

## Case Study — Playtime Anytime: Playground Energized by Solar in Myanmar

### Background

Myanmar, the largest country in Mainland Southeast Asia, is one of the least developed nations, with only 50 percent of households connected to the public grid. Solar energy as an important solution to resolve the energy crisis and climate change wins its due attention in Myanmar.

With the expansion of blackouts, Myanmar's severe power outage poses a big problem for the routine operation of public recreational facilities. Previously totally powered by fuel generators, a playground in Lashio, the largest town in northern Shan State, is deeply troubled by the nearly daily power cuts and the 3 or 4 power supply hours each day are far from meeting the power demand. Meantime, the soaring fuel prices make the cost of using fuel generators too high. Thus, to alleviate the problem, the owner of the playground actively seeks solutions and utilizes PV to generate electricity.



*An ariel view of 121 kWp solar panels on the rooftop*



*The 120 kW hybrid inverter on site*

## Project Details

Due to the frequent power outages in Lashio, ATESS has designed a reasonable PV energy storage system for the playground to ensure its infrastructure's normal power supply and reduce the cost of generator fuel.

The 120KW on & off-grid PV power generation project is designed with a 105 kWh Peak Load and 56 kWh average load. According to the client, the daily electricity consumption is about 840 kWh. The direct current generated by the PV panels will be supplied to the load first, and the excess electricity will be charged to the battery.

ATESS technicians choose 16 mpv-cb because the total PV installed capacity is 121 kWp and determine the final PV configuration is 17S13P according to the characteristics of ATESS products.



Project Configuration	
Location	Lashio, Myanma
Grid	On & Off-grid
Peak Load	105 kWh
PV installation	121 kWp
Equipment installation	Indoor
Combiner	used for multiple combinations of PV strings.
HPS120	120 kW hybrid inverter
ATS150	automatic transfer switch
Enerlog	data logger to monitor and manage system power consumption
Battery	indoor BR157R battery rack

### System Configuration

### Working Mode

(1) When PV power is higher than load consumption, the PV module will prioritize to supply load, then excess power will charge the battery;

(2) When PV power is lower than load consumption, the battery will discharge automatically. If the battery voltage approaches the under-voltage limit, it will stop discharging, and the load will be supplied by the PV module and grid. In the meantime, the grid will charge the battery at a low current to protect the battery.

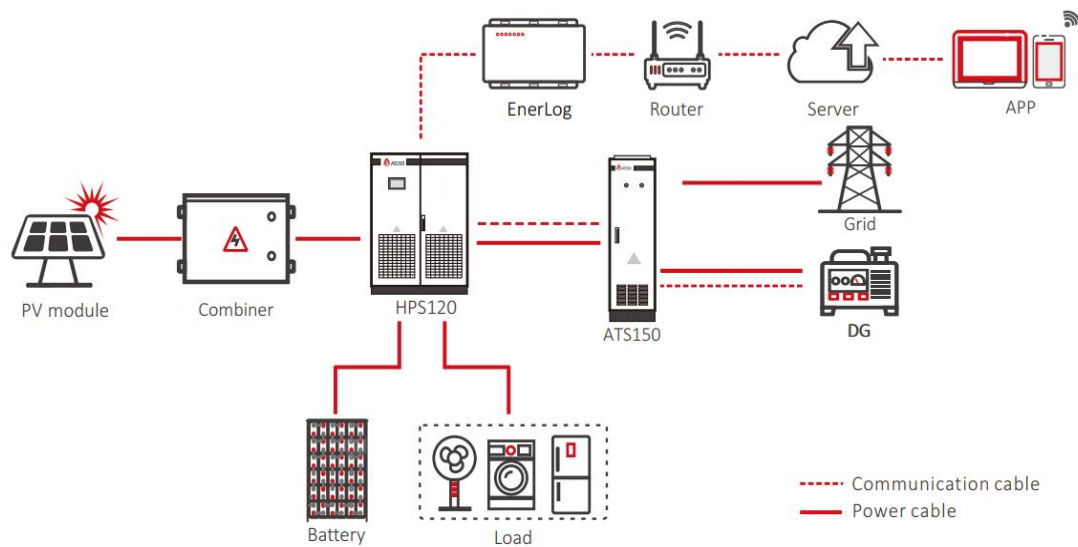
(3) Off-grid mode: when PV power is lower than load consumption, the battery will discharge until its voltage approaches the under-voltage limit. Then appears the below different situations:

(a) In the default setting, the HPS will stop the AC output, and the PV module will charge the battery only.

(b) If the generator is connected, the HPS will start the generator with dry contact control, and the generator will supply the load and charge the battery.







*System diagram*

## Conclusion

This project is the very first C&I energy storage project built by a private company in Shan State and has been put into use on 17th July, 2023. A grand completion ceremony for this project is held on 31st July, 2023 with 3000 attendees including military personnel, government officials, and corporate institutions.

In the days before the system was installed, the cost of generator fuel was more than MMK 48,000,000 per month, and extra expenses had to be paid for the generator maintenance. During the post-installation periods, the playground always has electricity and overcomes the difficulties of power outages. The generator is never turned on since the system was installed. Instead of the noise of generators, there is only the laughter of vacationers that fills the playground. The project costs MMK 462,200,000 in total investment. The playground profits from saving fuel and electricity bills and expects to break even in a year.

It is a noticeable reality that Myanmar has a huge potential for solar energy and the efficient use of solar energy will improve its energy crisis and bring a promising future. ATESS wins its reputation with more than 10 years of project experience in the energy storage industry. It is no doubt that ATESS will continue to provide affordable clean energy storage solutions in Myanmar and make its contribution to relieve the



power shortages.

