

## Thailand energy storage for resilience

Thailand is charting a new course in its energy landscape through its Power Development Plan (PDP) 2024, aimed at increasing its use of renewable energy. This plan marks a significant shift toward carbon neutrality and energy sustainability, reflecting global trends and aligning with international commitments to combat climate change.

The revised Power Development Plan (PDP 2024) is Thailand's strategic blueprint to navigate its energy future toward a low-carbon society. The revision stems from several critical factors, including economic changes post-COVID-19, evolving energy demands, and technological advancements such as solar rooftops and electric vehicles (EVs). Thailand's energy strategy aims to bolster energy security, keep electricity costs economically viable, reduce environmental impacts, and enhance efficiency across its power systems .

One of the plan's core strategies is to expand renewable energy capacity, targeting a diverse mix including solar, wind, biomass, biogas, and waste-to-energy sources. The plan outlines that by 2050, renewable energy should account for at least 50% of the country's total power generation. This ambition is driven by the need to reduce greenhouse gas emissions, mitigate the effects of climate change, and comply with the global transition toward sustainable energy practices .

In addition to conventional renewables, the PDP 2024 emphasizes the role of emerging technologies such as small modular reactors (SMRs) and energy storage systems like batteries (BESS) to ensure a stable and reliable energy supply. The integration of hydrogen into natural gas for power production is also proposed, aiming to blend 5% hydrogen with natural gas by 2030 to reduce carbon emissions and facilitate a smoother energy transition .

Thailand's PDP 2024 has set ambitious carbon reduction targets. By 2030, the plan aims to reduce CO<sub>2</sub> emissions in the power sector to 67.7 million tons, a 40% reduction from current levels. By 2050, the target is further tightened to 41.5 million tons, which aligns with the national goal of achieving carbon neutrality by 2065. This commitment reflects Thailand's intent to elevate its Nationally Determined Contributions (NDCs) under the Paris Agreement .

To reach these targets, Thailand's energy strategy includes several measures:

While Thailand's renewable energy roadmap is ambitious, it faces several challenges. The transition to a higher share of renewables requires substantial investments in infrastructure, technology, and human resources. The integration of intermittent energy sources like solar and wind into the national grid presents technical challenges that must be addressed through enhanced grid management technologies and energy storage solutions.

However, this transition also presents numerous opportunities. Expanding the renewable energy sector can drive economic growth, create jobs, and attract foreign investment. It can position Thailand as a regional leader in renewable energy and innovation, particularly in Southeast Asia. Moreover, the shift toward clean energy can improve public health by reducing air pollution and promoting sustainable development.

Thailand's PDP 2024 represents a decisive step toward a sustainable energy future. With a focus on expanding renewable energy, reducing carbon emissions, and integrating advanced technologies, Thailand is poised to align itself with global energy trends. Achieving the ambitious goals set forth in the PDP will require coordinated efforts across government, industry, and society. However, if successfully implemented, Thailand's energy transition can serve as a model for other nations seeking to balance growth with sustainability in an increasingly carbon-conscious world.

By pursuing this renewable energy roadmap, Thailand is not just responding to environmental imperatives but also seizing a strategic opportunity to transform its energy landscape, enhance energy security, and promote economic resilience in a rapidly changing global context.

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