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ENERGY UPDATE

SPECIAL REPORT ON 3RD INTERNATIONAL
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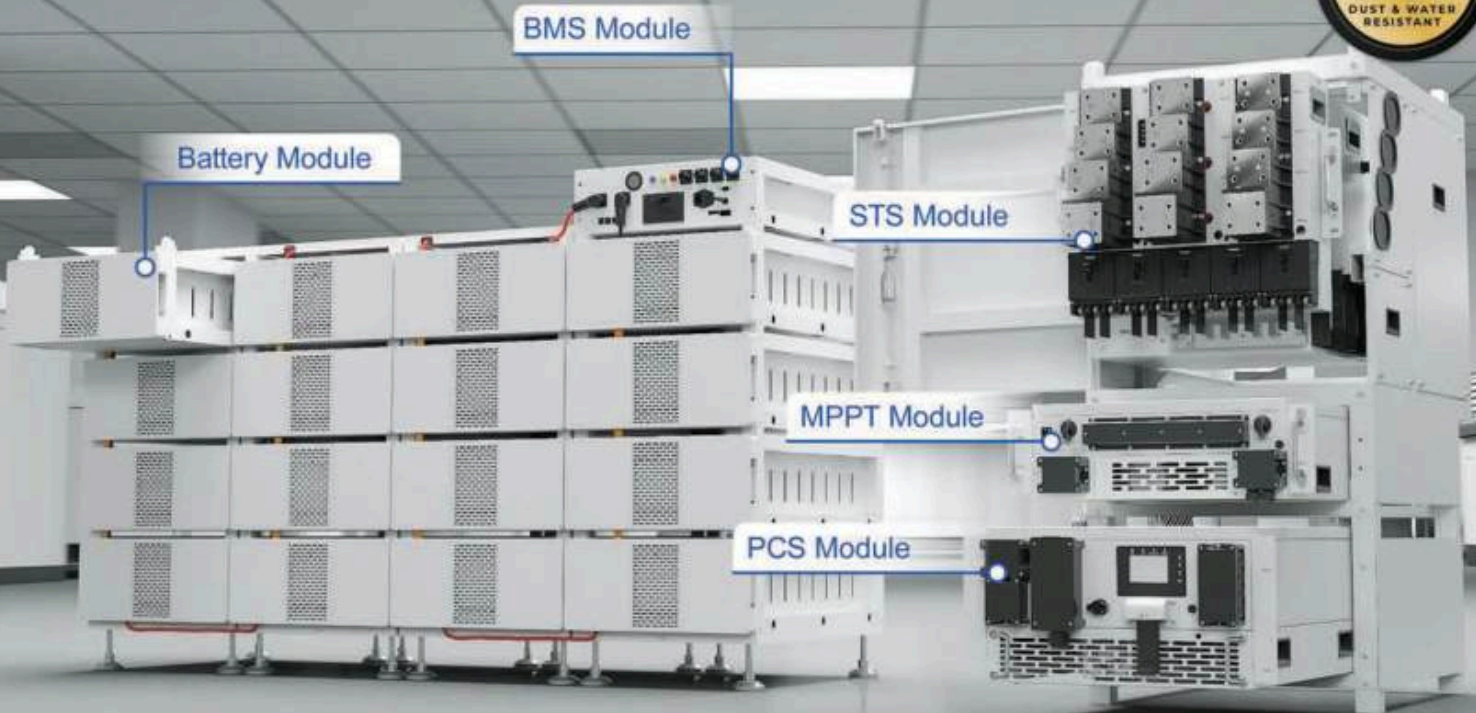
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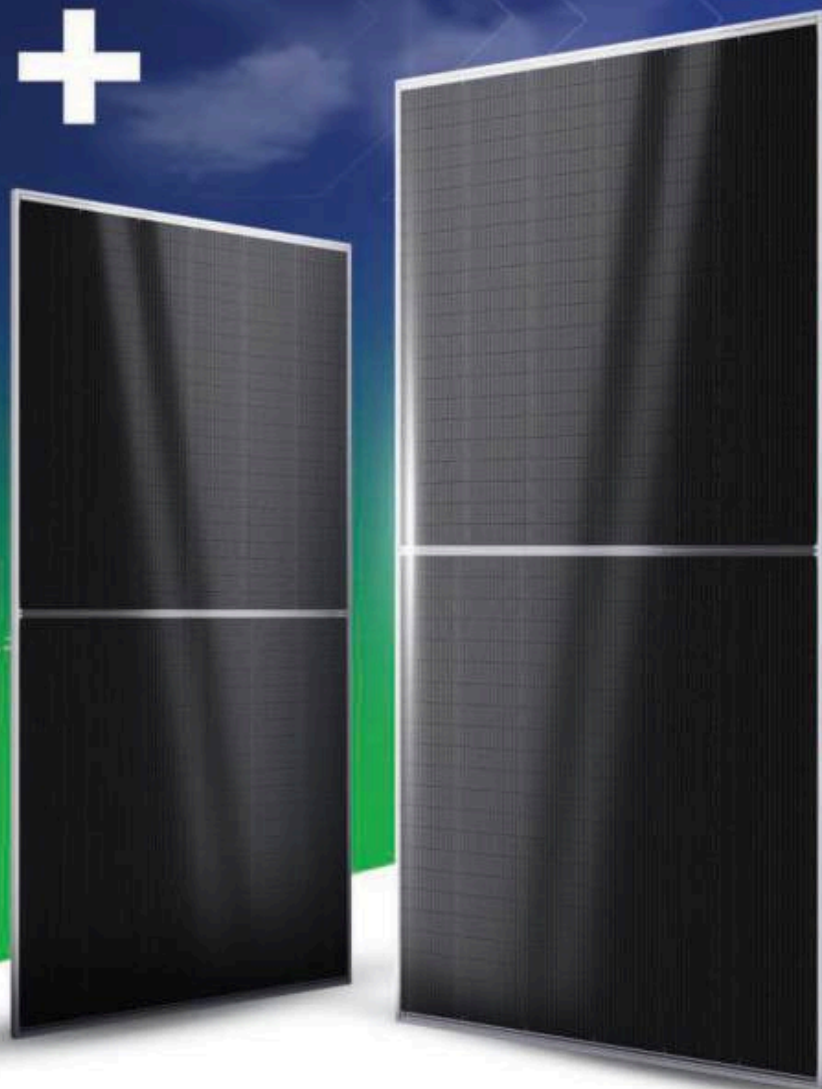
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FROM THE Editor's desk...

Households Need Gas Priority in New Plan

Prime Minister Shehbaz Sharif's new directive in a meeting to prepare a comprehensive gas load-management plan before the winter season is timely and very necessary. The meeting was informed that domestic consumers will be given priority in the supply of locally produced gas, while RLNG will be prioritized for power generation and industries. PM's assurance to give priority to domestic consumers is also a good move but it should be ensured rather than raising empty slogans like the past. Fact is that no government should ignore households during freezing winter weather, particularly low-income families, elderly people and children.

The consumers cannot afford to repeat the familiar cycle in which winter arrives, household gas pressure falls, industries complain of shortages, power generation is affected and the government begins emergency measures.

The present situation is more serious because Pakistan is dealing not only with declining indigenous gas supplies but also with expensive imported liquefied natural gas, regional instability and a deeply indebted gas sector. The government has therefore rightly called for advance planning, public awareness, uninterrupted LNG imports and alternative energy arrangements, but the need is to realize the call for better gas management.

The country needs a new system of gas management in which every unit of gas is allocated according to economic and social value, while vulnerable households are protected through targeted support. The latest figures show why winter planning cannot be based on assumptions of abundant domestic gas.

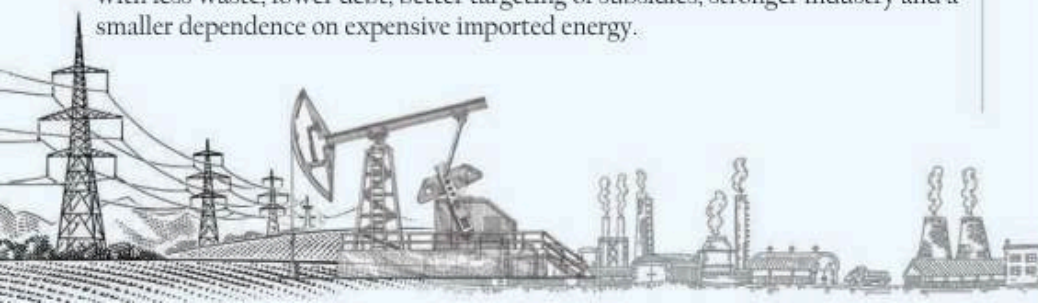
The government should therefore introduce a Residential Gas Conservation Programme. First, households should be encouraged to shift water heating from gas to electric appliances, solar water heaters and other efficient technologies where feasible.

Second, banks should provide low-interest financing for electric geysers, heat-pump water heaters, efficient electric heaters and solar water-heating systems. The government's consideration of financing for electric appliances is therefore a useful proposal, but it should be implemented rapidly rather than left as another policy announcement.

Third, electricity tariffs should be designed so that households shifting from gas to efficient electric appliances are not financially punished. Fourth, gas subsidies should become targeted rather than universal.

The government should introduce a clear winter industrial gas allocation system based on economic priorities, so that households remain unaffected. It should avoid sudden taxes, levies and discriminatory charges that make Pakistani products uncompetitive in international markets.

The Prime Minister's instruction for advance winter planning is a good beginning. It needs a long-term national gas strategy that treats gas as a scarce economic resource rather than an endlessly subsidised commodity. The real test will not be whether the government can keep the system running for three winter months. The real test will be whether Pakistan can emerge from the winter with less waste, lower debt, better targeting of subsidies, stronger industry and a smaller dependence on expensive imported energy.



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Pakistan's solar boom squeezes grid demand, Chinese power projects: Bloomberg

Grid electricity consumption falls as businesses turn to cheaper solar; overdue payments to Chinese power plants exceed \$1.5bn; At the Port Qasim coal-fired power plant alone, overdue payments reached nearly \$300 million

Pakistan's accelerating shift towards solar power is cutting demand for grid electricity and adding pressure on the country's power-sector finances, including Chinese-backed coal projects, Bloomberg reported on Thursday.

Electricity consumption across Pakistan's distribution companies was almost 12% lower in the 12 months to July 2025 compared with three years earlier, according to NEPRA data cited by the report, as households and businesses increasingly turn to distributed solar generation. Solar accounted for about 20% of Pakistan's electricity generation in 2025, compared with around 3% at the beginning of the decade, Bloomberg reported, citing energy think tank Ember.

High grid tariffs, unreliable electricity supply and falling solar equipment costs have accelerated adoption. Pakistan became China's third-largest solar export market last year, while imports of battery storage systems are also rising rapidly. Customs data cited by Bloomberg showed Pakistan's battery imports from China jumped nearly 150% in the first half of the year to about \$392 million.

The shift is particularly visible in industrial areas. At Port Qasim, near Karachi, rooftop solar systems have spread across an industrial zone housing around 400 companies, alongside a Chinese-backed coal-fired power station. Zaheer Allana, owner of a packaging factory in the area, said rooftop panels currently meet around one-fifth of his facility's electricity requirements at less than one-third of the cost of grid electricity.

However, falling grid demand is worsening financial pressure on utilities because fixed power-sector costs

have to be recovered from a shrinking pool of grid electricity sales.

The trend is also complicating the economics of Chinese-financed power projects. Overdue payments to Chinese electricity plants had exceeded \$1.5 billion by August, while outstanding project debt linked to China-financed coal assets stood at \$3.1 billion last year, according to figures cited by Bloomberg.

At the Port Qasim coal-fired power plant alone, overdue payments had reached nearly \$300 million by June. The facility is among seven coal-fired plants delivered by China in Pakistan since 2017 at a combined cost of around \$9.6 billion.

Energy Minister Awaiz Leghari told Bloomberg that Pakistan is seeking longer repayment periods for power-sector debt rather than reductions in the amounts owed. "We are not expecting any haircuts in those terms and conditions," Leghari said, adding that Islamabad had instead sought an extension of the debt repayment period.

Chinese officials have so far been reluctant to make major concessions that could impose losses on Chinese state-owned companies and banks, according to the report. Options being discussed include refinancing debt and repurposing under-utilised power plants.

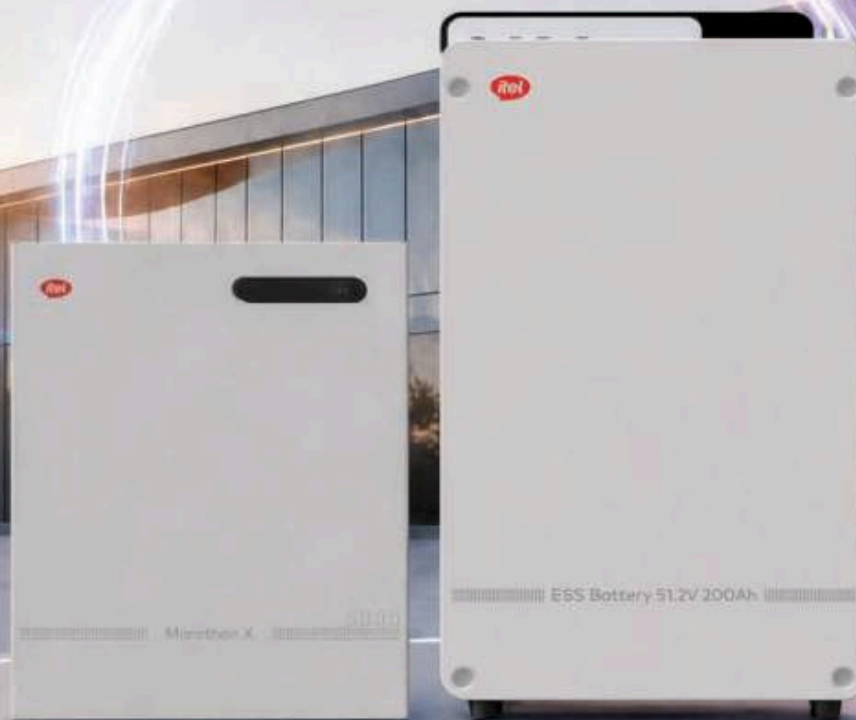
The rapid expansion of distributed solar has consequently created a new challenge for Pakistan's power sector: while consumers and businesses can reduce electricity costs by generating their own power, declining grid demand leaves utilities with fewer units over which to spread fixed capacity and infrastructure costs. ■

Courtesy Bloomberg



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Pakistan's Solar Revolt Causes Grid Sales Drop

Households, farmers and businesses are driving it in response to electricity prices and reliability; higher tariffs make solar more attractive; as more consumers install solar, grid sales fall

Syed Asad Ali Shah

The writer is a former managing partner of a leading professional services firm and has done extensive work on governance in the public and private sectors

Pakistan is witnessing one of the fastest and most unusual energy transitions in the developing world. It is not being led primarily by government policy, public investment or climate targets. Households, farmers and businesses are driving it in response to electricity prices and reliability.

The numbers are extraordinary. According to the International Energy Agency's September 2026 Electrification Special Report, Pakistan imported about 51GW of solar panels between 2021 and 2025. Installed distributed solar capacity in 2025 is estimated at between 28 and 38GW, with rooftop systems accounting for roughly 80 per cent and residential consumers for around half of installations. Battery imports also rose sharply, from about \$120 million in 2022 to nearly \$300 million in 2025.

Perhaps the most revealing number has nothing to do with solar. The IEA reports that the median firm in Pakistan experiences around 45 hours without grid electricity every month. That helps explain what has happened.

