Energy storage market analysis thailand

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Thailand Battery Energy Storage market currently, in 2023, has witnessed an HHI of 4658, Which has increased moderately as compared to the HHI of 4393 in 2017. The market is moving towards concentrated. Herfindahl index measures the competitiveness of exporting countries. The range lies from 0 to 10000, where a lower index number represents a larger number of players or exporting countries in the market while a large index number means fewer numbers of players or countries exporting in the market.

The Thailand Battery Energy Storage market has emerged as a key player in the country`s transition towards renewable energy sources and grid stability. Battery energy storage systems (BESS) are integral to storing excess energy generated from renewable sources and ensuring a stable power supply. With a growing emphasis on clean energy and sustainability, the demand for BESS is expected to surge. Government incentives and policies supporting energy storage adoption have also contributed to market expansion.

The Thailand Battery Energy Storage market is primarily driven by the country`s efforts to enhance its energy infrastructure and transition towards renewable energy sources. Battery energy storage systems are crucial for stabilizing the grid, integrating intermittent renewables like solar and wind, and ensuring a reliable power supply.

In the Battery Energy Storage market, challenges include integrating energy storage systems into Thailand`s power grid and managing the life cycle of batteries effectively. Additionally, ensuring the affordability and scalability of energy storage solutions is essential for wider adoption.

In the Thailand Battery Energy Storage Market, leading players include international companies such as Tesla, LG Chem, and BYD. These companies are known for their advanced battery technology and have established a strong presence in Thailand`s energy storage sector.

Establishing and maintaining sufficient flexibility is important for the development and modernisation of Thailand"s power system, and for the achievement of a transition to low-carbon energy. While the Thai power system has significant latent flexibility and a high reserve margin, it will nevertheless need to adapt to the greater need for flexibility that comes with ongoing changes on both the demand and supply side.

Under the existing arrangement of Thailand"s power system, the modelling results suggest that the system has latent technical flexibility to integrate up to 15% VRE by 2030, but barriers surrounding power and fuel procurement often prevent that flexibility from being accessed. The benefits of investing in technical flexibility options - including retrofitting the generation fleet to improve plant flexibility and deploying new storage options, either PSH or BESS - are not significant, and these option are therefore not a priority in the short to medium term.

As Thailand further accelerates its clean energy transition, the country should still consider using a combination of flexibility options in its long-term planning to accommodate greater ambition for renewable energy deployment. Beyond 2030 as the system move towards higher shares of VRE, investing in plant retrofits and new storage options may become a viable option once the operational practices are addressed and there have been institutional changes to fuel and power procurement contracts.

Thailand has an enhanced single-buyer system, which means that the vertically integrated utility buys power from both its own generation assets and from independent power producers. This study is conducted in the context of the enhanced single-buyer system, and identifies contractual flexibility within this scope. Thailand is also set to increase its share of renewables in electricity generation, which creates a need for more flexible generation from the thermal fleet to accommodate variable renewables.

This study analyses the actual minimum-take obligations both from independent power producers and imports from the Lao People"s Democratic Republic against projected renewable generation and consumption. It constructs scenarios to reflect high levels of renewable generation combined with low levels of consumption, and vice versa, in order to study whether the contractual structures - and specifically the minimum-take obligation - creates structural inflexibility for the Thai system.

In addition to the minimum-take obligations of power purchase agreements, EGAT also has take-or-pay obligations in its fuel supply contracts for gas. These have elements of daily take-or-pay obligations, which significantly limit flexibility and increase system operational costs.