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Column: COMMENTARY: How e-mobility can power Thailand to net zero

How e-mobility can power Thailand to net zero

An electric ferry operated by Energy Absolute passes the Temple of Dawn on the Chao Phraya River. Electric vehicles herald a new era in how energy is managed. ENERGY ABSOLUTE (EA)

COMMENTARY
Ingo Puhl

Thailand's rich natural resources have been helping driving the country's economic growth for decades. Minerals — from tin, gypsum, natural gas and coal, not to mention teeming forests — have been exploited and minted many businessmen in the kingdom. Yet, there is something rarely tapped into, despite being relatively cheap and abundant, and that is sunshine. Solar energy is a natural resource that has been here in abundance yet it has been taken for granted for so long.

While Thailand's sunshine typically attracts millions of cold-weather escapees, sunshine is becoming the focus of the latest energy innovations that will make it commercially useful to millions of Thais, from individual home owners to large real estate operators. Thanks to the incredible progress and business momentum in the electric transportation and battery industries, a movement further accelerated by the urgent need to cut carbon emissions, sunshine will finally have its day. The lowering costs of solar power, batteries and electric vehicles are triggering the convergence of the mobility, power and real estate sectors. Through open collaboration and good management, Thailand is perfectly positioned to capitalise on this megatrend.

What do electric vehicles have to do with the power sector and what does that have to do with the consumer? In short, the use of batteries in electric vehicles can replace traditional combustion engines and fossil fuels. These batteries can also be used to store excess solar power to recharge power to vehicles and homes, at an affordable cost. And unlike many other energy solutions that can only operate in large monopolistic utility networks — such as large scale solar farms that sell electricity to the state's utility grid — this solution, for instance, solar rooftops, works on a micro scale.

In the next 10 years, battery-powered electric motorbikes, tuk-tuks, cars, buses and ferries will increase demand for electricity and the storage capacity of the power grid as well as the "behind the meter" energy systems they are connected to. This convergence will change the roles and business models of existing energy players and create new opportunities for new market entrants, such as the real estate sector. For example, in Europe and the US, charging stations for electric vehicles are being created within shopping malls, condominiums and residences.

Around the world, this transition is already taking place. There are more than 5 million pure battery electric vehicles on the roads worldwide. While Thailand boasts less than 10,000 as of 2021, the Electric Vehicle Association of Thailand projects 1.2 million battery electric vehicles will be registered by 2036. In addition, 7,000 charging stations are expected to be opened domestically in the coming years.

The first country in Southeast Asia to offer incentives to electric vehicle manufacturers and tax reductions on sales of their cars, Thailand is imagining itself as an electric vehicle hub. Energy Absolute (EA), which recently made headlines for its launch of electric ferries on the Chao Phraya River, is using international climate finance, subsidies and tax breaks to put 5,000 electric vehicles on Thai roads, powered by 700-plus charging stations and using batteries that are made in Thailand.

Ideally, this growing battery storage capacity will be coupled with a stronger move to clean energy, like solar, which will then allow for an almost complete transition to net zero carbon emissions. Linking the increased demand for electricity to increasingly affordable renewable energy production will drastically cut the air, climate, and noise pollution caused by the transport industry, not to mention lowering the costs of transport systems. By some estimations, transport causes 30% of all emissions globally.

In an earlier column, I argued that this transition to "Net Zero" will create winners and losers and therefore needs to be navigated carefully. Among the key driving forces for this transition are innovation, better marketing solutions that enable new players to circumvent the sphere of influence of existing players. Indeed, the convergence of e-mobility, the use of renewable energy and energy management is happening "behind the meter," out of reach of the existing business model of current power system operators.

For example, there is nothing that could stop the operator of a commercial and industrial (C&I) solar power rooftop from using surplus solar power generation to charge the batteries of the electric motorbikes or e-cars of its workers, staff or customers. In addition, the connected electric vehicle battery capacity can also be used to provide auxiliary power services (currency stabilisation, backup power, peak load support) to the C&I estate it already provides with power at a gain for everyone involved. Electric vehicle users can reduce their transport costs by 20-40%, operators of C&I solar roofs can double their return on investment and the "behind the meter" purchasers of solar power increase their control over power management services. This will eliminate demand for grid power, accelerate the stranding of existing fossil assets and make the construction of new fossil assets, including gas power, obsolete.

Proactive investors and entrepreneurs who wish to jump into this new transition are also hampered by the contractual inflexibility of the existing Thai power grid, which obliges state-owned utilities to purchase power from large fossil power generation assets under long-term "take or pay" purchase agreements, even if there is no demand for this power.

This leaves these state-owned utilities with two bad options. Firstly, state utility agencies can increase the costs of electricity in a bid to reduce the revenue shortfall. Secondly, they can reduce contractual payments, thus contributing to an already large state budget deficit. There is third option that is much better. The third path requires stakeholders and players in the sector to fully embrace alternative business models. This will require tough decisions that sacrifice short-term profits in return for a commercially bright future for the energy industry.

A recent study by the International Energy Agency (IEA) in partnership with Electricity Generating Authority of Thailand (Egat) — a major state energy agency — addresses the need for increased grid flexibility. While adequately discussing most key issues, it largely ignores the massive impact of the "behind the meter" revolution on business models and markets.

A new solution that can substantially reduce carbon emissions requires transformative change and innovative approaches. Players need to be fully engaged and be team players. There is a strong need to create mid-term strategies to achieve a soft landing in phasing out fossil fuels.

On the consumer side, the new business model will be client-centric, with energy traded as service products. The new business model will cover the whole new vertical of decentralised renewable energy generation, storage, auxiliary energy services, real estate energy management, and e-mobility integration. To attain that requires that the energy business is reshaped; it takes effort to change relevant energy regulatory processes, and find new ways of cooperation among all stakeholders — state agencies, private sector and customers.

The demand for electricity from e-mobility will provide a unique window of opportunity, with lower costs. But it needs the existing mobility and power sector to act quickly to ensure they can capture a substantial part of the new playing field.

The government of Thailand can support this transition and boost the roles of its state-owned enterprises in the relevant sectors, as their profits constitute a substantial part of the Thai state budget.

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