Pakistan's solar boom is therefore a consumer response to an electricity system that has become too expensive and, for many users, insufficiently reliable. Consumers are no longer waiting for power-sector reform. They are building their own reliability. The solar revolution is, in

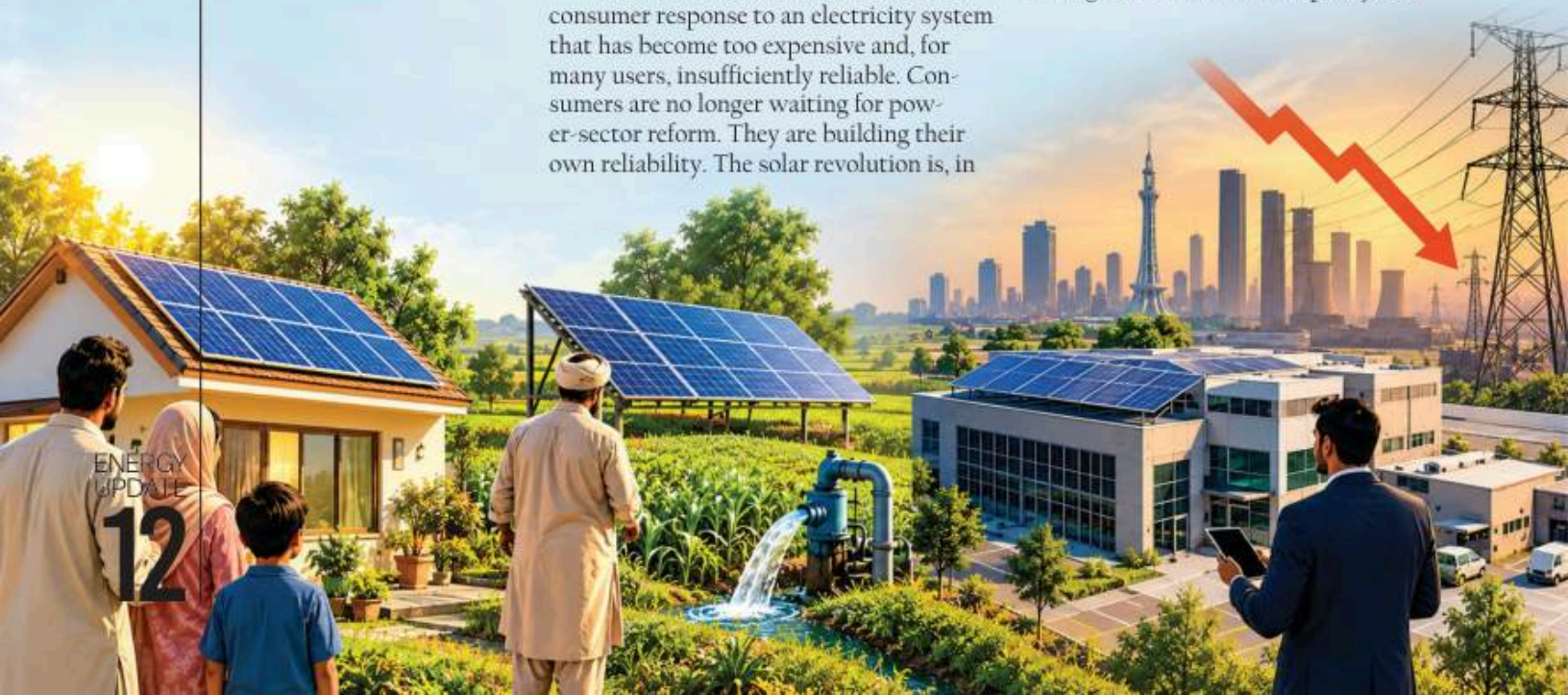
that sense, a market verdict on the existing system.

For decades, Pakistan's electricity debate was dominated by shortages and loadshedding. The response was to add generation capacity through long-term, exorbitantly expensive contracts designed to attract investment when the country desperately needed power.

The problem has now changed. Pakistan has substantial installed generation capacity, yet electricity remains unaffordable for many households and uncompetitive for much of industry. Circular debt continues to accumulate. Distribution losses, theft and poor recoveries remain serious, while transmission constraints impede efficient dispatch. Consumers ultimately pay through tariffs, taxes or public debt.

Then came a technological shock. Global solar-panel prices fell sharply just as grid tariffs were rising. Businesses discovered that electricity generated on their roofs could cost considerably less than electricity purchased from the grid. Households followed. Farmers began solarising tube wells. Falling battery prices are now allowing consumers to store daytime generation and reduce dependence on the grid after sunset.

Consumers responded to economic incentives much faster than institutions. Solar should therefore not be viewed only through the lens of climate policy. For



industry, it is about competitiveness; for households, affordability; and for farmers, greater energy independence.

Pakistan has effectively developed a second electricity system alongside the first: decentralised, privately financed and increasingly independent of the conventional grid. That is a remarkable achievement, but also a serious challenge for policymakers. The electricity system was built on the assumption that utilities would sell increasing volumes of electricity and recover fixed generation, transmission and distribution costs through those sales. Distributed solar has severely disrupted that model.

As consumers generate more electricity themselves, grid sales decline. Fixed costs, however, do not disappear. Capacity payments, transmission and distribution networks, debt servicing and other legacy obligations still have to be financed. This has created a vicious cycle. Higher tariffs make solar more attractive. As more consumers install solar, grid sales fall. Fixed costs then have to be recovered from fewer units sold, putting further pressure on tariffs and making solar and batteries still more attractive.

There is also an equity problem. Consumers most able to install solar and batteries tend to have access to capital. Poorer households and small businesses remain dependent on the grid. Unless the system changes, Pakistan risks creating a two-tier electricity economy: affordable and reliable self-generation for those who can invest, and an increasingly expensive grid carrying legacy costs for those who cannot.

The wrong response would be to blame solar. Consumers did not create circular debt, inefficient DISCOs, transmission bottlenecks, poor recoveries or expensive legacy contracts. They responded rationally to the product offered. Punitive charges, abrupt policy changes or barriers to distributed generation may slow the transition temporarily, but they will not solve the economics that caused consumers to leave the grid. The question must change from how we protect the grid from solar to how we redesign the grid for a solar economy.

The grid remains indispensable. Solar produces electricity when the sun shines, while a modern economy requires electricity around the clock. Industry cannot operate on intermittency, hospitals cannot depend on weather and cities need resilient networks. But the grid of the future cannot operate like the grid of the past.

DISCOs will have to evolve from geographic monopolies that depend on selling more units into modern distribution-system operators managing two-way electricity flows among consumers, generators, batteries and the national grid. That requires smart metering, digital networks, better forecasting, storage and tariffs that reflect the changing value of electricity during the day.

Time-of-use pricing should encourage demand when abundant solar makes electricity cheaper and discourage avoidable consumption during expensive peaks. Batteries should not be seen as another way to leave the grid; properly integrated, they can help balance the system.

Pakistan must also move towards a more competitive electricity market. Large consumers should increasingly be able to purchase electricity through wheeling and the Competitive Trading Bilateral Contract Market rather than remain captive to geographic monopolies. DISCO reform and private-sector participation should be judged by investment, governance and measurable perfor-

mance, not merely by ownership.

Energy policy should also avoid becoming an ideological contest between solar, hydro, nuclear, coal or gas. Pakistan needs the least-cost, reliable and increasingly indigenous energy mix capable of supplying electricity around the clock while reducing exposure to imported fuels.

If solar and storage can reduce production costs for textiles, engineering, agriculture, IT services and SMEs, that is a competitive advantage Pakistan should capture. The objective should not be to force consumers back into an expensive system but to make the grid valuable enough that they choose to remain connected. A modern grid can provide what individual solar installations cannot easily offer: balancing, backup, reliability, electricity trading and access to power generated elsewhere in the country.

Another remarkable feature is that households and businesses have effectively financed tens of gigawatts of generation – capital the government did not have to borrow, guarantee or add to public debt. Instead of treating that investment as a threat, Pakistan should regard it as a national asset and redesign the electricity market so it can be productively integrated. ■



K-Solar rebrands as K Nova

EU Report

K-Solar, a wholly-owned subsidiary of K-Electric's (KE) investment arm KE Ventures Company (Pvt) Limited, has officially changed its name to K Nova, effective today, as it expands its scope to become an end-to-end renewable energy solutions platform.

Rebranding of K-Solar to K Nova is part of KE's long-term diversification agenda under its new Board and Management. As KE transforms beyond traditional power distribution, the company is building a future-ready energy ecosystem. As part of this agenda, K Nova has now been mandated to spearhead renewable energy (solar as well as wind) storage and management solutions via various modes of financing, while supporting KE's commitment to energy security, sustainability, and value-creation for its customers and shareholders.

Hashim Raza, CEO K Nova, said: "As the scope of the business expands, the new identity will encompass new opportunities for K Nova to tap into. Timing of this decision coincides with the national level direction to make Pakistan's energy sector more resilient, sustainable, and affordable. K Nova will now position itself to deliver smarter, more reliable, and sustainable energy solutions for commercial, industrial, residential customers and utility partners across the country."

ENERGY STORAGE TRAJECTORY APPROACHING INFLECTION POINT OF CONSIDERABLE MAGNITUDE

Mr Mian Fahad, Regional Director, South & Central Asia, TBEA, says TBEA's enduring differentiation lies in our capacity to deliver holistic energy solutions — encompassing transmission and distribution equipment, grid modernisation technologies, and intelligent integrated systems that unify generation, storage, and consumption management

Mustafa Tahir

Energy Update magazine conducted an interview with Mr Mian Fahad, Regional Director, South & Central Asia, TBEA. The detailed interview is given below:

Q1. What have been your initial priorities since taking on this role, and how do you see TBEA positioning itself across your region?

Ans: My foremost priority since assuming this mandate has been to lay an unimpeachable foundation across South and Central Asia — one built on credible distribution partnerships, a robust after-sales infrastructure, and sustained, authentic engagement with the stakeholders who truly shape this industry's trajectory in each of these markets. TBEA's ambition here is not merely incremental entry market by market, but the establishment of a formidable, technologically distinguished regional presence that stands shoulder to shoulder



with the most entrenched global players. We intend to be recognised not simply as another inverter manufacturer, but as a dependable long-term energy partner whose commitment to this part of the world is demonstrable through tangible investment in local capability, technical training, and responsive service infrastructure — calibrated to the distinct maturity and needs of each market we serve, from Pakistan to the wider Central Asian corridor.

Q2. How does TBEA view the potential for battery energy storage systems (BESS) across South and Central Asia?

Ans: The region's energy storage trajectory, in my assessment, is approaching an inflection point of considerable magnitude, albeit one that manifests differently from market to market. In Pakistan, the convergence of chronic grid instability, escalating fuel-driven generation costs, and an increasingly sophisticated consumer base is cultivating fertile ground for storage adoption at a scale previously unseen. Elsewhere across South and Central Asia, similar underlying pressures — unreliable grid infrastructure, a push toward energy self sufficiency, and the gradual maturing of renewable penetration — are creating comparable, if earlier-stage, openings. TBEA is positioned to meet this moment with a comprehensive storage portfolio spanning compact residential hybrid configurations through to containerised, utility-grade liquid-cooled systems, engineered for resilience, cycle longevity, and seamless integration with both grid-tied and islanded architectures. We envisage BESS evolving from a supplementary consideration into an indispensable pillar of the region's distributed energy framework, and TBEA intends to be at the vanguard of that transition across every market under my remit.

Q3. Can you tell us about your approach to partnerships and how you are building out the ecosystem around TBEA's products across the region?

Ans: Our approach to partnership is deliberately expansive rather than narrowly transactional, and it is designed to scale across borders rather than remain confined to a single country. We are cultivating relationships across the entire value chain in each market — established importers and distributors, EPC contractors with proven execution capability, utility-adjacent stakeholders, and emerging developers bring local specificity to project delivery. The underlying philosophy is one of mutual cultivation: we furnish technical training, marketing collaboration, and after-sales assurance, while our partners contribute the market intimacy and operational reach necessary to translate technology into tangible deployment. This reciprocal architecture is what ultimately underwrites durable market penetration across South and Central Asia, rather than a fleeting commercial footprint in any single country, and it allows us to replicate what works in one market while remaining sensitive to what makes each of the others distinct.

Q4. What is your assessment of the policy environment across the markets you oversee, and what would help accelerate investment in the sector?

Ans: Regulatory maturity varies considerably across South and Central Asia, but a common thread runs

through nearly every market I oversee: policy architecture that is still crystallising. In Pakistan specifically, net metering frameworks are being recalibrated, wheeling mechanisms remain embryonic, and the broader structure of a competitive electricity market is still taking shape. Comparable ambiguity — around interconnection standards, storage incentivisation, and the pace of renewable integration — recurs elsewhere across the region in different forms. This is understandable given the scale of transformation underway, but it introduces a degree of investment hesitancy that the sector can ill afford at this juncture. What would meaningfully accelerate capital deployment across these markets is regulatory predictability — clearly codified, consistently enforced policy instruments, streamlined interconnection procedures, and a coherent long-term roadmap for distributed generation and storage. Investors and technology providers alike respond far more favourably to policy stability than to the prospect of attractive but precarious frameworks subject to abrupt revision.

Q5. Looking ahead, how do you see TBEA's role evolving across South and Central Asia over the coming years?

Ans: Looking ahead, I would characterise our growth trajectory as fundamentally integrative rather than singular, and as regional rather than confined to any one country. While solar remains the indispensable entry point in most of these markets and BESS represents the most immediate growth catalyst, TBEA's enduring differentiation lies in our capacity to deliver holistic energy solutions — encompassing transmission and distribution equipment, grid modernisation technologies, and intelligent integrated systems that unify generation, storage, and consumption management. The energy transition across South and Central Asia will not be won by any single product category or any single market in isolation; it will be won by providers capable of orchestrating the full spectrum of the energy value chain across the region, adapting that offering to the specific stage of development each market has reached. That integrative and regional capability is precisely where TBEA intends to distinguish itself over the coming years. ■



Turning Karachi's wastewater into a water resource: Bilawal opens TP-1



Pakistan Peoples Party (PPP) Chairman Bilawal Bhutto Zardari on Saturday inaugurated the first phase of a landmark wastewater treatment and reuse project in Karachi, launching a 35-million-gallon-per-day (MGD) facility designed to supply recycled water to industries while freeing an equivalent quantity of freshwater for domestic consumption in the water-starved metropolis.

The Karachi Industrial Water Park, also known as Treatment Plant-I (TP-1), at Haroonabad is being developed under the Greater Karachi Sewerage Plan and is planned to have a total treatment capacity of 100 MGD. Its second phase, involving an additional 65 MGD, was also launched on Saturday, with completion targeted within six months. Once fully operational, the facility is expected to provide up to 100 MGD of treated industrial process water by 2027.

The project represents a shift from treating wastewater merely as a disposal problem to turning it into a reusable resource for Karachi's industrial economy. By replacing freshwater currently consumed by industries with treated municipal wastewater, the project is intended to conserve precious freshwater resources for households while reducing the volume of polluted water entering Karachi's rivers and the sea.

Addressing the inauguration ceremony, Bilawal described the project as a historic initiative and said resolving Karachi's water crisis remained among the PPP's foremost priorities. He said Karachi's water requirements had to be addressed alongside the city's wider infrastructure problems and stressed that the new project would serve both industrial and populated areas while helping reduce pollution in the city, its waterways and the sea.

"Water has remained our biggest priority for Karachi," Bilawal said, pointing to the broader water scarcity confronting Pakistan, particularly Sindh.

He criticised what he described as the failure to provide Sindh its due share under the agreed water-distribution arrangements, saying the province and Karachi continued to face shortages while projects were undertaken upstream without adequately addressing Sindh's

requirements. Bilawal said the 1991 Water Apportionment Accord explicitly recognised the need for additional water for Sindh to meet Karachi's requirements, but, in his view, the province continued to be deprived of its due share.

Against this backdrop, he said, the Sindh government and Karachi Metropolitan Corporation (KMC) had decided to make better use of the water already available to the city by conserving, treating and reusing it.

He referred to another recent initiative in Keamari, where a 25 MGD water-treatment facility had been inaugurated a few months ago, with a further 55 MGD capacity planned. The Haroonabad project, he said, represented another major step towards addressing Karachi's chronic water shortage.

Bilawal said the SITE industrial area was a major centre of employment and economic activity not only for Karachi but for Pakistan as a whole. The first phase of TP-1 would provide 35 MGD of treated water for the industrial area, while the second phase would add another 65 MGD, taking the plant's total capacity to 100 MGD.

The PPP chairman underlined the environmental dimension of the project, saying the treatment and reuse of wastewater would reduce the discharge of polluted water into the sea and other water bodies.

The project's circular-economy model means that wastewater generated by the city will be treated and converted into water suitable for industrial processes rather than being allowed to become an environmental liability. The resulting substitution of treated wastewater for freshwater is expected to make more freshwater available for drinking and household needs.

Sindh Chief Minister Syed Murad Ali Shah, speaking at the ceremony, described TP-1 as a major milestone in Karachi's efforts to strengthen water security, support sustainable industrial development and confront the growing challenge of water scarcity.

