing processes, demineralization and softening are essential industrial water treatment methods. These processes remove hardness, silica, and dissolved salts—preventing scaling and improving equipment efficiency.

Chemical dosing is used to control scaling, corrosion, microbial growth, and fouling within industrial systems. Properly managed chemical treatment enhances system life, reduces maintenance costs, and ensures stable plant performance. This method is commonly integrated into industrial water treatment for cooling towers, boilers, and closed-loop systems.

Effective industrial wastewater treatment is critical for regulatory compliance and sustainability. Biological treatment, physico-chemical processes, and advanced polishing systems treat effluent to meet discharge or reuse standards. Many plants in Thailand are now implementing wastewater recycling to reuse treated water for utilities, cooling, or non-process applications—reducing freshwater dependency.

Understanding and implementing the right industrial water treatment methods is no longer optional for plants in Thailand—it is a strategic necessity. From raw water purification and membrane treatment to industrial wastewater treatment and reuse, modern industrial water treatment systems support efficiency, compliance, and sustainable growth.

Industrial Estate Authority of Thailand published “Notification of the Industrial Estate Authority of Thailand No. 029/2567 regarding general standard for wastewater discharge into the central wastewater treatment system in industrial estates” in the Government Gazette on 27 May 2024. The notification prescribes effluent standards for operators in the industrial estate with central wastewater treatment plant. The notification has been effective since 28 May 2024 and old notification titled “Notification of the Industrial Estate Authority of Thailand No. 76/2560 regarding general standard for wastewater discharge into the central wastewater treatment system in industrial estates” was repealed. According to the Notification, “Wastewater” refers to all types of used water resulting from business operations or other activities in an industrial estate, except for water resulting from cleaning solar panels installed in business premises, whether installed on the ground, on the roof, or floating, which must not use detergents or chemicals for cleaning.

Thailand's factory wastewater laws require every factory that discharges effluent into public waterways to treat that wastewater to the standards set by the Department of Industrial Works and the Pollution Control Department. Violations carry penalties of up to 5 years' imprisonment, a fine of up to 500,000 baht, or both. Factory wastewater regulation is built on 3 main laws that work together to control wastewater discharge from factories, covering permit conditions, effluent quality control, and the pollution limits that must not be exceeded.

Factory Act B.E. 2535 (amended B.E. 2562). This is the principal law covering all factory types. It requires Category 2 and Category 3 factories to install a wastewater treatment system and report results to the Department of Industrial Works (DIW) every 6 months. It also requires a water pollution treatment supervisor who has completed the required training and is registered with the DIW. Large factories generating more than 500 cubic metres of wastewater per day must install a continuous effluent monitoring system (CEMS) and send data to government agencies in real time.

Effluent Standards under the Ministry of Industry Notification. The Ministry of Industry Notification on contaminant limits in factory effluent sets the key parameters that must be met before wastewater is discharged, as follows: pH between 5.5 and 9.0, BOD (Biochemical Oxygen Demand) not exceeding 20 mg/L, COD (Chemical Oxygen Demand) not exceeding 120 mg/L, SS (Suspended Solids) not exceeding 50 mg/L, TDS (Total Dissolved Solids) not exceeding 3,000 mg/L, Oil and grease not exceeding 5 mg/L, Colour measured by ADMI not exceeding 300. Some factory types, such as metal plating plants, must also meet additional heavy-metal limits. Factories in specific industries that need to check the requirements in detail can read more in the full Ministry of Industry Notification on contaminant limits in factory effluent

BOD and COD are the two indicators the DIW checks most often. Factories with highly concentrated wastewater, such as food

plants, dye houses, or plating plants, need a treatment system robust enough to handle these values.

Environmental Act B.E. 2535. This law empowers the Pollution Control Department (PCD) to declare pollution control zones in problem areas, which can require factories in those zones to meet stricter standards than usual. It also allows members of the public to sue and claim damages from factories whose wastewater discharge causes harm.

Under factory and environmental law, a factory needs several key components in place in order to operate correctly and in line with the standards.

A properly designed wastewater treatment system. The factory must provide a treatment system designed for the peak wastewater load, not the average, together with drawings and engineering calculations to submit with the permit application to the relevant authorities. The technology chosen must suit the wastewater characteristics of each industry, for example: Food factories with high BOD typically use biological treatment

Metal plating factories need chemical treatment to remove heavy metals and precipitate solids.

