

Thailand Powers Through the Sustainability Ceiling

The world's largest solar rooftop and other record-setting green initiatives reinforce the kingdom's reputation as Southeast Asia's clean energy powerhouse

On a rooftop larger than 18 football fields in the heart of Thailand's high tech Eastern Economic Corridor, a record-breaking renewable energy project is under construction by international investors.

Kansai Electric Power Co., Japan's second largest electricity supplier, is creating the world's biggest stand-alone rooftop solar panel installation atop a factory that manufactures high performance Falken tires for the European market.



The world's biggest solar rooftop: Kansai Electric Power's Thailand unit is installing solar panels equivalent in size to over 18 football pitches on this plant making Falken tires for the European market.

Together with a gas co-generation system and additional electric power fueled by biomass from surplus rubber trees, the 40,000-panel, 100,000 square meter rooftop will have in 2025 a total output of 22MW, reduce Co2 emissions by 38,000 tonnes and ultimately enabling the factory's owner, Sumitomo Rubber Industries Ltd, to function entirely on renewable energy.

For the companies involved and independent experts alike, the rooftop within the Amata City Rayong industrial park, 135 kilometers southwest of Bangkok, is further evidence that Thailand is now the clean energy frontrunner among the 10 countries that comprise the Association of Southeast Asian Nations (ASEAN) – a region with a \$3.2 billion economy and 660 million consumers.

“In terms of the promotional force of the country, we think Thailand is the most advanced in the ASEAN region,” Katsuhisa Yamamoto, managing director of Kansai’s Thai unit, says.

Quite how advanced is becoming increasingly clear. As part of a sweeping national sustainability strategy known as the Bio-Circular Green economy, the Thai government has successfully packaged a raft of subsidies, tax breaks and other incentives to lure investors to finance and build renewable energy-related projects. “It’s very important for our business, especially in tax benefit,” Yamamoto says of the government’s support.

Indeed such has been the enthusiasm from investors that in the first six months of 2023, 186 of 195 applications to the Thailand Board of Investment (BOI) for power generation projects were renewable energy-related.

Companies seeking clean energy opportunities in Thailand span the investment spectrum from Japanese and Korean power utilities to Chinese and European electric vehicle makers and U.S. technology giants such as Amazon Web Services and Western Digital Corp.

Shuji Hashizume, a Bangkok-based Principal Investment Specialist in the Private Sector Operations Department of the Asian Development Bank, the Manila-based regional lender that has funded numerous green energy projects across Asia, believes those investors are going to the right place. “Thailand is the frontrunner in Southeast Asia,” Hashizume said in an interview. “Climate change is the biggest agenda globally now and Asia is the epicenter of carbon emissions. Thailand will likely be leading the initiative in ASEAN and its importance cannot be over-emphasised.”

In perhaps the most noticeable example of the clean energy revolution taking place in Thailand, the country that has long been one of the world’s leading manufacturers of cars and trucks powered by internal combustion engines has also become both the regional hub for electric vehicle production and its fastest-growing market.

That’s as a result of major investments by EV manufacturers such as BYD Co., Great Wall Motor and SAIC of China, Mercedes Benz of Germany and newcomer Foxconn Technology Group of Taiwan, better known as the world’s largest contract maker of electronics, including Apple iPhones.

Foreign investors are far from the only major players at the heart of Thailand’s war on global warming. The country’s largest enterprise, state-owned Fortune 500-ranked PTT PCL – still largely known outside Thailand as an old-economy oil and gas company – is spending billions of dollars on clean energy investments. They include a \$1 billion EV joint venture with Foxconn and

a \$100 million partnership with the world's largest car battery maker, China's Contemporary Amperex Technology, or CATL.

Meanwhile another state-owned power heavyweight, the Energy Generating Authority of Thailand, or EGAT, is transforming the country's major reservoirs by topping them with floating solar farms to form some of the world's largest dual-system power sources that deliver both solar and hydro-electric power.

The Thai private sector is also playing a major role, led by such companies as electric bus and boat maker Energy Absolute PCL and electricity producer B.Grimm Power PCL.