He said the project reflected Bilawal's vision of modern infrastructure, environmental responsibility and sustainable economic development, while appreciating the role of KMC and all other stakeholders involved in its development. ■



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EV boom reshaping local market

Pakistan's EV future hinges on localisation, not just imported sales

Faran Mahmood

The writer is a Cambridge graduate and works as a strategy consultant

China's automotive industry has set a record this year as vehicle exports have already surpassed last year's total by August. As Chinese automakers expand into emerging markets to offset Western trade barriers and domestic overcapacity, Pakistan has become one of the clearest beneficiaries.

This global push is disrupting a decades-old Japanese auto oligopoly in Pakistan, aided by Islamabad's New Energy Vehicle Policy (NEVP 2025-2030). As Chinese manufacturers expand into high-tech crossovers and electric vehicles, Pakistan stands at a pivotal crossroads: how to leverage Beijing's manufacturing scale to slash its crippling fossil fuel import bill, while avoiding the substitution of one form of import dependence, ie foreign oil, with another: imported batteries, electronics and high-value automotive components. The central question is, therefore, larger than whether Chinese EVs will displace Japanese cars. It is whether Pakistan can use Chinese technology and capital to move beyond low-value vehicle assembly towards genuine manufacturing, technology transfer, supplier development and eventually exports.

Global supply push

China's total annualised vehicle exports have soared to 12 million units, anchored by 10 million passenger cars. Its new energy vehicle exports, battery electrics and plug-in hybrids combined, have reached an annualised 5.6 million units, eclipsing Japan's historical peak export figures.

This has upended legacy automakers. In just 24 months, Germany's multibillion-dollar trade surplus with China flipped into a deficit. As Western markets impose defensive tariffs, Chinese manufacturers are redirecting capacity towards the Global South. For Pakistan, this creates an unusual opportunity. Chinese firms possess battery, motor, power electronics and software technologies that would take Pakistan decades to develop alone. The challenge is ensuring access that creates domestic productive capacity, not just a bigger market for imported Chinese parts.

Disrupting the 'Big Three'

For over 30 years, Pakistan's car market was dominated by Toyota, Honda and Suzuki, shielded by high tariffs with little pressure to modernise. Macroeconomic headwinds, forex constraints and fuel prices crippled traditional assembly lines, opening the door for new entrants.

Chinese brands, Sazgar Haval, Changan, Chery, BAIC, Jetour, have now captured a share in the SUV and crossover segments, with Haval challenging the Toyota Fortuner. On the electric side, BYD (via Hubco subsidiary Mega Motor Company), Changan's Deepal and budget models like Dewan Honri have pushed EVs from a luxury niche into the mainstream. This isn't simply China replacing Japan as the market is fragmenting, with Chinese, Japanese and Korean makers competing on price, hybrids, software and financing. Japanese firms retain strong dealer networks and supplier relationships, while Chinese entrants bring faster product cycles and EV capability. The NEVP backs this shift with



structure: a target of 30% new energy vehicle sales by 2030, rising to 50% by 2040; 3,000 public fast-charging stations by 2030; a 1-3% carbon levy on combustion vehicles funding EV subsidies; concessional duties on CKD/SKD kits; and a capped charging tariff of roughly Rs40/kWh to absorb surplus power generation.

This matters because Pakistan's electrification push is also an energy-security play. Petroleum imports drain foreign exchange, while the power sector has excess capacity and weak demand. But the net forex benefit depends entirely on how much of the EV value chain Pakistan localises, since a fully imported EV kit assembled locally still increases component imports even as it cuts oil use. Success should be measured in forex savings, domestic value addition, supplier development and exports, not just EV sales volume.

Localisation vs import dependence

The risk is that Pakistan reproduces its old assembly-dependent model with a new technology stack: Chinese tech, imported components and Pakistani final assembly, which is analogous to changing the propulsion system without changing the country's position in the global value chain.

Three factors will determine success. First, manufacturers must be pushed from CKD kit assembly towards local battery manufacturing, parts casting and software integration. This doesn't mean building everything domestically as battery cells and advanced semiconductors need scale that Pakistan can't match. Instead, the policy should target realistic wins: battery-pack assembly, wiring harnesses, castings, plastics, interiors, charging equipment and thermal management. Secondly, the 3,000-charging-station target needs sustained private investment, grid upgrades and standardised protocols; none of which happen automatically. Low EV penetration makes chargers commercially unattractive, while poor charging infrastructure suppresses adoption – a chicken-and-egg problem. Existing petrol stations could become charging nodes, while battery swapping and fleet charging may matter more for motorcycles, rickshaws and taxis. Thirdly, Japanese assemblers are introducing their own hybrids to defend their market share, which means more competition that should improve pricing and after-sales service industry-wide. The bigger opportunity may lie beyond passenger cars. Pakistan's motorcycle, three-wheeler, taxi and commercial-vehicle markets are used intensively and consume heavy fuel, meaning electrification there could deliver faster payback and greater fuel-import savings per rupee of support than premium passenger EVs.

From assembly hub to manufacturing base

The new Automotive Industry Development Policy 2026-31 raises the stakes further, emphasising localisation, investment and exports. The opportunity is to use Chinese manufacturers' search for new markets to strike a deeper bargain: market access in exchange for supplier development, technology transfer, training and export-oriented production. Pakistan's domestic market alone won't provide the scale for a globally competitive EV industry. The more ambitious goal is integrating Pakistani suppliers into Chinese global value chains and eventually positioning the country as a regional production base. In the end, an exported Pakistan-made component may ultimately matter more than another locally assembled car. In a nutshell, China has already solved the technological problem of mass EV production. However, Pakistan's challenge is different: capturing a meaningful share of the economic value that EV technology creates. The real story isn't China replacing Japan but whether Pakistan can turn China's automotive rise into a shift from assembling cars for itself to manufacturing products the world wants to buy. ■

Punjab Reviews Potential Participation in 400MW Wheeling Auction

EU Report

Punjab is evaluating its potential participation in Pakistan's first 400-megawatt (MW) Wheeling Auction as the province explores opportunities under the competitive electricity market and open-access wheeling framework.

A meeting was held at the Punjab Energy Department under the chairmanship of Provincial Minister for Energy Malik Faisal Ayub Khokhar to review the province's strategy regarding the auction and the broader implications of open-access wheeling.

Secretary Energy Muhammad Ajmal Bhatti and other relevant officials attended the meeting, while Sania Owais, Managing Director Punjab Power Development Company (PPDC), briefed the participants on key aspects of the initiative.

The meeting reviewed Punjab's potential participation in the 400MW auction, with discussions focusing on electricity tariffs, grid charges, commercial viability and bidding strategy, among other matters.

To support the province's assessment and decision-making process, Punjab Financial Advisory Services (PFAS) has been engaged as an external financial adviser. ■

Iran's Hormuz offer not enough: Trump

EU Report

President Donald Trump rejected Iran's offer to reopen the Strait of Hormuz as "simply not enough", warning that military action against Tehran could resume after the midterm elections and predicting long-term peace with the country is unlikely.

In an interview with Time Magazine, Trump said he had seen "some aspects" of the Iranian proposal regarding the strait, but deemed it "simply not enough". Asked why he rejected the proposal, Trump said: "Because things that I wouldn't have approved a year ago I wouldn't have today." Regarding Tehran's past threats to close the waterway, Trump said: "There was always a threat they had, and it worked for a little while. But we basically closed it on them. You know, they said we're going to close. I said, 'Well, if you close it, you're going to have big trouble.' We took it over." ■

Globally, Forests Are Being Degraded Faster Than Recovery, Says New Report

FAO 2026 report reveals degraded land is roughly 20 times the size of Pakistan; restoring forests and landscapes is crucial to meeting global food security; as forests and landscapes recover, they help regulate water, protect soils, store carbon, and provide habitat for a rich diversity of life

Special Report by M. Nawaz Khuhro

Forest and landscape restoration is a cost-effective response to food security, biodiversity, climate, and other development challenges, according to a new report by the Food and Agriculture Organization of the United Nations (FAO), which warns that scaling up action will require greater investment, inclusive governance and sustained political commitment.

The flagship State of the World's Forests (SOFO) 2026 report was published as part of FAO's 28th Session of the Committee on Forestry (COFO 28) and its 10th World Forest Week. The report says more than 460 million hectares of forests are degraded today, driven by climate change, population growth, urbanization, infrastructure development, land-use change, and resource energy demand. People rely on this land for their livelihoods and well-being.

By restoring forests and landscapes, countries can advance climate change mitigation and adaptation, recover biodiversity, strengthen food security and rural resilience, and more. These benefits align with commitments under the Paris Agreement, the Kunming-Montreal Global Biodiversity Framework, and the 2030 Agenda for Sustainable Development.

Over the past two decades, countries and regional and global initiatives have pledged to place more than one billion hectares of land under restoration. Yet, meeting global restoration goals requires bringing at least 470 million hectares under restoration by 2030. That scale demands coordinated action and innovative approaches that align ecological recovery with human well-being. Doing nothing is the expensive option: inaction on land degradation costs USD 878 billion to USD 6.3 trillion a year.

Degraded forests are only part of the issue. More than 10 percent of the world's land - an estimated 1.56 billion hectares - is now degraded. At the same time, demand for forest products and ecosystem services keeps rising - widening the gap between what ecosystems can give and what societies need.

The 2026 edition examines how forest and landscape restoration can be expanded to deliver lasting benefits for people and the environment. Drawing on evidence and experiences from around the world, it identifies four pathways for accelerating progress: empowering people and strengthening rights; implementing restoration at the landscape scale; mobilizing finance and business models that support restoration; and creating coherent policies, institutions and laws.

"The State of the World's Forests 2026 makes clear that forest and landscape restoration is more than an environmental priority - it is a strategic investment in resilient agrifood systems and rural development," FAO Director-General QU Dongyu wrote in the report's Foreword.

Forests cover 4.14 billion hectares (about 32 percent of the Earth's land surface), store 714 gigatonnes of carbon and host up to 80 percent of the world's terrestrial biodiversity. They also underpin resilient agrifood systems, with nearly one-third of the global population depending on forests and

trees for food security and livelihoods.

However, an estimated 489 million hectares of forest were lost between 1990 and 2025 through deforestation, while more than 460 million hectares are degraded worldwide. In total, 1.56 billion hectares of land are degraded, driven by population growth, land-use change and rising demand for natural resources. At the same time, threats are intensifying. Every year, around 127 million hectares of forest are affected by fires, with further damage caused by insects, diseases and severe weather events.

As demand for forest products rises and competing land uses increases pressure on natural resources, SOFO argues for the need to restore degraded forest and landscapes at scale, emphasizing that inaction carries a far greater economic burden than restoration. Worldwide, the annual impact of failing to restore degraded ecosystems is estimated at \$878 billion to \$6.3 trillion, equivalent to 2 to 8.3 percent of annual GDP, depending on the scope of valuation.

Restoring more than 1 billion hectares of degraded land, on the other hand, could generate \$1.8 trillion per year in benefits, including enhanced biodiversity, improved water regulation and healthier soils. The report notes that investing \$2.6 trillion over 15 years in land degradation and drought mitigation could yield an eight-to-one social return.

Under favourable conditions, restoration can generate returns of up to \$30 for every \$1 invested. Restoration also creates jobs, revitalizes production systems and supports resilient growth. Benefits extend beyond income to improved well-being, stronger social cohesion and the preservation of cultural identity and knowledge systems.

Scaling up solutions

Progress is underway, with large-scale restoration increasingly recognized as crucial for achieving global targets on land degradation neutrality, climate change mitigation and adaptation, biodiversity conservation and ending hunger.

According to the report, governments across 91 countries and areas have pledged more than 190 million hectares for forest restoration. Examples of notable restoration projects among the 18 case studies analysed in the report include the Great Green Wall for the Sahara and the Sahel Initiative, the Three North Programme of China, and the Trinational Atlantic Forest Pact across Argentina, Brazil and Paraguay.

However, progress remains insufficient, with only 206.5 million hectares of forests currently under restoration. The report points to four mutually reinforcing pathways to scale up high-quality restoration:

People must be at the centre, ensuring that their rights, knowledge and priorities shape restoration outcomes;

Restoration must be planned and implemented at the landscape scale, balancing conservation, production and livelihoods through context-specific approaches; Financing must be aligned with the realities of restoration; public and private resources need to be mobilized to support long-term, high-quality outcomes; Coherent policy, law and institutional frameworks are crucial for enabling restoration at scale and ensuring its sustainability over time.

Bilawal inaugurates Thar Coal Phase-III expansion



EU Report

Pakistan Peoples Party Chairman Bilawal Bhutto Zardari has inaugurated the Phase-III expansion of the Thar Block-II Coal Mine and Pakistan's first-ever coal drying unit, marking a major development in Pakistan's domestic energy supply and the continued transformation of Tharparkar into a national energy hub.

The Phase-III expansion has increased the mine's production capacity from 7.6 million tonnes per annum (MTPA) to 11.2 MTPA, adding 3.6 million tonnes of annual coal production. Officials said the expansion was completed through 100 percent self-financing, reflecting investor confidence in Thar's indigenous energy resources.

The additional coal production will supply Lucky Electric Power Company's 660MW power plant, increasing the total electricity generation supported by Thar Block-II coal from 1,320MW to 1,980MW. The combined generation capacity is estimated to provide electricity to around 4.5 million households daily.

Officials said mine-mouth power generation based on Thar coal costs approximately \$3.75 per MMBtu, making it significantly cheaper than imported coal. The Phase-III expansion is expected to generate annual savings of around Rs15 billion in power generation costs and \$220 million in foreign exchange. Cumulative foreign exchange savings since the start of operations have already crossed \$1.7 billion, according to project officials.

Addressing the ceremony, Sindh Chief Minister Syed Murad Ali Shah said the development represented the continuation of a vision initiated by former Prime Minister Shaheed Mohtarma Benazir Bhutto, who laid the foundation stone for a 2,640MW coal-based power project in Thar in 1996.



He said the project had faced years of delays and uncertainty but was revived after the PPP returned to power in 2008, with the Sindh government and private-sector investors working together to develop the region's coal resources.

