

Solar, Storage Reshape Bangladesh's Energy Future

For Bangladesh, where rising fuel import costs and recurring power shortages continue to strain the economy, the global energy transition presents both an opportunity and a necessity. With abundant sunlight, a growing industrial base, and ambitious renewable energy targets, the country has strong potential to expand solar power across factories, commercial buildings, and households. Combining solar energy with modern battery storage could not only reduce dependence on imported fuel but also help industries cut costs, improve energy reliability, and support Bangladesh's long-term energy security goals.

Will Yu, Huawei South Asia Managing Director of Digital Power Business Group, shared his thoughts in an exclusive interview with Energy & Power Editor Mollah Amzad Hossain.

Could you please share the current scenario of the global energy business?

Previously, coal and oil were the dominant sources of energy worldwide. In the energy sector, we often use the term LCOE — Levelized Cost of Energy. In the past, renewable energy, especially solar and wind, had a much higher cost per kilowatt-hour than coal or diesel because the technology was still developing and commercial applications were limited.

However, around 2017–2018, the LCOE of solar power dropped to a level comparable to coal and oil. As a result, solar installations began increasing rapidly across the world.

From 2022 onward, technology has advanced even further. Solar module efficiency has improved significantly, inverter performance has become more efficient, battery storage systems have advanced, and prices have continued to decline. As a result, the cost of solar combined with Energy Storage Systems (ESS) is now approaching parity with coal and fossil fuel-based generation in many markets. With continued technological and commercial development, prices are expected to fall even further.

Now, our cost per kilowatt-hour is around 10 US cents, but if batteries are added,

the cost rises to nearly 16 cents. What is your observation?

The exact cost varies from country to country. Before answering directly, let me share an example. I previously worked in the Philippines, where one of the world's largest solar-plus-ESS projects is currently operating. The project includes 3.5 GW of solar generation and 4.5 GWh of ESS capacity. Depending on solar irradiation, it can provide nearly 13 hours of continuous power supply — from 8:00 a.m. to 9:00 p.m.

Many countries are now developing large-scale solar-plus-ESS projects as major power sources. This is not limited to utility-scale generation; it is also increasingly important for commercial and industrial users.

In Bangladesh, for example, many RMG factories rely on diesel generators during load-shedding. Our calculations show that electricity generated from diesel costs around 30–35 cents per kilowatt-hour, whereas solar combined with ESS can reduce costs to below 20 cents. So, especially as a replacement for diesel generators, solar-plus-storage solutions are becoming highly commercial and economically viable.

Around 57% of electricity demand comes from households. IDCOL plans to install one million household solar systems requiring 1–5 kW capacity. Do you have solutions for that market?

Yes. Huawei has a wide portfolio of solutions ranging from residential systems to commercial and industrial (C&I) applications, as well as utility-scale projects.

Huawei mainly provides key components such as inverters, which convert DC electricity into AC power, and ESS solutions. In Bangladesh, we are currently focusing on the commercial, industrial, and utility sectors, while still assessing the residential market before launching household solutions locally.

Globally, however, we already offer residential inverters ranging from 5–6 kW and ESS solutions of around 7 kWh. These storage systems are modular, meaning users can combine multiple units. For



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Absolutely. I believe renewable energy — especially solar, combined with ESS — is highly suitable for Bangladesh. The government has ambitious renewable energy targets, including 20% renewable generation by 2030 and 30% by 2040, alongside plans for 10 GW of installed solar capacity.

example, three units can be combined to provide up to 21 kWh of storage capacity.

Do you see ESS as suitable for Bangladesh?

Absolutely. I believe renewable energy — especially solar, combined with ESS — is highly suitable for Bangladesh. The government has ambitious renewable energy targets, including 20% renewable generation by 2030 and 30% by 2040, alongside plans for 20 GW of installed solar capacity. This is a logical strategy because it can reduce Bangladesh's dependence on imported coal and oil while utilizing solar energy, which is freely available. In this transition, ESS is extremely important because it can provide backup during cloudy weather or nighttime. ESS helps maintain a stable and continuous power supply.

Huawei has invested heavily in “Grid Forming” technology. Previously, most systems used “Grid Following” technology, which could not actively support the grid. Grid-forming ESS, however, can provide voltage support, frequency support, phase-angle control, and grid stability services.

When Huawei entered the digital power and solar business around 10 years ago, we already believed renewables would become a major global energy source. Since then, we have focused heavily on research aimed at making solar and wind reliable primary energy resources capable of supporting grids and industrial operations.