A registered water pollution treatment supervisor. Category 3 factories must appoint a water pollution treatment supervisor who has completed a training course accredited by the Department of Industrial Works and is properly registered. Their main duties are: Operating and inspecting the treatment system, Recording and reporting system performance against the required criteria Effluent analysis reporting. The factory must sample its effluent for regular analysis, generally at least every 6 months, and submit the reports to the regulator on schedule.

The laboratory used for the analysis must be accredited to ISO/IEC 17025 so the results are credible and can be relied on as legal evidence.

Thailand's factory wastewater laws clearly define the standards to be met, the reporting duties, and the penalties. Factories that invest in an effective treatment system from the start save a great deal in the long run — on fines, on maintenance, and on the risk of being suspended or shut down.

Thailand established standards to recycle industrial wastewater for agricultural field after severe drought in eastern region. Thailand Ministry of Industry established Notification of Ministry of Industry regarding criteria, standards and methods for evaluation and approval of temporary use of industrial wastewater in agricultural field dated on 2 March 2020. The notification was established due to the severe drought and water shortage in agricultural sector, especially in the eastern part of the country. The notification, which will be provisionally enforced until 30 June 2020, sets out the standards, methods and conditions for the examination and approval of industrial wastewater recycle for agricultural purpose.

Asean countries can unlock its biogas potential. The region only has around one gigawatt of capacity with Thailand, Indonesia and Malaysia leading in terms of production. A region rich in feedstock that could be used for power generation, Asean holds the potential to accelerate the use of biogas to support its energy transition. However, the region only has around one gigawatt of biogas capacity and is yet to address challenges around policy and incentives that would encourage investments in the sector. Asean biogas sector will scale up, with Thailand, Indonesia, and Malaysia leading the deployment. Data from a report by the ASEAN Centre for Energy showed that Indonesia aims to reach a bioenergy capacity of 810 megawatts (MW) and Malaysia targets 1,065 MW by 2025. Thailand, meanwhile, targets a 5,570 MW bioenergy capacity by 2036. The growth of the biogas sector will be driven by three key trends which include the involvement of larger players, particularly private companies from various sectors such as agriculture and livestock, the rise of bioclusters, and the emergence of international trade.

Biogas adoption in Asean today is small with a capacity of around one gigawatt. Biogas is typically produced by breaking down organic waste through a process called anaerobic digestion. In Asean, biogas is then usually used for electricity generation, for example, by selling it to the grid. Biogas contains a mixture of various gases, usually methane, carbon dioxide and other gases. When the carbon dioxide and other gases are removed from the biogas, you get biomethane, which is the same as natural gas,

but from bio-based feedstock, and there are currently a few projects to upgrade biogas into biomethane in the region, but the volumes are negligent at this point, but that will change.

Countries in the region with the most biogas production today are Thailand, Indonesia and Malaysia in that sequence. Thailand's biogas production is from various feedstock sources, including cassava bulk, rice straws, etcetera. When it comes to biomethane production, there are only a few projects mostly in Malaysia and Thailand. Most countries have included biogas as part of their energy transition roadmap. It is not surprising given the abundance of bio feedstock in the region. Some countries also have plans specifically for biomethane.

Thailand has an illustration plan to increase biomethane production to 4,800 tons per day in the next decade, so that's almost two hundred times. But what we expect is that the role of biogas and biomethane will be much more important than what is currently in the energy transition plans of Asean countries. For example, the role that biomethane can play to decarbonise existing applications currently using natural gas such as combined-cycle gas turbines. It is typically not part of those plans yet.

The biggest shift will be the scaling up. So at this point, biogas and especially biomethane production in Asean is very small and dispersed. We will see the involvement of larger players. Some of the major oil and gas companies are already investing in biogas and biomethane in Europe and North America. This will also happen in Asean, which will provide investment and scale. But it is not just the large oil and gas companies that will enter and invest in this space in the region. There are also large corporates with access to the feedstock, for example, palm oil companies, agriculture, and livestock companies, as well as the power producers, gas transport and distribution companies. So that will help in terms of scaling up to have the involvement of those larger players. Given the dispersed nature of bio feedstock, we will see the emergence of bio clusters where feedstock will be aggregated and economies of scale can be realized including through investments in new infrastructure, such as pipelines for the larger bio clusters. We will see the emergence of international trade for biogas and by meeting countries like Singapore will need significant volumes of biogas and biomethane to decarbonize especially in the power and industrial sectors. Such import demand can drive production in other countries in the region with either physical trade, for example, through gas pipelines or virtual trade.