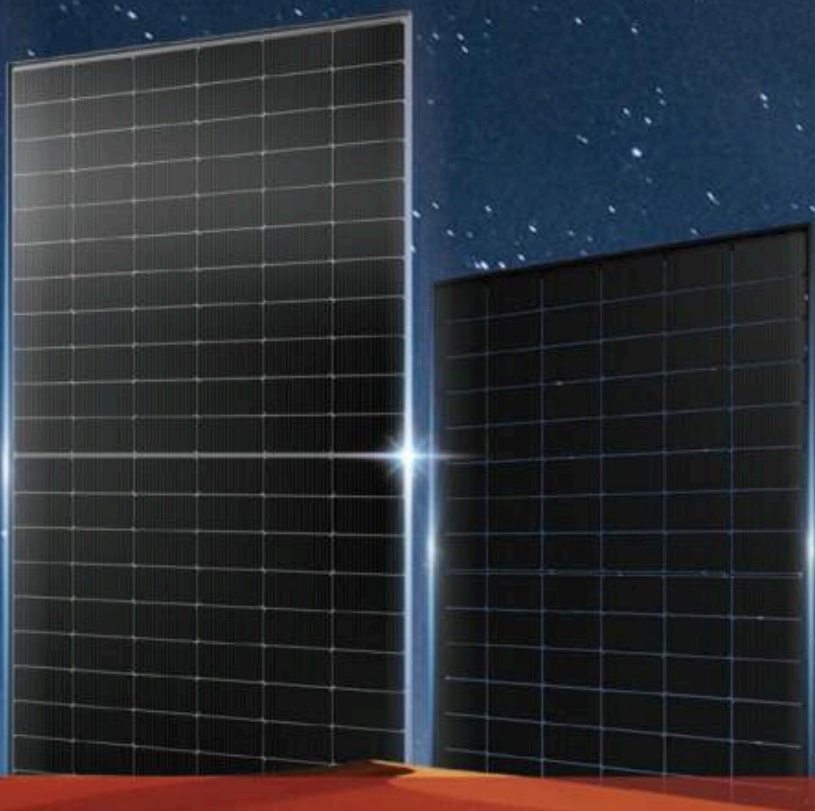


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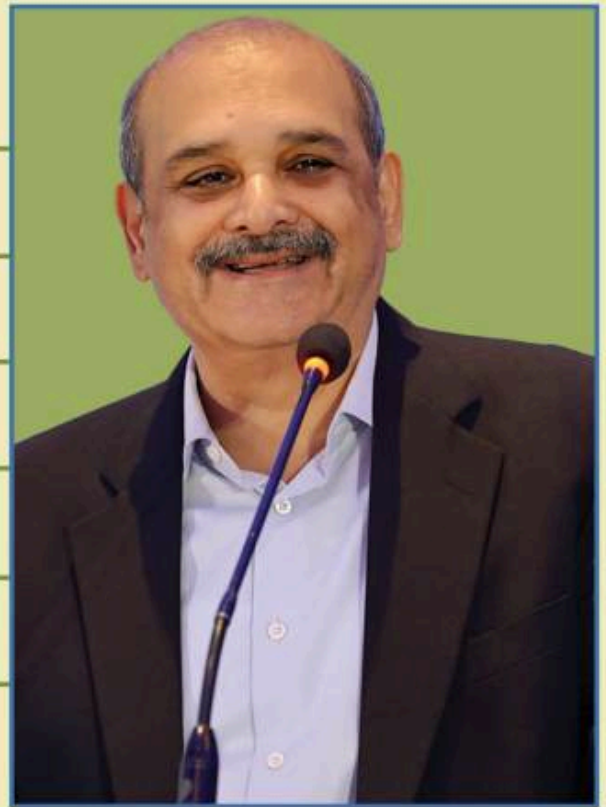
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PSA'S NEW CHAIRMAN CALLS FOR SUBSTANTIAL REDUCTION IN TAXES, DUTIES ON SOLAR ENERGY EQUIPMENT



Adil Mahmood says our vision is to make solar power a reliable, economical and sustainable component of Pakistan's overall energy system, informs Bangladesh has recently slashed such taxes from 18 to one per cent; tells SBP should reduce the markup on its financing scheme for solar systems from six to three per cent; states major solar-sector policies should ideally remain in place for at least five years; asserts three years ago, a battery storage system for a consumer with a rooftop solar facility had a cost of approximately Rs500,000; today, the price has fallen to around Rs200,000

M. Naeem Qureshi & Mustafa Tahir

Pakistan Solar Association's new Chairman Adil Mahmood has called for a substantial reduction in taxes and duties on solar panels, inverters, batteries and other solar energy equipment, citing Bangladesh's recent decision to slash taxation on batteries and inverters from 18 to just one per cent. He also urged the State Bank of Pakistan to reduce the markup on its financing scheme for solar systems from six to three per cent and extend the facility to battery storage systems, arguing that affordable financing for batteries is essential for the next phase of Pakistan's solar revolution.

In an exclusive interview with Energy Update, Mr Mahmood said Pakistan's solar industry had grown into an approximately \$8 billion sector and was contributing around \$1.5 billion annually to the national exchequer in taxes. He said solar power could no longer be treated merely as an alternative source of electricity, as it had become an important component of the country's sustainable energy future.

He stressed the need for regulatory stability, greater institutional coordination, stakeholder consultation and predictable policies to strengthen investor confidence and enable the solar sector to integrate more effectively with Pakistan's wider power system. The PSA chairman also called for stronger regulation and standardisation of imported solar equipment, action against counterfeit and defective products, and greater government-industry collaboration in developing local manufacturing of solar components.

Energy Update: What are your key priorities as the new PSA Chairman, particularly at a time when solar energy has expanded rapidly in Pakistan?

Adil Mahmood: One of my core objectives is to enhance institutional coordination and increase investors' confidence in Pakistan's solar industry. Solar energy is no longer a small or emerging industry in Pakistan. It has grown into an approximately \$8 billion industry sector, while we are contributing around \$1.5 billion annually to the government in taxes.

We have already reached a stage where solar power cannot simply be regarded as an alternative source of energy. It has become an important component of the sustainable growth of Pakistan's power sector. The solar option should make the power sector financially feasible and economically viable for both end-consumers and investors. There is now a genuine economic rationale for consumers to switch to solar power because of the rising cost of electricity from the national grid.

The next phase in the growth of this rapidly expanding energy source should be its better integration with the rest of Pakistan's power sector. This is where I intend to focus during my tenure as chairman of the association.

EU: What specific policy areas do you believe require immediate attention to ensure sustainable growth of the solar industry?

Mr Mahmood: Regulatory stability is one of the most important requirements for both consumers and investors. There needs to be clarity on critical issues such as distributed generation, net metering and taxation for the solar sector.

Policies affecting the solar industry should be formulated after proper consultation with all relevant stakeholders. Regulatory authorities should also provide a reasonable transition period whenever they move from one policy regime to another. Abrupt policy changes create uncertainty for consumers, businesses and investors. The solar industry needs a predictable regulatory environment in which people can make long-term investment decisions with confidence. At the same time, the government and regulators should recognise that energy storage has now emerged as an important part of the clean-energy business.

EU: How important is battery storage to the future of Pakistan's solar industry?

Mr Mahmood: Battery storage can fundamentally improve the way solar power interacts with the electricity grid. A battery storage system allows a consumer to use electricity generated from solar panels during the daytime to meet peak demand after sunset.

This is particularly important because solar generation naturally declines in the evening, while electricity demand often remains high. Battery storage can bridge that gap and enable consumers to make much more effective use of their rooftop solar systems.

The next stage of Pakistan's solar development will therefore not only be about installing more solar panels. It will increasingly involve the integration of solar generation with battery storage and the wider electricity system.

EU: What role do you see for the Pakistan Solar Association in addressing the issues confronting the industry?

Mr Mahmood: Our association should not merely identify the problems faced by the solar industry. We should also work with policymakers to develop viable and technically sound solutions to these problems. We want to engage constructively with the government and regulatory institutions. Our objective is to make solar power a reliable, economical and sustainable component of Pakistan's energy system.

The association wants to play a bridge-building role between the industry and policymakers so that decisions are technically sound, economically viable and beneficial for consumers as well as investors.

EU: Have you initiated any engagement with provincial governments on solar energy development?

Mr Mahmood: Yes, we recently held talks with the Punjab Energy Secretary and his team. The PSA office-bearers and members of its Executive Committee participated in the discussions.

The Punjab government is planning a \$1.5 billion programme involving the distribution of inverters, batteries and cooking ranges. The provincial government offered the Pakistan Solar Association an opportunity to collaborate in its upcoming drive to promote clean-energy technologies across the province. This is a significant opportunity for industry-government collaboration.

The Punjab government also informed us that approximately 1,200 acres of land are available for allotment at subsidised rates for establishing industries involved in the indigenous production of solar energy components. This can potentially provide a major boost to local manufacturing. Pakistan should gradually move towards developing its own manufacturing capacity for solar equipment and components rather than remaining excessively dependent on imported products.

EU: What is the PSA's position on the government's efforts to regulate the solar industry and standardise imported equipment?

Mr Mahmood: We fully support the government's efforts to regulate the solar industry and ensure proper standardisation of equipment imported into Pakistan. This is essential for the safety of consumers, households, businesses and industries where rooftop solar systems are installed. Solar equipment must meet appropriate quality and safety standards. However, while introducing new regulations or policies, the government should take the Pakistan Solar Association, the relevant chambers of commerce and industry and the Federation of Pakistan Chambers of Commerce and Industry into confidence. Stakeholder consultation is essential for developing workable policies.

EU: What kind of policy stability does the solar industry need?

Mr Mahmood: The policies introduced for the solar power sector should have a reasonable lifespan. They should not be introduced for a few months and then changed or withdrawn. We believe that major solar-sector policies should ideally remain in place for at least five years. This would provide consumers, manufacturers, importers, investors and financial institutions with the certainty required for long-term planning.

EU: You have also called for a reduction in taxes on solar equipment. What is the rationale behind this demand?

Mr Mahmood: The government should substantially reduce taxes and duties on solar panels, inverters, batteries and other components used in solar power systems. Bangladesh has recently taken an important step in this direction. In order to promote its clean-energy sector, it decided to reduce the tax on batteries and inverters from 18 per cent to just one per cent, particularly in view of the global increase in petroleum prices. Pakistan should consider a similar approach.

The federal government should reduce taxes on solar panels, inverters and batteries used with solar power systems. Such a reduction is necessary to accelerate the adoption of renewable energy, particularly at a time when petroleum prices remain under pressure because of the continuing regional tensions involving Iran and the United States.

EU: What could happen if electricity tariffs remain high while the government does not facilitate solar adoption?

Mr Mahmood: Consumers will continue moving away from the national grid and switching to solar power and battery storage systems if electricity prices remain high. This trend is already being driven by economics. Consumers are looking for ways to reduce their electricity bills and gain greater control over their energy costs.

If the government does not respond by reducing electricity tariffs and facilitating a balanced transition towards distributed renewable energy, the shift away from the grid will continue. This could ultimately increase the government's liabilities in the power sector. Solar energy has already played an important role in reducing pressure on the national grid and helping bring down the duration of electricity load-shedding across the country.

EU: You have proposed reducing the markup on the State Bank's solar financing scheme. What exactly are you seeking?

Mr Mahmood: I would request the government to reduce the markup rate under the State Bank's loan scheme for solar systems from the existing six per cent to three per cent.

More importantly, the proposed three per cent financing facility should also cover the purchase of batteries. There is no real benefit in encouraging consumers to install rooftop solar systems without making affordable energy storage accessible to them. Batteries are becoming an integral part of modern solar systems, particularly for consumers who want to reduce their dependence on grid electricity after sunset.

EU: Have falling battery prices made storage more accessible to consumers?

Mr Mahmood: Yes, the substantial reduction in battery prices over the past few years has already helped consumers. Around three years ago, a battery storage system for a consumer with a rooftop solar facility could cost approximately Rs500,000. Today, the price has fallen to around Rs200,000. We expect battery prices to decline further over the next year. This trend will make battery storage increasingly accessible to consumers and will encourage more people to reduce their dependence on expensive grid electricity.

EU: What measures are needed to protect consumers from substandard or fraudulent solar products?

Mr Mahmood: Consumer protection must be a central component of the government's solar policy. The government should strengthen enforcement mechanisms and activate the police and relevant authorities to crack down on people involved in the sale of fraudulent, defective and counterfeit solar products. Criminal cases should be registered against those involved in such activities, and the responsible individuals should be arrested in accordance with the law.

EU: Finally, what is your broader vision for Pakistan's solar industry during your tenure?

Mr Mahmood: Our vision is to make solar power a reliable, economical and sustainable component of Pakistan's overall energy system. The industry has already reached a scale where it must be treated as an important part of the national power sector rather than simply an alternative source of electricity.

We want greater coordination between the industry, government, regulators, financial institutions and other stakeholders. We want stable policies, meaningful consultation, reasonable transition periods, standardisation of equipment, affordable financing and greater investment in local manufacturing.

At the same time, battery storage must become an integral part of Pakistan's clean-energy strategy. ■

K-Electric: Why A Company Goes Years Without Audited Financial Statements?

EU Report

This is not merely a post about K-Electric. It raises fundamental questions about regulation, corporate governance, accountability and the uncertainty that continues to hold back Pakistan's investment and economic progress.

K-Electric is a listed company, the power utility serving Pakistan's largest city, privatised in 2005, and is a major borrower from Pakistan's banks. The Govt of Pakistan still owns 24%. Yet KE has not issued its audited annual financial statements since FY2023.

Its seven-year tariff period began in July 2023. NEPRA determined major components only in May 2025. These were challenged, including by the federal government. NEPRA issued its review decision in October 2025 - again challenged in Tribunal - finally notified in September 2026, more than three years into the tariff period.

KE repeatedly cited unresolved tariff for not publishing its financial statements. That raises fundamental questions. NEPRA: Why should a seven-year tariff remain unsettled for more than 3 years? And how were long-term tariffs determined without audited financial statements?

KE's board: Why has a listed public-interest company gone years without audited financial statements, leaving shareholders & lenders in the dark?

SECP: Why were repeated extensions granted for reporting and AGMs while KE remained listed without providing shareholders and investors with current audited financial statements?

Lenders: How did banks continue lending and monitoring credit exposure for years without current audited accounts?

Government: The state owns 24.36% of KE, provides subsidies, has board representation and, through the Ministry of Energy, itself challenged elements of the tariff. How were these multiple roles reconciled — and what accountability did its nominees exercise? ■

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Maria Adil

The writer studies at National College of Arts

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What fuel
relief means
for ordinary
families

For a family living on a limited income, the price of petrol is not simply an economic headline. It is a household calculation. It is the question of whether there will be enough money left for fuel after groceries have been purchased. It is the daily cost of riding a motorcycle to work. It is the expense a rickshaw driver must bear before he can earn his day's income.

For millions of ordinary Pakistanis, mobility is inseparable from livelihood. That is why the Prime Minister's Special Relief Scheme for petrol carries significance beyond its monetary value. Under the scheme, eligible motorcycle, rickshaw and Qing Qi users receive Rs500 in weekly fuel relief, while cars with engine capacities of up to 800cc are eligible for relief on 30 liters of petrol each month through three 10-litre tokens issued at ten-day intervals.

For a low-income household, Rs500 saved on fuel can be redirected towards another essential expense. It could help pay for a child's school supplies. It could contribute to the weekly grocery bill. It could cover part of a utility bill or simply leave a little more money available at the end of the week.

The amount may appear modest when viewed in isolation. At the household level, however, regular savings, even small ones, can make a meaningful difference. The importance of the scheme becomes particularly clear for people whose vehicles are directly connected to their income.

Consider a motorcycle rider travelling to work every morning. The motorcycle is not a status symbol; it is his means of reaching his workplace. Consider a delivery rider. Every kilometer travelled is linked to an opportunity to earn.

Consider a rickshaw or Qing Qi driver. For him, fuel is not merely an expense; it is one of the essential costs of generating an income. For these citizens, keeping transportation affordable can help preserve the vital link between mobility, work and earnings.

The government has also introduced several changes aimed at making the scheme easier and more convenient to use. Registration through SMS to 9771 has been made free. The requirement to

purchase at least five liters in a single transaction has also been removed, allowing eligible users to receive the full Rs. 500 weekly relief even when purchasing a smaller quantity of petrol.

This change is particularly relevant for families whose finances are managed from day to day. Not every household can afford to fill a fuel tank in a single transaction. Some people purchase petrol according to the amount of money available to them at a particular moment. A more flexible mechanism therefore makes the relief better suited to the financial realities of low-income households.

The inclusion of vehicles registered from January 1, 2006, is another significant aspect of the scheme. Older motorcycles and small vehicles remain an essential means of transportation for many families that cannot easily afford newer vehicles. Digital technology has also become an important component of the programme.

Citizens can register through SMS, while the system connects their CNIC, SIM, vehicle information and fuel token. This creates a mechanism for verifying eligibility and facilitating the delivery of assistance to those who qualify.

The involvement of multiple institutions, including NADRA, PTA, NITB, the Petroleum Division, OGRA, financial institutions, district administrations and telecom operators, demonstrates the scale of coordination required to turn a policy decision into a service that reaches citizens at the petrol pump. For ordinary people, however, technology matters most when it makes life simpler.

The real measure of digital government is not how sophisticated a system appears from an office. It is whether an ordinary motorcycle rider can use it easily, confidently and without confusion. This initiative also provides an opportunity to think beyond immediate fuel relief. Pakistan's dependence on imported petroleum means that developments in international energy markets can eventually affect domestic households. One possible long-term response is greater adoption of electric motorcycles and rickshaws.

Such a transition will take time. Electric vehicles have higher upfront costs, charging infrastructure needs to expand, and affordable financing options must become more widely available to ordinary citizens. Yet the very people who currently depend on motorcycles and rickshaws for their livelihoods could eventually become among the biggest beneficiaries of affordable electric mobility.

Imagine a future in which a motorcycle rider can obtain affordable financing for an electric bike, charge it conveniently near his workplace and complete his daily journeys at a significantly lower operating cost. Such a transformation could turn today's fuel-relief efforts into part of a broader, long-term strategy for economic resilience and more affordable mobility. There is also a human dimension that should not be overlooked.

When people live on limited incomes, every additional expense requires a decision. An increase in petrol prices can therefore affect an entire household budget. Targeted relief can give families some additional breathing room, helping them manage financial pressures without disrupting their daily routines.