The contribution of Energy Absolute is clearly noticeable on the streets and waterways of central Bangkok, where public transport in recent years has become noticeably cleaner and quieter, the faint hum of electric buses and boats replacing the noise and fumes of diesel-powered predecessors.

Elsewhere, Thailand's rapid industrial expansion has aligned with the growth of B.Grimm Power, a publicly listed subsidiary of the B. Grimm group, a Thai conglomerate established in Bangkok 145 years ago by German pharmacist Bernhard Grimm and an Austrian partner.

In the 1990s, the company expanded into energy when it saw an opportunity to provide gas-fired electricity and steam to factories in the modern industrial parks springing up along Thailand's Eastern Seaboard. Today, B.Grimm Power is a multinational conglomerate that is not only one of the leading private power producers in Thailand, but also supplies clean energy from solar, wind and hydro projects across Asia and as far as Europe, the continent from which its founders originally hailed.

B.Grimm Power is itself no stranger to record-breaking projects. In 2020, it teamed up with EGAT and Energy China to build the world's first 45-MW Hydro-floating Solar Hybrid plant that today floats atop the 288-square kilometer Sirindhorn Reservoir in northeastern Thailand.

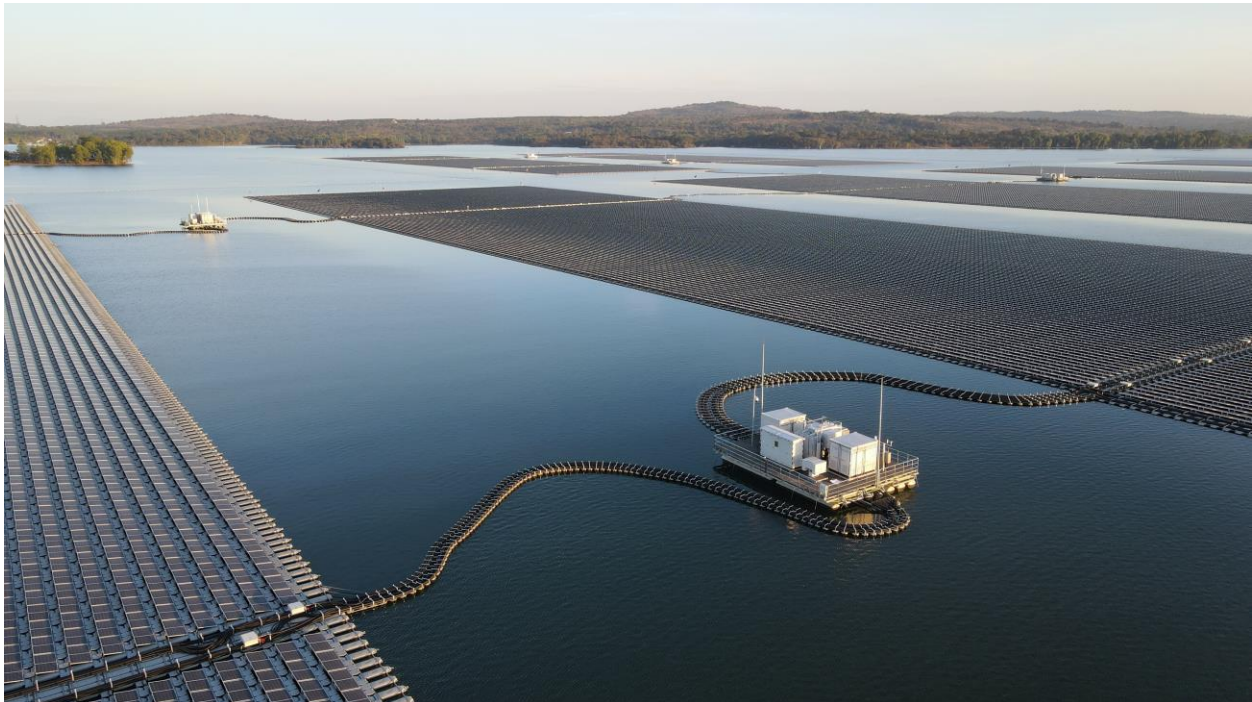
The same year, it also partnered with Korea Electric Power Corporation and Energy China to power Bangkok's third international airport at U-Tapao and the adjoining Airport City – both flagship projects in the development of Thailand's Eastern Economic Corridor, the hub of Thailand's transformation into a knowledge economy. In another world first, B.Grimm Power and its partners have created a hybrid system for U-Tapao, comprising an 80MW gas-fired power plant, a 15MW solar photovoltaic farm and a 50MW energy storage system.