Thailand's push to improve waste handling is creating clearer space for biogas projects that turn organic materials into useful energy. A Thailand waste management market report values the national market at USD 18.28 billion in 2023 and projects it will reach USD 34.83 billion by 2030, at a CAGR of 8.60% from 2024 to 2030. That same market definition includes waste-to-energy plants as a core component, alongside collection, processing, recycling, and disposal. In parallel, global biogas market commentary links growth to rising energy demand, environmental concerns, and government support for renewable energy adoption, with anaerobic digestion positioned as a technology that supports both energy generation and efficient organic waste management.

Feedstock availability is central to how Thailand can scale anaerobic digestion. Biogas is produced from the anaerobic digestion of organic materials such as agricultural waste, animal manure, municipal solid waste, sewage sludge, and food waste. For Thailand, this matters because rising municipal solid waste volumes are associated with accelerating urbanization and tourism pressure in places such as Bangkok, Pattaya, and Phuket. Policy pressure is also rising on the materials side. Thailand has enforced a national roadmap to ban single-use plastics and reduce plastic waste by 100% by 2027. While plastics are not a biogas feedstock, the roadmap helps drive investment into sorting and higher-quality waste processing systems that can also improve the capture and routing of organic fractions into treatment pathways such as anaerobic digestion.

BOI Investment Momentum and Clean Energy Project Readiness. Investment activity provides a useful signal for how quickly clean energy and circular economy projects can be financed and built. In the first half of 2026, Thailand's foreign and domestic investment applications surged 37% year-on-year to \$43.6 billion across 1,299 projects, according to a BOI-referenced update.

Foreign direct investment applications increased 80% year-on-year to \$40.5 billion across 877 projects. While this surge was led by digital infrastructure, agriculture and food processing still secured \$1.82 billion across 131 projects. For biogas developers, that matters because large agricultural operations and food-processing sites are common sources of organic residues, and investment momentum in these sectors can support project origination, contracting for waste streams, and the build-out of on-site or cluster-based energy recovery solutions.

Thailand's biofuels landscape also places biogas alongside other renewable options, which can help normalize policy support and private investment interest. A Thailand renewable biofuels market breakdown segments the market into biodiesel, bioethanol, biogas, biomass pellets, waste-to-biofuel, and other emerging fuels. It identifies Bangkok, Chiang Mai, and Nakhon Ratchasima as key production and distribution hubs, supported by infrastructure, strategic locations, and proximity to agricultural resources. In practice, that hub structure can help biogas projects connect to equipment suppliers, engineering capacity, and end users, while keeping feedstock logistics practical. It also aligns with the broader global trend in which biogas market expansion is associated with incentives, subsidies, and supportive laws that encourage waste-to-energy and circular economy practices.

Regional and international comparisons underline that Thailand is not alone in building systems around organic waste. A biogas plant market report describes Asean countries, including Thailand and Indonesia, as emerging markets due to agricultural-based economies and supportive government policies for renewable energy development. Globally, Europe is described as the leading region in the biogas plant market with projected growth of approximately 3% annually from 2024 to 2029, while the United States is noted as having over 2,200 biogas facilities. Outside Thailand, examples such as Gujarat operationalizing 193 biogas facilities and planning to add 60 more show how government-linked programs can accelerate buildout using organic waste like agricultural residues and cow feces. For the Thailand biogas industry, the takeaway is practical: scaling depends on reliable feedstock capture, bankable project structures, and policy frameworks that reward clean energy and better waste outcomes.

In 1H 2026, Thailand's investment applications rose 37% year-on-year to \$43.6 billion across 1,299 projects, and FDI applications rose 80% year-on-year to \$40.5 billion across 877 projects. Agriculture and food processing also secured \$1.82 billion across 131 projects, which can support organic-residue-based project pipelines.