The success of the scheme will ultimately depend on how effectively the relief reaches people for whom it is in-

tended. Easy registration, reliable token verification, clear communication and accessible complaint mechanisms will all play an important role. But the broader principle is important: economic relief is most meaningful when it reaches people where they actually feel the pressure.

For a low-income Pakistani, Rs500 is not simply Rs500. It can represent a journey to work. A delivery completed. A child taken to school. A day's wages protected. A little more room in the household budget. And sometimes, that little bit of breathing space can make a meaningful difference. Because behind every motorcycle, rickshaw and Qing Qi is more than just a vehicle. ■

JA Hosts Karachi Customer Event, Showcases Next-Generation DeepBlue 5.0



EU Report

JA hosted a customer and industry gathering on 28 August at a local hotel, bringing together leading solar professionals, distributors, EPCs, installers, business partners and customers for an evening focused on technology, market developments and stronger industry collaboration.

The event provided an opportunity for industry stakeholders to engage with the JA team and gain insights into the latest developments in solar technology and the evolving needs of Pakistan's rapidly growing renewable energy market.

A key highlight of the evening was the showcase of DeepBlue 5.0, JA's next-generation solar module technology. The product presentation highlighted the company's continued focus on technological innovation, efficiency, reliability and solutions designed to meet the changing requirements of solar projects.

The event also featured discussions around market trends and opportunities, allowing customers and industry partners to interact directly with JA representatives and exchange views on the future of solar energy in Pakistan.

Recognizing the importance of long-term partnerships, JA also presented appreciation shields to selected customers and partners for their continued association and contribution to the company's growth in the market. The evening concluded with dinner and networking, providing participants an opportunity to strengthen existing relationships and explore new areas of collaboration. ■

Refineries' Upgradation Accords **Seven years to reach the starting line**

Five refineries will undertake major upgradation projects which should fundamentally transform Pakistan's refining infrastructure; the projects will enable production of cleaner Euro-V fuels, substantially reduce furnace oil production, improve the product slate, replace significant quantities of imported petroleum products and strengthen the country's energy security; the challenge now is to ensure that the next five years are spent building rather than debating

Adil Khattak

The writer is the CEO of Attock Refinery Limited and the chairman of the Energy Committee of the Overseas Investors Chamber of Commerce and Industry (OICCI)

The signing of the upgradation agreements by Pakistan's refineries on September 24, 2026 marked a historic milestone, not only for the refining sector but for Pakistan's industrial development as a whole. It marked the tangible start of what is arguably the largest coordinated industrial investment programme ever undertaken in the country, involving around \$6 billion to be executed over the next five years.

Under a common policy framework and implementation timeframe, the five refineries will undertake major upgradation projects which should fundamentally transform Pakistan's refining infrastructure. The projects will enable production of cleaner Euro-V fuels, substantially reduce furnace oil production, improve the product slate, replace significant quantities of imported petroleum products and strengthen the country's energy security.

The scale of the investment is impressive. But for those of us who have remained involved with this initiative from its inception, the more remarkable story is how long it took Pakistan

to reach the starting line. The journey began with the first draft of the Refining Policy in December 2019. After numerous deliberations and iterations, the Brownfield Refinery Upgradation Policy was finally approved in August 2023 and amended in February 2024.

Just when implementation appeared within reach, exemption of petroleum products from sales tax adversely affected refinery economics and rendered the upgradation projects unviable. Almost another two precious years were lost. Following sustained engagement between the refining industry and the government, these issues were eventually addressed through the second amended Policy, paving the way for the signing of the upgradation agreements.

The cost of seven years

Seven years is an extraordinarily long time for a country as dependent upon imported energy as Pakistan to formulate and implement a policy of such strategic importance. The delay has also carried a substantial economic cost. Industry estimates indicate that refinery upgradation could save Pakistan around \$1.5 billion annually in foreign exchange. The cumulative opportunity cost of delaying these investments has therefore been enormous.

This journey offers important lessons

For far too long, the strategic importance of domestic refining capacity was inadequately appreciated. Institutional capacity constraints, frequent political and bureaucratic changes, inconsistent policies, compartmentalised decision-making and a lack of cohesion among different arms of government all contributed, in varying degrees, to the inordinate delay. Powerful commercial interests have also been associated with an import-dependent petroleum supply system. It would be naïve to assume that every stakeholder necessarily shares the objective of strengthening domestic refining capacity.

Refining is also about energy security

Recent geopolitical developments have brought into sharp focus what Pakistan's refining industry has emphasised for years: domestic refining capacity is not merely a commercial or industrial consideration; it is a strategic national asset. The recent US-Iran conflict and consequent concerns over international petroleum supply routes reinforced the importance of maintaining strong domestic refining capability. For Pakistan, it is strategically and logistically far more prudent to maintain the capability to source crude oil from diverse suppliers and locations and convert it domestically into the products the economy requires, rather than remain excessively dependent on imports of more expensive finished petroleum products.

Policies ultimately acquire meaning only when they move from files and meeting rooms to investment on the ground. The signing of the agreements was therefore not the culmination of the journey. It marks the start of a much more challenging phase: financing, engineering, procurement, construction and commissioning of highly complex projects within five years

This distinction becomes particularly important during geopolitical crises. Crude oil can be sourced from multiple origins and processed to meet domestic requirements, while dependence on finished products exposes the country more directly to disruptions in international refining capacity, product availability and logistics.

Credit where it is due

While the journey was unnecessarily long, reaching this milestone deserves recognition. The final breakthrough would not have been possible without the passionate, persistent and resilient leadership of Federal Minister for Petroleum Ali Pervaiz Malik, his team in the Petroleum Division and the support of other relevant government departments and institutions. The minister's determination to remove the remaining impediments and translate a long-pending policy into implementation was instrumental in finally bringing the industry to this stage.

Policies ultimately acquire meaning only when they move from files and meeting rooms to investment on the ground. The signing of the agreements was therefore not the culmination of the journey. It marks the start of a much more challenging phase: financing, engineering, procurement, construction and commissioning of highly complex projects within five years.

Seven years to decide, five years to build

There is a sobering contrast here: Pakistan took almost seven years to create the policy framework for investments which the refineries are now required to physically execute within five years. That should give policymakers reason for reflection. The last two years' experience is particularly instructive. The industry identified the adverse impact of the sales tax changes on refinery economics at the outset and proposed practical measures to address the issue -- substantially similar to those eventually incorporated in the amended policy. Had these measures been adopted through timely and coordinated decision-making, much of the subsequent two-year delay could have been avoided.

The purpose of recalling this history is not to apportion blame but to learn from it. Major industrial investments require more than attractive policies. They require policy consistency and continuity, adequate institutional capacity, effective coordination among government institutions and the ability to resolve implementation problems expeditiously.

Pakistan simply cannot afford to spend years resolving issues for which workable solutions are already available. The opportunity cost -- in investment, foreign exchange, employment, technological advancement and energy security -- is simply too high.

Having remained involved in the formulation of the Refinery Policy and witnessed its many ups and downs since December 2019, I fully appreciate the significance of finally reaching this stage. The signing of the Upgradation Agreements has allowed Pakistan to move at last from policy formulation to physical implementation -- from almost seven years of deliberation to around \$6 billion of industrial investment.

The challenge now is to ensure that the next five years are spent building rather than debating. ■

Fragile Cryosphere: A Warning for Pakistan

Pakistan, China, India, Nepal, and Bhutan lie along the axis of disaster; 131 potentially dangerous glacial lakes, most of them in GB and KP, have been identified; the number of unfrozen PDGLs rose from 40 to 105 within a month due to higher temperatures; residential and commercial development along mountain riverbanks, as well as deforestation in the watershed, should be strictly prohibited to avert human tragedy

Naseer Memon

The writer is a senior adviser on water governance at the Sustainable Development Policy Institute

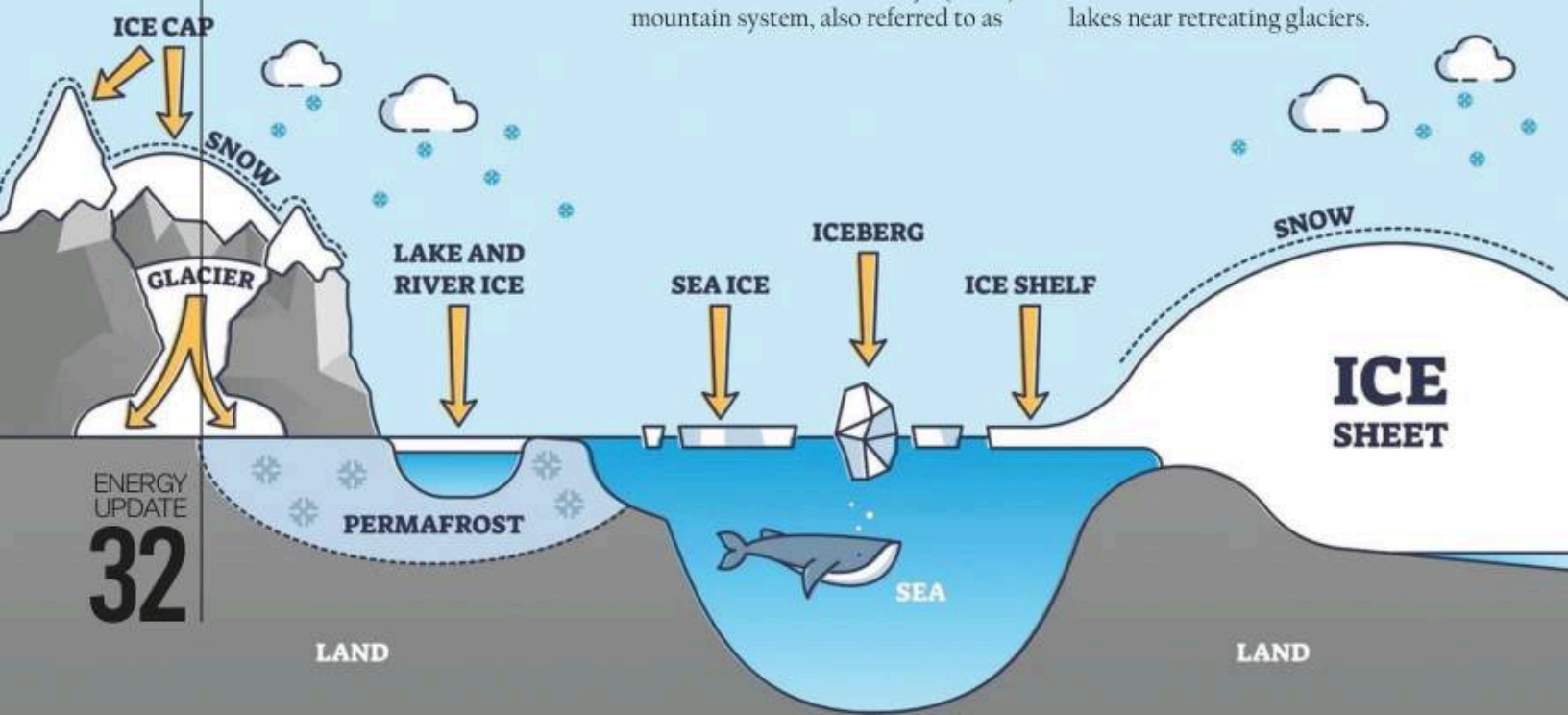
In contrast to last year's catastrophic floods, this year's monsoon flows drained through the plains of Pakistan without wreaking a major disaster. Nonetheless, the highlands of Gilgit-Baltistan and Chitral did not remain unaffected.

Not too far away, Nepal experienced a horrific disaster in August. The Himalayan nation endured one of its worst catastrophes when a huge mass of glacial ice and rock collapsed down a slope in the Himalayas near the Langtang region. Within half an hour, it caused an unprecedented surge — as high as nine metres — in the Bhote Koshi/Trishuli river system. Over 1,400 people died. Thousands more went missing. A month later, a massive section of the mountainside collapsed into the swollen Kali Gandaki River after days of heavy rain, sending enormous quantities of soil, rock and debris into the water. This wave of floods and landslides caused at least two dozen deaths.

Pakistan, China, India, Nepal, and Bhutan lie along the axis of disaster — the Hindu Kush-Himalaya (HKH) mountain system, also referred to as

the 'Third Pole' because of its massive concentration of ice and glaciers. These water towers of Asia feed 10 major river systems and support the livelihoods of over two billion people in the region. Ironically, these mountains also spawn hydro-climatic disasters in the region. This explains the vulnerability of Pakistan's highlands, as the Indus and other rivers flowing into the country draw water from these majestic mountains. The Nepal tragedy should be viewed as an early warning for Pakistan, especially for areas located in the highly fragile Hindu Kush, Karakoram and western Himalayan region. The phenomenon bears a stark resemblance to the relatively smaller-scale flash floods that occur almost yearly in the mountains of GB and KP.

In its August 2026 update, the Space and Upper Atmosphere Research Commission warned that it had identified 131 potentially dangerous glacial lakes, most of them in GB and KP. The number of unfrozen PDGLs rose from 40 to 105 within a month due to higher temperatures. These findings reinforce the ominous report of the International Centre for Integrated Mountain Development (ICIMOD). Its assessment of the HKH region identified 25,614 glacial lakes across major river basins. The report also highlighted the risks linked to moraine-dammed lakes near retreating glaciers.



The Nepal tragedy should be seen as a warning for Pakistan.

These manifestations cannot be solely attributed to climate change, as human intervention is aggravating the impact of natural processes. The cryosphere's health depends on several factors, including forests, vegetation, and soil stability. As forests vanish, hilly slopes are exposed and the runoff from rainwater and glacial melt increases. Flash floods become more violent and tend to carry larger amounts of debris.

A study supported by the ICIMOD revealed that approximately 9,288 acres of forest were lost in Chitral between 1992 and 2009. The annual rate of deforestation accelerated from 0.14 per cent in 1992-2000 to 0.54pc in 2000-2009. Deforestation is an equally alarming trend in GB, where the forest cover has declined to 615,798 acres, comprising only 3.57pc of the total area.

Population growth compounds environmental pressures. GB's population was listed at around 881,000 in the 1998 census. By 2023, it had increased to some 1.5 million people. Similarly, Chitral recorded a population of about 516,000 in 2023. Demographic pressure amid weak land regulation has led to unregulated settlements in the dry beds of flood nullahs. A growing population increases the demand for land, which is scarce on mountain terraces and in narrow valleys. Dry nullahs are often mistaken for wasteland and used to build houses, which eventually collapse under the wrath of unforeseen gushing floods.

In July 2026, Suparco highlighted the serious challenge of relentless settlement expansion along a natural glacial lake-fed stream near Gilgit city. Satellite imagery comparing construction in 2023 to that of a decade earlier indicated the rapid expansion of settlements along this natural stream. Suparco is alarmed that the narrowed channels may not safely carry high flows.

The Nepal tragedy needs careful analysis to understand the parallels with the vulnerability of our cryosphere. Disaster managers should treat the catastrophe as an early warning. Residential and commercial development along mountain riverbanks, as well as deforestation in the watershed, should be strictly prohibited to avert human tragedy. ■

Nuclear power output rises 4pc to record high

Solar generation reaches 36.3 TWh, surpassing nuclear production for first time

Pakistan's nuclear electricity production increased by 3.7 per cent to a record 22.5 terawatt-hours (TWh) in 2025, while solar power generation expanded even faster amid unaffordable overall energy prices. It has increased from 21.7TWh net in 2024 to a new all-time high of 22.5TWh in 2025," says the World Nuclear Industry Status Report (WNISR) 2026, based on data for the period ending July 2026.

"For the first time, solar power generation exceeded nuclear output — and by far — with 36.3 TWh," the report said, describing the figure as highly underestimated. The WNISR 2026 is financed by the German Federal Office for the Safety of Nuclear Waste Management, the Austrian Federal Ministry for Agriculture and Forestry, Climate and Environmental Protection, Regions and Water Management, the Greens/EFA Group in the European Parliament and the Swiss Energy Foundation.

Solar generation reaches 36.3 TWh, surpassing nuclear production for first time. The report noted that the US leads the world, with 94 operating reactors and a nuclear generation capacity of 96,952 megawatts (MW), followed by France with 63,000MW from 57 reactors and China with 61,521MW from 63 reactors.