Meanwhile in the industrial estates where its power business first thrived, B.Grimm Power is partnering with Amata Corp. PCL, a Thai company that is developing its industrial parks into so-called smart cities, and Siam Cement Group, or SCG, the country's largest conglomerate, to increase supplies of clean energy and put more solar systems on factory roofs – a project also heavily backed by the Board of Investment.

“Thailand is one of the pioneers in the region in promoting renewables into the masterplan of the country,” Nopadej Karnasuta, B.Grimm Power's Senior Executive Vice President for Investment,

Innovation and Sustainability, said in an interview. “It has been very, very successful and we are very fortunate to be part of it. The BOI has played an essential role in terms of promoting and incentivizing the investor community.”

Now B.Grimm Power is focused on what it terms a “greenleap” strategy in which it will invest some \$2 billion to almost triple capacity from 3,668 MW to 10,000 MW by 2030 while at the same time doubling the proportion of renewable energy from 25 percent to 50 percent of the company’s total output.



The World’s Largest Hydro-Floating Solar Hybrid Project built by B.Grimm Power for EGAT atop the Sirindhorn Reservoir in northeastern Thailand.

There should be no shortage of takers for those renewables. With global CO2 emissions required to fall by 80 percent by 2050, B.Grimm Power estimates that Southeast Asia is going to need 920GW of renewable energy while only being on target to achieve 340GW – creating a shortfall of almost 600 GW. “You can say the sky’s the limit for renewables,” Nopadej said.

Thailand’s clean energy initiatives have clearly struck a chord with San Jose, California-based Western Digital Corp., one of the world’s largest suppliers of data storage infrastructure, which has long been a major investor in the kingdom.

Western Digital this year set itself ambitious new targets that include running its global operations on 100 percent renewable energy by 2030. And in Thailand it has announced it is collaborating with EGAT and Innopower, an energy innovations company set up by Thailand’s leading power utilities, in a green tariff initiative that seeks to drive clean energy use in the kingdom. As part of the deal, Western Digital will use electricity from renewables at its factory in Bang Pa-In, north of Bangkok, and test green energy procurement options guaranteed by Innopower.

“This is an important milestone for Western Digital in our sustainability journey where we have set an ambitious aim to reduce our carbon footprint,” Philip Bernard, Senior Vice President of Western Digital Storage Technologies (Thailand), said at the signing ceremony.

Tech behemoth Amazon.com Inc has set itself an even tougher target – to power its operations with 100 percent renewable energy by 2025. In 2022, its global cloud unit, Amazon Web Services, announced it would open an infrastructure region in Thailand, pledging to spend \$5 billion in the country over 15 years.

Amazon is the world’s largest purchaser of renewable energy. It says that organizations that move compute workloads to the AWS Cloud can benefit from the net effect of Amazon’s sustainability efforts to reduce their carbon footprint. Among its early customers: ENRES, a Thai startup that uses the Internet of Things and artificial intelligence to optimize energy usage in buildings and factories while simultaneously benefitting the planet.

Thailand’s road to renewables hasn’t always been easy. The Asian Development Bank’s Hashizume recalls that when the ADB helped finance Southeast Asia’s first utility-scale solar investment in Thailand in 2010 there was much skepticism about the cost and reliability of renewable energy.

Later, the country’s enthusiasm for renewables seemed to wane for a few years because of the easy availability of gas fired power, Hashizume said. Now, he adds, Thailand has woken up again to the opportunities and is poised to benefit from a new wave of investment inspired by companies whose stakeholders demand high environmental, social and governance standards.

In addition to solar, wind and hydro, Hashizume sees emerging opportunities in green hydrogen, ammonia, new areas of e-mobility, carbon capture and offshore wind. “Thailand will continue to be the frontrunner and we hope to be there to help do the financing,” he says.