Thailand is ranked as one of the countries with the highest biomethane potential in ASEAN and is currently driving its green economy. With over 335 megawatts of biogas projects, it serves as a crucial foundation for further development into the production of high-quality biomethane. Biogas production and its improvement to produce compressed biomethane gas (CBG) is an alternative transportation fuel, with a production target of 4,800 tons per day in the Alternative Energy Development Plan (AEDP) by 2036, based on the original AEDP plan. The overall target for bioenergy production is up to 5,570 megawatts by 2036. According to the Department of Alternative Energy Development and Conservation (DEDE), Thailand has the potential to produce up to 1,200 million cubic meters of biomethane per year by 2030, which is equivalent to reducing imports of liquefied natural gas (LNG) by more than 450,000 tons per year.

The main sources of raw materials with high potential include: The livestock sector is the most important source of raw materials, with animal manure from over 4,000 pig and dairy farms nationwide having the potential to produce more than 800 million cubic meters per year. The food and agricultural industry is the second most important source of raw materials, especially wastewater from large-scale agricultural industries such as pineapple, sugarcane, sugar, and cassava processing plants. It is estimated that the total potential for biogas from wastewater is as high as 3,609 million cubic meters per year, a portion of which can be converted into biomethane. Municipal waste, especially organic and food waste in large cities, is another highly potential source of raw materials for the production of biogas and biomethane. Besides generating energy, this also helps to sustainably solve urban waste management problems. Furthermore, it has the potential to reduce greenhouse gas emissions by

up to 15 million tons per year, reflecting the crucial role of biomethane in achieving the country's renewable energy and environmental goals in the future.

The driving factors in Thailand are: Strong Government Policy Support, Feed-in Tariff (FiT): Setting an attractive feed-in tariff for electricity produced from biogas makes biomethane power generation projects financially viable. Tax relief measures: Providing tax benefits and partial investment incentives can help reduce initial capital expenditure (CAPEX) for investors. The potential of abundant biomass feedstock availability.

Thailand is an agricultural country with a large amount of waste materials, such as animal manure from large livestock farms like pig and cattle farms, sugarcane bagasse, wastewater from food processing plants, and waste from the agro-industry. These are excellent raw materials for biogas production. Waste Management and Environmental Solutions: Producing biomethane from waste and wastewater not only provides energy but also sustainably solves problems of foul odors, water pollution, and large-scale waste management in agricultural and industrial areas.

National Energy Targets: The National Renewable Energy Plan (AEDP) sets clear targets for bioenergy production capacity to increase the proportion of renewable energy in the country's electricity generation and fuel consumption. For example, promoting BioCNG to replace natural gas for vehicles (NGV) is one of the key strategies that directly links biomethane to the transportation sector.

Thailand's greenhouse gas reduction targets aim for net-zero emissions by 2050, with the primary goal of reducing emissions by 47% by 2035.

Thailand's Opportunities to Become an ASEAN Hub. Biomethane is shifting from an alternative energy source to a primary energy source in many countries worldwide. Drawing lessons from Europe's policy and technological approaches, America's market and business perspectives, and deciphering adaptation and collaboration strategies from Asia will enable Thailand to develop its biomethane industry rapidly and sustainably, enhancing its global competitiveness by leveraging its agricultural resources and geopolitical advantages.

Based on the previous successful 43rd Environment Series Events in the world. To explore wastewater and biogas & biomethane industry's future development strategy, exchange the ASEAN countries and international latest and most environmental friendly wastewater and biogas & biomethane technology, share the successful experience of ASEAN countries and international enterprises in wastewater and biogas & biomethane industry, hereby Asean Wastewater Treatment Congress 2027 Asean Biogas & Biomethane Congress 2027, will be scheduled on 17th -18th Mar in Bangkok Thailand. We sincerely invite you taking the time to attend the Asean Wastewater Treatment Congress 2027, Asean Biogas & Biomethane Congress 2027, share with us your views and suggestions concerning the wastewater and biogas & biomethane industry. We look forward to provide a platform for the entire wastewater and biogas & biomethane supply chain, promote the policy complement, business cooperation, networking the technology as well, make a contribution for the highly efficient wastewater and biogas & biomethane industry.



8th Oct 2026