Despite being the pioneer in connecting nuclear power to the grid in 1954, Russia ranks fourth, with 27,969MW from 34 reactors, up from 26,800MW in 2023. Pakistan operates six nuclear reactors with a combined operating capacity of 3,262MW. All six operating reactors were built by the China National Nuclear Corporation (CNNC), including the two Hualong One reactors, Kanupp-2 (K-2) and Kanupp-3 (K-3), outside Karachi, and four 300MW Chashma nuclear reactors.

The WNISR, citing the Pakistan Economic Survey 2025-26, said the country's share of debt repayment was notable in the total cost of electricity generation from nuclear energy. The debt is mainly associated with the newly constructed K-2 and K-3 reactors, commissioned in 2022 and 2023, respectively. According to the survey, the 12-year debt repayment period "is only 20 per cent" of the reactors' estimated economic lifetime of 60 years. The Kanupp site also houses a 90MW CANDU (K-1) reactor, which was closed in 2021 after 50 years of operation. ■



UHRS Farmhouse celebrates freedom



A unique case for the property UHRS Farmhouse is not only free from the diesel generator, but now free from the grid too. In collaboration with Pleasant Solar and Huawei, the farmhouse has been equipped with a 50KTL + 20KTL PV inverter system and 107 kWh Battery Energy Storage System (BESS), creating an intelligent solar + storage solution designed around the property's energy needs. Through intelligent forecasting and automated energy scheduling, the system maximizes solar self-consumption, optimizes battery usage, and manages energy demand enabling the farmhouse to operate with greater independence and efficiency. The impact is remarkable: monthly energy charges have been reduced from approximately 0.5M PKR to over 30K PKR.



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The bonded oil bet in Pakistan

Govt should implement a genuine inventory transparency system to build trust with traders; Gwadar's oil city must have a defined site and a clear construction funding plan; authorities should guarantee stable pricing mechanisms before expecting local refiners and OMCs to compete with foreign companies that enjoy tax advantages

Afia Malik

The writer is an economist and researcher with expertise in the energy sector

In 2023, Pakistan introduced 'tax-deferred' bonded storage through policy guidelines to attract foreign oil suppliers, aiming to prevent oil shortages and alleviate the pressure on foreign reserves. However, no supplier responded. This year's Strait of Hormuz disruptions, threatening Pakistan's oil and LNG imports, have led the government to seek foreign suppliers again. The ECC approved a revised 168-page policy guideline on bonded storage. The new proposal includes pipeline access for

foreign suppliers, simplified re-export rights and full 'tax-neutrality' while goods remain in bonded storage. The new approach reportedly includes input from Saudi Arabia, Kuwait and Qatar. The 2023 policy deterred international oil suppliers by treating them as local companies and exposing them to tax liabilities and strict pricing controls. It also restricted fuel storage to port terminals, limiting logistics. In contrast, the 2026 revision addresses these issues: it includes all key energy commodities (crude oil, diesel, jet fuel, LPG and LNG) and extends bonded storage locations beyond port-based marine terminals to Mahmood Kot and Machike. Foreign suppliers can now re-export fuel within 24 hours without Letters of Credit and locally they can set prices freely without price caps.

The 2026 approach to tax neutrality (freezing all duties and taxes) on fuel in a bonded regime until it is sold locally seems inspired by successful energy hubs like Singapore, Fujairah and Rotterdam -- the strategy separates international trading from domestic tax regulations. It will allow foreign suppliers to import petroleum into bonded storage without immediate domestic sales or remittance abroad. It is a more thoughtfully designed policy than its earlier version. However, it may still disappoint, as



the last one did: Pakistan views this as a tax and regulatory problem; indeed it is, but at the same time it is an issue of infrastructure and trust.

Fujairah has become a key oil storage hub, thanks to years of terminal investment and a dedicated pipeline from Habshan; one terminal expansion in 2013 alone cost \$252 million. With major companies like Vitol, Vopak, ADNOC, and VTTI providing around 18 million cubic meters of storage, Fujairah benefits from a strong, supportive industry environment. Singapore's advantage lies in its strong refining and petrochemical sector, making it a true oil hub rather than just a storage area. Sharing inventory data helps traders make informed decisions and manage risks. Similarly, Rotterdam offers extensive pipelines, barge connections to the Rhine, deep-water access and transparent stock data, building trust among traders.

Gwadar is important for the government's Hormuz bypass plan. It has key benefits, including deep-water access and closeness to shipping lanes. But it has only initiated two small bunkering operations; the planned 'oil city' for tank farms has yet to secure a site. Current storage capacity is limited and falls far short of the millions of cubic meters needed for a functional logistics hub.

The free zone's electricity and water supply are unreliable, and Gwadar has a fifteen-year history of failing to attract significant traffic from Karachi and Port Qasim. Announcing a bonded-storage framework does not resolve the need for tank storage and reliable utilities, which other global hubs took decades to establish.

Karachi's two oil ports, FOTCO at Port Qasim and the Kemari terminal of Karachi Port Trust, appear to be the most viable sites under the new policy. But they lack Gwadar's strategic importance. In the short term, Port Qasim and Kemari could serve as the main locations for bonded storage, enabling foreign suppliers to store products quickly. However, the main issue is their capacity, not readiness,

as current restrictions limit the size of vessels that can dock. Port constraints have greatly limited storage options; that is likely why the government is considering building an oil city in Hub.

Hub has advantages. Since 2012, single-point mooring has supported the Cnergyico refinery and has substantial unutilised capacity (almost 90 per cent); land from a previous refinery project is available, along with proximity to existing pipelines connected to Karachi Port and the White Oil Pipeline. In contrast, Gwadar lacks these benefits. However, Gwadar is crucial as CEPC's flagship, which China values for circumventing the Malacca Dilemma. For Pakistan, it's a strategic priority, even if it's not fully operational. Hub, while ready for infrastructure development, lacks the same geopolitical significance.

Fair tax regulations, like those introduced in Pakistan's revised policy, are essential but not enough for success. Regular public inventory data is also vital, as seen in successful trading centres like Singapore, Rotterdam and even Fujairah. This transparency reduces market opacity and enables traders to assess risk effectively.

To achieve better results this time, the government must take four key steps: (i) Gwadar's oil city must have a defined site and a clear construction funding plan; (ii) the government should implement a genuine inventory transparency system to build trust with traders, instead of relying solely on tax incentives; (iii) improving legal and regulatory governance is crucial, as Singapore's strict rule of law and efficient dispute resolution make it more attractive than resource-rich countries; and (iv) the government should guarantee stable pricing mechanisms before expecting local refiners and OMCs to compete with foreign companies that enjoy tax advantages.

Pakistan needs a resilient supply chain, and while this policy is a start, it requires infrastructure, strong legal frameworks and effective enforcement to succeed. ■

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DW ENERGY introducing modern solutions to enhance Thar coal use

Bilal Baber

CEO DW Energy Private Limited.



M. Naeem Qureshi

Energy Update magazine conducted an interview with Mr Bilal Baber, CEO DW Energy Private Limited. The detailed interview is given below.

Question 1: How is DW Energy using modern technology to improve Thar coal handling, storage and transportation while minimising environmental impacts?

Answer: DW Energy is committed to introducing modern technologies and commercially sustainable solutions to enhance the utilization of Pakistan's indigenous Thar coal resources. Our primary focus is on coal drying, quality improvement, efficient handling and reliable transportation. The installation of Pakistan's first coal dryer plant at Thar Coal Block-I is a significant step in this direction.

By reducing the naturally high moisture content of Thar lignite to a maximum of 20%, while targeting a Gross Calorific Value (GCV) exceeding 5,000 kcal/kg on a Gross As Received (GAR) basis, we aim to improve its energy value and commercial suitability for industrial applications.

Question 2: How will DW Energy's pioneering coal drying plant reduce moisture from approximately 50% to 20%, and improve calorific value, combustion efficiency and transportation economics?

Answer: Thar lignite naturally contains approximately 45-50% moisture, which has historically limited its wider commercial utilization in Pakistan's industrial sector. Our newly installed coal drying plant is designed to reduce moisture to 20% or lower, achieving a GCV (GAR) of more than 5,000 kcal/kg. This technological advancement significantly improves the energy value of Thar coal, making it a more commercially attractive fuel for cement plants, textile industries, steel manufacturers and other energy-intensive sectors.

Question 3: What technologies are being adopted to prevent coal degradation, contamination, dust emissions and material losses?

Answer: At DW Energy, maintaining consistent coal quality throughout the supply chain is one of our highest operational priorities. Our quality-management approach covers every stage, from coal extraction and processing to stockpiling, transportation and final delivery to industrial customers. We emphasize regular sampling, laboratory testing, quality monitoring and independent inspection through internationally recognized agencies, including SGS and Inspectorate.

Question 4: How will DW Energy's 20-tonne-per-hour briquette plant convert coal fines into higher-value fuel?

Answer: In addition to coal drying, DW Energy is pursuing further value addition through a planned coal briquetting facility with a designed capacity of 20 metric tonnes per hour. During coal processing, transportation and handling, fine coal particles are generated that can be difficult to manage and may have limited commercial applications in their loose form.

Briquetting technology converts these coal fines into compact, uniform and higher-density fuel products through mechanical compression and appropriate processing.

Question 5: How will the planned railway link between Thar Coal Block-I and Port Qasim reduce logistics costs and emissions.

Answer: The planned railway connectivity between Thar Coal Block-I and Port Qasim is expected to play an important role in the future development of Pakistan's indigenous coal industry. For DW Energy, this infrastructure would create opportunities to expand commercial coal supplies to major industrial customers while improving the competitiveness of processed Thar coal. The railway project is currently anticipated to become operational in 2027, subject to infrastructure development and commissioning schedules. ■

TBEA Xi'an Electric Technology Holds Launch Ceremony for Advanced Solar Inverters in the Pakistani Market

TBEA Xi'an Electric Technology Co., Ltd. successfully held its product launch event in Lahore on September 18, 2026, attracting approximately 517 attendees and marking an important step in the company's efforts to strengthen its presence in Pakistan's rapidly growing renewable energy market. The event showcased TBEA's advanced hybrid solar inverter solutions and Battery Energy Storage Systems (BESS), bringing together prominent figures from the energy sector, industry leaders, solar energy professionals, and business representatives.

During the event, TBEA introduced a comprehensive portfolio of hybrid solar inverter solutions designed to address a wide range of residential, commercial, and industrial energy requirements. The showcased product range included 3.6-06kW single-phase hybrid inverters, 08-10kW single-phase hybrid inverters, 05-15kW three-phase hybrid inverters, and 30-50 kW high-voltage three-phase hybrid inverters. The company also presented its 125kW / 261kWh Battery Energy Storage System (BESS) and higher-capacity energy storage solutions, highlighting TBEA's capabilities in supporting large-scale energy storage applications.

From the Chief Guest, Rear



Admiral Sohail Ahmed Azmie - Commander Central Punjab, Pakistan Navy & Commandant Naval War College, Lahore, TBEA's contributions to Pakistan's energy infrastructure, including the Quaid-e-Azam Solar Park and transmission line projects associated with the K-2 and K-3 nuclear power plants, were acknowledged. He remarked, "TBEA's contributions to Pakistan's energy infrastructure highlight the importance of reliable power generation and transmission in strengthening national energy security and supporting Pakistan's transition towards a sustainable energy future".

Mr. Mian Fahad - Regional

Director - Central & South Asia delivered a detailed overview of TBEA's advanced inverter and energy storage solutions. He mentioned, "Battery Energy Storage Systems, residential and industrial applications, and the growing importance of renewable energy amid the ongoing regional situation which is effected by fuel shocks which depicts regional dependency to the fossil fuels and conventional resources."

The event featured an address by Mr. Peter - General Manager Asia, who introduced TBEA and highlighted the company's background, global presence, and longstanding contributions to the power and energy industry. He outlined TBEA's expertise in power transmission and transformation, renewable energy, and advanced energy technologies.

TBEA Xi'an Electric Technology Co., Ltd Hosted Mr. Adil Mahmood - Chairman Pakistan Solar Association (PSA), He underscored TBEA's strong corporate legacy, robust financial strength, and extensive global energy-sector experience, emphasizing the company's ability to deliver large-scale energy projects and provide reliable, long-term solutions. He Reiterated TBEA's strong foundation and strategic capabilities as key advantages in supporting Pakistan's growing renewable energy market.

The launch event marked an important milestone for Pakistan's solar market, as the region's renewable energy sector continues to expand and requires advanced power conversion and energy storage technologies to support its growth.



Pakistan Moves Toward Competitive Power Market

Power Market Reform Needs to Ensure Balance Industrial Relief With Protection of Residential Consumers

Syed Shabbar Zaidi

The announcement to partially deregulate the power sector marks a positive step forward. Although specific details of the proposed framework have not yet been made public, the author maintains that any initiative reducing government involvement in the supply of goods and services—including energy—should be welcomed, given the clear failure of the traditional bureaucratic system in this domain.

The proposed system has been described by the regulator as under: Pakistan's power sector has traditionally operated under a single-buyer model, where the Central Power Purchasing Agency (CPPA) purchases electricity on behalf of ex-WAPDA distribution companies (XW-DISCOs).

The sector is transitioning to CTBCM, a competitive wholesale electricity market model. Under CTBCM, multiple buyers and competitive suppliers can negotiate bilateral electricity purchases and sales directly at mutually agreed wholesale rates. Procurement for XW-DISCOs—acting as Suppliers of Last Resort (SOLR)—will be tariff-regulated by NEPRA and conducted on a least-cost basis.

Key operational changes proposed under CTBCM:

*** Single-Buyer Model Termination:** The centralized single-buyer regime will end, with DISCOs procuring power via centrally organized auctions managed by the Independent Auction Administrator (IAA) to meet forecasted demand.

*** Consumer Choice:** Bulk power consumers (BPCs) with demand exceeding 1 MW can choose to purchase power from either their regional DISCO or a competitive supplier. Retail market competition and lower consumer load thresholds will be phased in over time as market liquidity develops.

*** Merchant Operations:** Generation assets—including retiring fleet units and grid-connected captive power plants—may sell electricity on a merchant basis.

*** Options for Legacy Generators:** Legacy plants can sell to DISCOs on a least-cost basis (under the Integrated System Generation Expansion Plan / Power Acquisition Program), contract directly with competitive suppliers or BPCs (with appropriate supplier licenses), or operate as merchant power plants.

Price efficiency is anticipated through transparent economic dispatch, competitive bidding, bilateral contracts, disciplined procurement, and improved expansion forecasting. Existing CPPA legacy contracts remain protected, though parties may voluntarily terminate contracts by mutual consent to join the CTBCM. Federal sovereign guarantees will be phased out for creditworthy DISCOs in favour of commercial credit covers, remaining temporarily only for less creditworthy DISCOs.

Business-to-business (B2B) suppliers must handle investment risks independently. Industrial estates require a NEPRA distribution license to provide distribution services, or a competitive supplier license to supply BPCs directly, while the incumbent XW-DISCO retains SOLR.



responsibility. The Federal Government subsidies for consumers opting for competitive suppliers remain subject to federal policy and subsequent implementation mechanisms.

While this reform represents a necessary and positive step given the present circumstances, it stems from IMF recommendations aimed at establishing market-based energy pricing and removing the burden of past policy errors from the public exchequer.

Although this principle is sound in theory, the continuation and protection of existing contractual commitments leave the government with only two viable paths: Absorb the ongoing costs, thereby further draining state resources; or shift the financial burden onto retail consumers.

Consequently, although the proposed framework provides suitable relief to bulk and industrial electricity users, it fails to address the long-term challenge of high energy costs facing everyday residential consumers.

The government must present the underlying facts transparently, as consumer and public energy pricing directly shapes the trajectory of any future national growth. Historically, policy decisions in this domain were made incorrectly through short-sighted political and commercial expediency, ignoring long-term sustainability for both the public and the nation. Pakistan simply cannot absorb another crisis of this magnitude in the future.

The proposed framework includes training for market personnel, assigned to the Lahore University of Management Sciences. However, the author emphasizes that Pakistan's economy relies on two main hubs: Karachi and Lahore regions.

Centralizing professional development in a single location is ill-advised, and lessons should be drawn from WAPDA's legacy. To uphold the scheme's goals of transparency and equity, the institutional role and economic prominence of Karachi must be fully acknowledged. The proposed scheme aims to establish a market-driven mechanism for energy pricing. However, markets can only function effectively if the underlying system remains straightforward and user-friendly. Although the current regulatory framework is well-crafted, it must be simplified.