For example, during factory load-shedding, diesel generators usually require 5–10 seconds to restore power. During that period, the lights go out, and machines stop operating. By contrast, grid-forming ESS can restore power within 20 milliseconds, making the transition almost seamless.

In addition, ESS provides higher-quality electricity by controlling voltage fluctuations, frequency, and harmonics. This is extremely important for industries such as textiles and pharmaceuticals. Diesel-generated electricity often cannot maintain stable power quality and may eventually damage machinery.

So, I strongly believe solar and ESS are excellent solutions for Bangladesh — whether for utility-scale generation, industrial applications, or even residential use.

Many RMG factories have limited rooftop space and rely heavily on diesel generators. Besides, the initial investment in ESS is high. How can the sector ensure a good return on investment?

Solar-plus-ESS solutions are compatible with many different business models.

Even if rooftop space is limited, factories can still install sufficient ESS capacity and combine it with grid electricity to ensure stable and reliable power. Compared with diesel-generated electricity, ESS is far more cost-effective over the long term.

While the initial capital expenditure for ESS may appear high, diesel generators involve very high operating and maintenance costs over 15–20 years, especially as fuel prices continue to rise. In comparison, ESS systems have very low operating costs.

For example, if a factory experiences even two hours of load-shedding daily, the

return on investment for ESS can typically be achieved within three to five years.

There is also the environmental aspect. The textile industry increasingly requires carbon emission certifications. Diesel generators are considered a major environmental concern, while ESS solutions help reduce emissions significantly.

Can you mention some good examples from Asia or East Asia that Bangladesh can follow?

We already have a successful example here in Bangladesh.

Paragon Poultry installed a 1.5 MWh ESS system using Huawei technology. After operating the system for only a few months, company representatives told us their monthly fuel costs had fallen by nearly 80% — from around Tk 2.5 million to just Tk 500,000.

The ROI turned out to be even better than initially projected, and the company is now planning to expand ESS installations across all of its poultry facilities.

Bangladesh plans to produce 10,000 MW of renewable energy, including 8,000 MW from solar. But the grid is not yet smart enough and faces voltage instability. Without storage, only around 3,500–4,000 MW can be managed. What is your suggestion?

We need to understand that solar itself is not the problem. The issue is grid management and stability.

In the Philippines project I mentioned earlier, 3.5 GW of solar combined with 4.5 GWh of ESS can provide stable output for 13 hours, even though the substation capacity is only around 850 MW. Proper power management makes this possible.

However, ESS alone is not enough unless it includes grid-forming capability. Without grid-forming technology, ESS cannot actively support the grid.

Grid-forming ESS can regulate voltage, frequency, phase angle, harmonics, and even provide synthetic inertia to stabilize the system. This allows the grid to remain stronger and perform more reliably even with higher renewable penetration.

What are Huawei’s plans for Bangladesh’s RMG sector to encourage renewable energy adoption?

Huawei’s slogan is “In Bangladesh, For Bangladesh.” We strongly believe that customer success is our success.

Over the past few years, we have already delivered several projects in Bangladesh. However, renewable energy and smart energy solutions are still relatively new concepts for many industries here.

Our priority is therefore to engage more with industrial stakeholders and factory owners to improve understanding about the benefits, feasibility, and return on investment of solar and ESS solutions.

Secondly, we aim to provide cutting-edge smart technologies along with strong after-sales service. Our local Huawei team based in Gulshan will provide direct support to customers, while our spare-parts warehouse will help ensure quick responses to urgent operational requirements.

Why are Huawei’s products different from other products available in the market?

Many customers initially focus only on price. But when it comes to ESS, safety is actually the most important factor.

ESS systems are essentially very large batteries installed inside factories where people work every day. That is why Huawei places enormous emphasis on safety.

For example, we conduct extensive fire safety tests on battery cells at our laboratories in China. In some tests, we even expose batteries to petrol fires. If a battery cannot withstand those tests safely, we simply do not use it.

Huawei is also unique in using metal casing for battery packs. These metal covers can withstand temperatures of up to 1,400 degrees Celsius. In contrast, many other manufacturers use plastic casings that may tolerate only around 400 degrees.

Bangladesh is planning to move toward electric vehicles (EVs). What would be your suggestion?

Huawei’s ultra-fast EV charging solutions have already been widely deployed in China, Thailand, several other Asian countries, and parts of Europe.

I believe EV adoption is very positive for industries and the country as a whole because it contributes to a cleaner, greener economy. EV technology is also becoming increasingly competitive in terms of both price and performance.

It is encouraging that the Bangladesh government is seriously considering EV adoption. I believe large companies should also actively explore this transition. 