The primary step toward ensuring the success of this scheme is building business confidence to participate in these commercial arrangements. If overly complex regulation indicates that "the devil is in the details," the intended outcome will remain out of reach. In the author's view, further simplifying the framework and eliminating administrative bottlenecks are essential for the system. ■

FCEPL deploys 450kW solar system



EU Report

In a significant step towards achieving a sustainable industrial ecosystem, FrieslandCampina Engro Pakistan Limited has announced the deployment of a 450 kW Solar Photovoltaic (PV) system integrated with a 255 kWh Battery Energy Storage System (BESS) at its Nara Dairy Farm facility.

Awarded to DSG Energy, the project represents a strategic investment in clean energy infrastructure that will strengthen the plant's energy resilience, improve operational efficiency, and accelerate the company's transition toward a lower-carbon future.

This installation represents the futuristic, energy-conscious mindset that guides us at FCEPL, said Kashan Hasan, CEO and Managing Director of the company. He added, 'we are eager to expand our solar footprint further, which now includes our production facilities as well as our dairy farm. ■

PINSTECH, OGDC Sign Services Contract



EU Report

The Pakistan Institute of Nuclear Science and Technology (PINSTECH) and Oil and Gas Development Company Limited (OGDC) signed a contract at OGDC Headquarters to strengthen institutional cooperation, including analytical support for OGDC's lithium extraction initiative.

Established in 1965, PINSTECH is a premier research and development institute of the Pakistan Atomic Energy Commission (PAEC). Under the contract, PINSTECH will provide elemental profiling and radioactive-element analysis services to OGDC. ■



Group Photo of 3rd Int'l Solar Technology Excellence Awards 2026 Winners with Chief Guest Governor Punjab Sardar Saleem Haider Khan and team Energy Update.

EVENT REPORT

3RD INTERNATIONAL SOLAR POWER CONCLAVE & SOLAR TECHNOLOGY EXCELLENCE AWARDS 2026

Pakistan's solar revolution needs a manufacturing push; Punjab governor says absence of a government policy preventing Pakistan from developing a domestic solar manufacturing industry

By Amer Malik

Pakistan's rapidly expanding solar revolution has reached a critical stage where the country can no longer afford to remain merely a major consumer of imported solar technology. With solar generation already contributing significantly to the national energy supply, industry leaders and policymakers are now calling for a comprehensive policy to establish local manufacturing, create millions of jobs, reduce the foreign-exchange burden and turn Pakistan into a potential exporter of renewable-energy equipment.

The call dominated the 3rd International Solar Power Conclave & Solar Technology Excellence Awards 2026, organised by Energy Update in collaboration with the Pakistan Solar Association (PSA), Renewable Energy

Association of Pakistan (REAP) and Pakistan Alternative Energy Association (PAEA) in Lahore.

Punjab Governor Sardar Saleem Haider Khan, addressing the gathering, said the absence of a government policy was preventing Pakistan from developing a domestic solar manufacturing industry. "It is unfortunate that solar system manufacturing is not being done due to lack of a government policy," he said, arguing that local man-



Panel Discussion on Solar in Pakistan – Challenges, Policy Reforms & the Way Forward Moderated by Engr. Faiz Bhutta, Senior Energy and BESS Consultant-Trainer - Speaker, Qurrat-ul-Ain Cheema, CEO at GEN_II, Aafaq Ali Khan, Founder CEO, Energy Gurus and Michi Yamamoto Chairman Nippon Energy.



From Left to Right Sardar Saleem Haider Khan, Governor Punjab, Faisal Ayub Khokhar, Minister Energy, Government of Punjab, Adil Mahmood, Chairman, Pakistan Solar Association, Mian Fahad, Regional Director, TBEA, Engr. Altaf Hussain Malik, Managing Director of the National Grid Company of Pakistan Limited (NGC), M. Naeem Qureshi, Chairman, 3rd Solar Power Conclave and Technology Excellence Awards 2026 and Managing Editor Energy Update, Dr. Naveed Arshad, Director of the Energy Institute at LUMS, Zohaib ul Haq, Technical Service Manager - Growatt Pakistan and Ruqiya Naeem, Director Admin and Finance – Energy Update addressing on this occasion.

ufacturing could create millions of jobs while providing clean, affordable energy and generating valuable foreign exchange.

The governor said the rising cost of conventional electricity had made solar increasingly important for ordinary Pakistanis. He described sunlight as a gift that should be utilised to reduce electricity bills and protect the environment. "If we are able to create a solar manufacturing industry, it will create millions of jobs and also produce clean, green energy, which is cheaper on consumers' pockets and better for the environment," he said.

He also referred to Sindh government initiatives under which hundreds of thousands of solar panels had been distributed free of cost among livestock farmers and flood-affected communities.

Punjab promises support

Punjab Minister for Energy Faisal Ayub said Pakistan's electricity challenge had changed fundamentally. He recalled that the country experienced its worst load-shed-

ding crisis beginning in 2009-10 and said the shortage was addressed during the 2013-18 PML-N government through the installation of power plants. The problem now, he said, was the high cost of electricity.

Solar already making a major contribution

PSA President Adil Mahmood said solar energy was already contributing up to 40,000 MW to Pakistan's energy supply. Without this contribution, he argued, the country could otherwise be facing five to seven hours of daily load-shedding.

Mahmood said the government was charging four paisas per unit, which he calculated at around Rs1.5 million per MW per month, and called for the charge to be removed. He said the solar market had expanded rapidly when there was no tax on solar panels, while subsequent measures had created hurdles for the industry. He also identified the abolition of net metering as another impediment to the further promotion of solar power.



Group Photo of Sponsors and Speakers of 3rd Int'l Solar Power Conclave 2026 with Chief Guest Faisal Ayub Khokhar Minister Energy Punjab.



Group Photo of Speakers of Technical Session.



Team Energy Update presents Energy Update Magazine to Faisal Ayub Khokhar Minister Energy Punjab



Ruqiyah Naeem Director Admin and Finance Energy Update presenting Memento to Governor Punjab Sardar Saleem Haider Khan



Team EU Presents Energy Update Magazine to Governor Punjab

The PSA president called for the abolition of duties and sales tax on batteries and proposed the establishment of local lithium battery manufacturing plants, which could initially meet domestic demand and eventually produce batteries for export.

Energy Update Managing Editor Naeem Qureshi said the renewable-energy sector had already generated up to two million jobs in Pakistan. He said solar-energy consumption had exceeded 40,000 MW, saving Pakistan around \$6 billion, while the country had become the largest importer of solar systems from China at highly competitive rates.

Storage could define the next phase

The first panel discussion at the conclave examined energy storage and Pakistan's evolving renewable-energy landscape. It featured Dr Naveed Arshad, Director Energy Institute LUMS; Altaf Hussain, Managing Director National Grid Company; Zohaib-ul-Haq of Growatt Pakistan; and Mian Fahad of TBEA Central and South Asia.

The panellists said Pakistan had become a rare member of the 25 per cent Solar Club, with much of the growth occurring organically rather than through comprehensive government planning.

Dr Naveed Arshad described battery storage as "a new



Ruqiyah Naeem presents Memento to Faisal Ayub Khokhar Minister Energy Punjab



Hammad Aarora Marketing Head Ziewnic Solar presenting Gifts to participants.



M. Zakir Ali CEO Inverex Solar with Chief Guest Governor Punjab Sardar Saleem Haider Khan

AI for the energy sector" and said Pakistan's energy transition by 2035 would move into five areas: distributed storage; microgrids and vertical power plants; AI and data analytics; energy efficiency and conservation; and circularity.

This suggests that Pakistan's renewable-energy transformation is no longer simply about installing photovoltaic panels. Storage, smart energy management and decentralised electricity systems are likely to become increasingly important.

A second panel, moderated by Dr Jawaria Shakeel, Director Sustainability at Assure International, examined investment opportunities in photovoltaic systems and



Mian Fahad, Regional Director, TBEA and team presenting memento to Engr. Rabia Fiaz

solar batteries. The discussion included Hussain Diwan of Diwan International, Joseph Chu of C&I Energy Storage Pakistan, Muhammad Farhan of Power Highway, Hasnat Khan of PSA and Maroof Ahmad Zubairi of AESL.

Dr Jawaria advised investors and industry stakeholders to carefully assess the timing of a switch to solar while considering available capacity.

Muhammad Farhan cited Bangladesh as an example, saying domestic consumers with installed capacities of 5-10 kW could potentially sell surplus electricity to neighbours. He also stressed that solar equipment should be insured.



Panel Discussion on Investment Opportunities in Solar PV and Battery Storage System (BESS) Moderated by Dr. Jawaria Shakeel, Director Sustainability at Assure International and Advisor – Growth at BH Group, Hasnat Khan, Former Vice Chairman, Pakistan Solar Association, Maroof Ahmed Zuberi, Energy Advisor, Head of Alternative Energy, HVAC and Firefighting business at AESL, Muhammad Farhan, Founder Pakistan Solar Association, Hussain Diwan, Director, Diwan Internationals and Joseph Chu, Sales director C&I energy storage PK Itel Energy.

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TBEA XI'AN ELECTRIC TECHNOLOGY CO., LIMITED

TBEA XI'AN ELECTRIC TECHNOLOGY Co., Ltd. is a leading global provider of green and smart energy solutions, with a strong focus on photovoltaic (PV) power, wind power, power electronics, energy storage, digital energy, and smart power systems. Since 2000, the company has been developing innovative technologies and delivering comprehensive clean-energy solutions across more than 20 countries and regions, including Pakistan, India, Brazil, Spain, and the Philippines.

TBEA offers full life-cycle services covering project development, investment, engineering, procurement, construction, commissioning, operation, and maintenance. Its extensive portfolio includes PV inverters, energy storage systems, smart power generation, flexible DC transmission, power distribution, power quality management, zero-carbon solutions, and intelligent O&M platforms.

The company has achieved more than 64 GW in global PV inverter shipments and has built over 5,000 on-grid and off-grid wind and PV power stations, with cumulative construction capacity exceeding 29.5 GW.

Driven by its vision of "Zero-Carbon Earth, Digital Energy," TBEA combines power electronics, digital technologies, and renewable energy innovation to accelerate the global transition toward cleaner, smarter, and more efficient energy systems.



SHENZHEN GROWATT NEW ENERGY CO. LTD

Founded in 2011, Growatt is a global leader in distributed energy solutions, offering advanced solar inverters, energy storage systems and smart energy management technologies. Through continuous innovation and integrated product development, the company delivers high-quality, full-scenario distributed energy solutions for residential and commercial & industrial (C&I) users worldwide.

Growatt has built a strong global presence, with 63 sales and service locations across 30 countries and regions, including Germany, the United Kingdom, the Netherlands, the United States, Brazil, Australia and India. The company has also established subsidiaries in Spain, Brazil, Singapore and South Africa, enabling it to provide responsive, localised support to customers in key solar and energy storage markets worldwide.

According to Frost & Sullivan, Growatt maintained a leading position in the global energy storage market in 2025, ranking No. 1 worldwide in shipments of hybrid split-type energy storage inverters, No. 3 in residential energy storage inverters and No. 4 in hybrid energy storage inverters.

PROFILES OF AWARD WINNING COMPANIES



ZIEWNIC PRIVATE LIMITED

Established in 2014, ZIEWNIC PK (Pvt.) Ltd. has built a strong reputation in Pakistan's renewable energy sector through perseverance, quality, innovation, and customer-focused solutions. The company specializes in solar panels and solar inverters, contributing to the country's transition toward clean, reliable, and sustainable energy.

ZIEWNIC offers a diverse portfolio of high-quality solar products and solutions designed to meet the needs of residential, commercial, and industrial customers nationwide. Its product range caters to different energy requirements, from small-scale applications to large projects, providing customers with reliable and technically sound solutions. Beyond supplying products, ZIEWNIC is committed to delivering technically proficient, practical, and customized solutions that address the evolving energy needs of its customers. The company believes that teamwork, professional collaboration, sincerity, and dedication are fundamental to sustainable growth and long-term success.

Mission: To achieve continuous growth by delivering quality products, innovative solutions, and exceptional customer service while expanding market reach, enhancing product value, and creating employment opportunities across Pakistan.

Vision: To contribute to overcoming Pakistan's energy challenges by promoting solar energy and environmentally responsible solutions, reducing dependence on non-renewable resources, and supporting a cleaner, greener, and more sustainable future.



INVEREX SOLAR ENERGY

Inverex Solar Energy, established in 2007, is a pioneering renewable energy company committed to accelerating the adoption of clean and sustainable energy solutions in Pakistan. With a strong focus on innovation, quality engineering and customer-centric solutions, Inverex provides advanced solar energy systems for residential, commercial and industrial applications.

Under the leadership of M. Muhammad Zakir Ali, Founder and CEO, Inverex has grown into a recognized name in Pakistan's renewable energy sector. His entrepreneurial journey and long-standing experience in the power electronics and solar industry have helped shape Inverex's focus on technology, product quality, affordability and customer trust.

Inverex offers comprehensive solar solutions spanning system design, engineering, installation, commissioning and performance monitoring. Its portfolio includes solar inverters, photovoltaic panels, energy storage solutions and other clean-energy technologies, supporting customers in reducing dependence on conventional energy sources and achieving greater energy independence.

The company's vision is to lead Pakistan's transition toward a sustainable, conflict-free and zero-emission future by accelerating solar adoption. Its mission is to empower individuals and businesses to become proactive energy producers through reliable, energy-efficient and innovative photovoltaic solutions.

Driven by a commitment to sustainability and engineering excellence, Inverex Solar Energy, under the leadership of M. Zakir Ali, continues to contribute to Pakistan's clean-energy transition and the development of a greener, more resilient energy future.

PROFILES OF AWARD WINNING COMPANIES



ALLIED ENGINEERING & SERVICES (PVT.) LTD.

Founded in 1976, Allied Group has spent more than five decades powering Pakistan's growth — and today, that legacy is driving the country's shift toward a sustainable energy future. Through Allied Engineering & Services (Pvt.) Ltd. (AESL), the Group delivers end-to-end renewable energy solutions: on-grid and hybrid solar plants, solar car parking structures, CRRC wind turbines, and Battery Energy Storage Systems (BESS) scalable from residential to industrial scale, all powered by Allied's in-house MicroGrid controls.

As the sole authorized Caterpillar dealer in Pakistan, AESL pairs this renewable portfolio with proven power systems expertise — gensets, UPS, and HVAC solutions — to deliver complete, reliable energy infrastructure from a single partner. Headquartered in Karachi with offices in Lahore, Islamabad, Multan, Faisalabad, Peshawar, and Quetta, Allied offers nationwide reach backed by 24/7 certified technical support.

Beyond AESL, the Group's companies include Apex Machinery, Allied Logistics, Allied Rental Services, Procon, Allied eCommerce Solutions, and Allied Machinery Limited (Afghanistan), which extend this same commitment to sustainability and reliability across the construction, logistics, and industrial sectors, making Allied Group a trusted partner in building Pakistan's clean energy future.



DIWAN INTERNATIONAL (PVT) LTD.

Diwan International (Pvt.) Ltd., part of the Diwan Group established in 1993, is a diversified and dynamic business group in Pakistan with a growing presence across energy, renewable products, food commodities, textiles, IT supplies, plastics and building materials. With its commitment to quality, innovation and customer service, Diwan International has established itself as a trusted name in Pakistan's energy and solar sector.

Headquartered in Karachi, with regional offices in Lahore and Peshawar, the company serves customers across Pakistan and maintains a strong market presence in the textile, construction, building materials, dairy farming and mobile accessories sectors.

Diwan International is an authorized distributor and partner of leading global brands, including Huawei, Jinko Solar, Trina Solar, LONGi, BYD Battery, Pylontech, KUKA Cable, GoodWe, Pilot, LEOCH Battery and CHINT Electric. Its portfolio enables customers to access reliable solar, energy storage, power and electrical solutions from internationally recognized manufacturers. The company is driven by a mission to provide premium-quality products at competitive prices without compromising on service and reliability. Its renewable energy initiatives focus on empowering communities and businesses to reduce their carbon footprint while supporting a cleaner and more sustainable future.

Backed by the Diwan Group's decades of experience, international collaborations and a culture of responsible leadership, Diwan International continues to expand its role in Pakistan's evolving energy landscape.

PROFILES OF AWARD WINNING COMPANIES



DYNES DIGITAL ENERGY TECHNOLOGY LTD.

Dyness was established in 2017 as a multinational corporation specializing in the research, development, production, and sales of energy storage systems. Headquartered in Suzhou, China, the company has established 33 global branches and subsidiaries across the United States, the United Kingdom, Germany, the Netherlands, Spain, Brazil, South Africa, Singapore, Australia, the UAE (Dubai), Hong Kong SAR, Shenzhen, Xian, Taizhou and other strategic markets. In just a few short years, Dyness has expanded its global footprint to more than 100 countries and regions, providing safe, reliable, and high-quality products and services to users worldwide. Dyness, guided by the brand mission-"Bringing sustainable energy accessible to everyone".-and by the core values of "Be True, Be Pragmatic, Be Excellent, and Be Altruistic," actively pursues a brand strategy focused on "Globalization, Tech Development, and Service Advantages. "Upholding the product philosophy of "Customer-first, Uncompromising Safety, Efficient Innovation, and Unified & Platform-Enabled Product Ecosystem." the company continuously strengthens its R&D and innovation capabilities. It delivers comprehensive energy storage solutions spanning the full lifecycle of commercial, industrial, and residential applications. Anchored in its brand positioning as "The Leading Global Energy Storage Solutions Provider", Dyness remains committed to providing high-performance, sustainable energy solutions, contributing to global carbon neutrality, and enriching lives with greater efficiency, sustainability, and joy.



BS ENGINEERING AND CONSTRUCTION WORKS

Established in 2019, BS Engineering & Construction Works (BSECW) is a Pakistan-based engineering and renewable energy company providing end-to-end solar energy solutions across the public and private sectors. With a proven track record in delivering multi-site, institutional, and large-scale solar projects, BSECW provides technically sound, reliable, and sustainable energy solutions.

BSECW has developed a diverse portfolio spanning government institutions, educational facilities, healthcare, commercial, industrial, and residential sectors. Its most prominent projects include the 8.7 MW CM Punjab Free Solar Panel Scheme – Lot-6 Rawalpindi, 5.17 MW solarization of Government Higher Secondary Schools across Punjab under PPDCL, 1.7 MW of public colleges across Punjab under PEECA, 1.1532 MW solarization of police stations across Punjab under PPDCL, 802 kW at Aziz Bhatti DHQ Teaching Hospital Gujrat, 796.3 kW for Model Children's Homes, and 650 kW under PGDP Package-7 Rawalpindi.

These projects demonstrate BSECW's capability to execute medium- to large-scale solar installations, including multi-site government programs and major institutional projects. Through engineering expertise, disciplined project execution, and comprehensive technical services, BSECW continues to contribute to Pakistan's transition toward a sustainable renewable energy future.

PROFILES OF AWARD WINNING COMPANIES



ALBARIO ENGINEERING PVT LTD

Albario Engineering (Pvt.) Ltd., established in 1954, is a diversified and multidisciplinary engineering company providing integrated solutions to meet the evolving energy, industrial and infrastructure needs of Pakistan. Over the decades, the company has built a strong reputation as a reliable, one-window solution provider, delivering engineering, procurement, construction, operations and maintenance services across key sectors.

Albario's core capabilities include EPC and electro-mechanical contracting, operations and maintenance, plant outage and turnaround services, and inspection and testing. Its expertise covers power generation, transmission and distribution, oil and gas, industrial facilities, renewable energy and civil infrastructure. The company provides specialized electro-mechanical installation, rehabilitation and upgradation services, including high-voltage switchyards, balance-of-plant systems, boilers, mechanical systems, instrumentation and control systems. Its civil and infrastructure portfolio encompasses power and industrial facilities, housing colonies, multi-story buildings, residential complexes and real estate development.

Albario also offers comprehensive O&M services, including plant operations, routine and scheduled maintenance, forced outages, procurement, EHS and administrative support. Its specialized outage and turnaround capabilities include gas and steam turbine inspections, oil and gas shutdown services, and deployment of skilled, OEM-trained manpower. With decades of experience and multidisciplinary expertise, Albario Engineering continues to deliver dependable engineering and infrastructure solutions focused on safety, reliability, quality and operational performance.



TRINA SOLAR ENERGY DEVELOPMENT PTE LTD

Trina Solar Co., Ltd. (Trinasolar), founded in 1997, is a global leader in smart photovoltaic (PV) and energy storage solutions.

Listed on the Science and Technology Innovation Board (STAR Market) of the Shanghai Stock Exchange in June 2020 under stock code 688599, Trinasolar is a pioneer in integrating PV products, energy storage, system solutions and digital energy services. The company operates across four major business segments. PV Products focuses on the research, development, manufacturing and sales of high-performance solar modules. Energy Storage provides a comprehensive portfolio of solutions for utility-scale power plants, commercial and industrial applications, and residential users. System Solutions covers trackers, distributed generation systems, centralized power plants and related solutions. Digital Energy Services includes new energy operation and maintenance, on/off-grid microgrids, solar-storage-charging integration, solar-storage-load coordination, virtual power plants and electricity trading services. In 2025, Trinasolar is advancing a strategic transformation toward integrated energy solutions. With a customer- and scenario-focused approach, the company is leveraging its full value-chain capabilities alongside digital and AI technologies to deliver differentiated solutions across distributed, centralized and emerging energy applications. Trinasolar is committed to advancing smart PV and energy storage technologies and supporting the global transition toward new power systems and a net-zero future.

ALLIED ENGINEERING & SERVICES PVT LTD

A leading engineering solutions provider in Pakistan since 1976, delivering renewable energy, heavy equipment, machinery, power systems, & industrial services nationwide.

SOLAR SOLUTIONS

ON GRID SOLAR PLANT

Our On-Grid Solar Power Plant maximizes energy generation, reduces electricity costs, & ensures long-term sustainability through advanced grid connectivity & intelligent design, delivering reliable output and accelerated ROI.

HYBRID SOLAR PLANT

Our Hybrid Solar System combines PV, battery storage, & grid connectivity for uninterrupted power, maximizing self consumption, backup during outages, energy independence, & stable performance across all applications.

CAR PARKING STRUCTURE

Solar panels on car parking structures turn unused space into clean energy assets, providing shaded parking while generating power, improving land use, cutting costs, and supporting green building goals.

BESS SOLUTIONS

INDUSTRIAL BESS

Allied's scalable BESS, in 5MWh units, delivers reliable backup power, integrates solar, wind, and generators, cuts fuel costs, ensures stable, uninterrupted energy via in-house Micro Grid controls.

COMMERCIAL BESS

Our 261 kWh / 125 kW system delivers backup power for critical loads, maximizes solar use and load shifting, boosts generator efficiency, & ensures reliable power for factories and commercial facilities.

RESIDENTIAL BATTERY

Our Residential BESS delivers reliable home backup power, maximizes solar self-consumption, cuts grid reliance, and optimizes electricity usage.

TURBINES SOLUTIONS

WIND TURBINES

The CRRC 8.5 MW WTG delivers 10-12% higher Annual Energy Production than Pakistan's best available competition, offering superior efficiency and ROI. **CRRC Brand New Turbines: 4.5 ~ 8.5 MW**

REFURBISHED TURBINES

Our 1-3 MW refurbished turbines are rigorously inspected, restored, & tested to deliver dependable performance, optimized energy output, and strong project economics.

HVAC SOLUTIONS

Introducing high-efficiency Electric Chillers to meet critical cooling demands in commercial & industrial facilities. These systems ensure optimal temperature control while supporting energy management & sustainability goals.

PROFILES OF AWARD WINNING COMPANIES



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PAKISTAN CABLES LIMITED

Founded in 1953, Pakistan Cables Ltd. is the premier and most reputable wires and cables manufacturer in Pakistan. Being the first and oldest wires and cables manufacturer listed on the Pakistan Stock Exchange (PSX) since 1955, it has the largest geographical footprint in Pakistan. As Pakistan's largest exporter, the Company exports to over 40 international markets globally. Pakistan Cables is a member company of the Amir S. Chinoy (ASC) group. The Company has an exclusive technical collaboration with CTC Global Inc., USA, and holds ISO 9001:2015, ISO 14001:2015 and ISO 45001 certifications, along with certifications from KEMA Netherlands, CNC Germany, Bureau Veritas, TÜV SÜD, TÜV Rheinland, TÜV Austria, UKAS, BSI, USACE, PSQCA and PCSIR. Pakistan Cables is the nation's only manufacturer of internationally certified, TÜV type-tested solar cables. It is also the first wires and cables manufacturer to successfully complete type testing of its 35 kV medium-voltage cables at KEMA Labs, Netherlands in Pakistan. The new manufacturing facility of Pakistan Cables established at Nooriabad, Sindh upholds the Company's commitment to deliver world-class product quality, boost economic productivity and lead on benchmark practices. The Company's science-based emission reduction targets are validated and approved by SBTi. It is also a signatory of the UN Global Compact and net-zero commitment.



SHANGHAI PYLON TECHNOLOGIES CO., LTD. (PYLONTECH)

Pylon Technologies Co., Ltd. (Pylontech) is a dedicated energy storage system (ESS) provider specializing in the integration of electrochemistry, power electronics and system integration. With more than 16 years of dedicated experience in the energy storage industry, Pylontech has developed a strong global presence by delivering reliable, innovative and high-performance energy storage products and solutions. The company provides energy storage solutions designed to support a wide range of applications, including residential, commercial and industrial, and other energy infrastructure requirements. Through continuous investment in research and development, Pylontech combines advanced battery technology with intelligent power management and system integration capabilities to deliver dependable and scalable energy storage solutions. Pylontech has established a significant international footprint, with more than 2 million ESS units delivered globally across over 90 countries. The company's continued investment in R&D reflects its commitment to technological innovation and the advancement of next-generation energy storage. Pylontech's mission, "Liberating Your Energy Sustainably," reflects its commitment to enabling cleaner, more flexible and efficient energy systems. Its vision, "To Energize Billions With Smarter Power," highlights its ambition to make intelligent energy storage accessible on a global scale. Guided by the core values of integrity, reliability, accountability, cohesion, cooperation and accomplishment, Pylontech continues to contribute to the global energy transition by enabling smarter, more resilient and sustainable power systems.

PROFILES OF AWARD WINNING COMPANIES



Energy Storage

BYD ENERGY STORAGE

BYD Energy Storage is a global provider of battery energy storage systems (BESS), delivering advanced solutions for utility-scale, commercial and industrial, and residential applications. With more than 135 GWh delivered and over 650 projects worldwide, the company combines extensive battery expertise with innovative energy storage technologies to support the global transition toward cleaner and more resilient power systems. For utility-scale applications, BYD provides grid-side BESS solutions designed to strengthen grid robustness, improve renewable energy integration and support grid stability. Its portfolio includes major international projects, demonstrating its capabilities in large-scale energy storage deployment. For commercial and industrial customers, BYD's energy storage solutions help optimize electricity consumption through peak-valley energy management, provide backup power and support demand-side response. In the residential segment, BYD has installed more than 1.5 million home energy storage systems across 110+ countries, utilizing its lithium iron phosphate (LFP) battery technology. Beyond conventional BESS, BYD offers integrated energy solutions, including mobile storage and charging systems powered by Blade Battery technology, UPS systems, energy management systems and microgrid control solutions. The company also extends its battery expertise into emerging applications, including forklift and marine battery systems, supporting equipment electrification across diverse industries. Through continuous innovation and broad application expertise, BYD Energy Storage is helping enable smarter, safer and more flexible energy systems worldwide.



ITEL ENERGY (TRANSSION HOLDINGS) – PAKISTAN

We are proud to be among Pakistan's leading distributors of itel Energy products, offering a comprehensive range of genuine solar and energy solutions for homes, businesses, and commercial and industrial applications across the country. Our portfolio includes solar inverters, lithium-ion batteries, and customized power solutions, enabling customers to choose reliable systems according to their specific energy requirements. With a strong focus on product availability, technical guidance, and customer support, we help customers make informed decisions and select solutions that deliver dependable performance and long-term value. itel Energy products have established a strong presence in Pakistan due to their high efficiency, competitive pricing, and durability, making them an increasingly popular choice for customers seeking practical and cost-effective energy solutions. Our mission is simple: to make quality solar technology accessible throughout Pakistan—not only in major cities, but also in communities across the country. We are committed to making reliable renewable energy solutions more accessible and affordable for households and businesses. We would also like to clarify that we are an independent distributor, not the manufacturer of itel Energy products. We supply and deliver genuine itel Energy products across Pakistan, backed by proper product guidance and customer support to ensure every customer receives the right solution for their energy needs.

PROFILES OF AWARD WINNING COMPANIES



EY ENTERPRISE

EY Enterprise is advancing Pakistan's energy transition through engineering excellence, integrated infrastructure, and a growing international footprint. Headquartered in Karachi, the company delivers turnkey solutions that connect clean energy, reliable power, and modern construction under one engineering vision. Its capabilities span solar photovoltaic systems, hybrid and off-grid solutions, battery energy storage, advanced electrical infrastructure, automation, HVAC, MEP, pre-engineered buildings, construction, and project management. From feasibility and design to procurement, execution, and commissioning, EY Enterprise brings coordinated expertise to complex projects. The company's portfolio includes industrial facilities, financial institutions, healthcare establishments, commercial developments, and residential communities. Projects for State Bank and Bank Al Habib reflect its contribution to banking infrastructure, while a completed solar installation in Maryland underscores its expanding presence in the United States. At the 2026 Solar Technology Excellence Awards, organized by Energy Update, EY Enterprise received "Best EPC Company in Pakistan" and the "Solar Innovation Award," recognizing its engineering capability and commitment to sustainable energy. Led by CEO Faisal Hameed and CTO Usman Hameed, EY Enterprise combines technical leadership with a clear ambition: to deliver dependable, scalable energy and infrastructure solutions that support businesses, strengthen communities, and contribute to a resilient future. EY Enterprise: Engineering Energy. Powering Progress.



DECENT SOLAR

Decent Solar, founded in 2019 by Mr. Daniyal Raheed, is committed to delivering affordable, high-quality and sustainable solar energy solutions for residential, commercial and industrial customers. The company aims to make clean energy more accessible by providing reliable solar systems tailored to the specific requirements of each client. Decent Solar offers comprehensive services covering the entire solar journey, from consultation and customized system design to professional installation, maintenance and ongoing after-sales support. Its residential solar solutions are designed to provide homes with efficient and cost-effective clean energy, while its corporate and commercial solutions offer scalable systems for offices, businesses, industries and large-scale projects. Driven by a commitment to quality, reliability and customer satisfaction, Decent Solar focuses on delivering solutions that help customers reduce energy costs, improve efficiency and achieve greater energy independence. Its dedicated approach to service ensures clients receive continued technical support throughout the life of their solar systems. The company envisions a future in which solar energy becomes a primary source of power, reducing dependence on fossil fuels and minimizing environmental impact. With a strong emphasis on innovation, affordability and customer care, Decent Solar continues to contribute to Pakistan's renewable energy transition by creating practical, dependable and sustainable energy solutions for a brighter future.

PROFILES OF AWARD WINNING COMPANIES



RONMA SOLAR BY MATEEN SONS ENERGY

Founded in 2018 and headquartered in Jinhua, China, Ronma Solar Energy Group is a national-level high-tech enterprise specializing in the research, development, manufacturing, and sales of P-type and N-type monocrystalline silicon solar cells and photovoltaic modules. The Group also operates across the photovoltaic value chain, including investment, construction, and operation of solar power projects.

Ronma has established three major production bases in Jinhua, Zhejiang; Dongying, Shandong; and Kunshan, Jiangsu, supported by advanced manufacturing capabilities and intelligent production systems. Its achievements include recognition as a provincial-level intelligent factory, fully connected 5G factory, Green Factory, and cloud enterprise, while the Group has also been included in the national 5G Factory Directory.

With a growing global footprint, Ronma serves markets across Europe, the Americas, Africa, Southeast Asia, and the Middle East. It has established sales branches and after-sales service centres in multiple countries, including Pakistan, and works with 300+ distributors worldwide.

Guided by its mission, "Let Green Energy Create a Better Life," Ronma is committed to delivering innovative, differentiated photovoltaic products and integrated solar-plus-storage solutions. Through vertical integration, technological innovation, and global partnerships, the Group aims to accelerate the adoption of clean energy and build a sustainable future.



RISING SOLAR PRIVATE LIMITED

Established in 2016, the company has more than a decade of experience delivering renewable energy and solar power projects across Pakistan. With a strong focus on innovation, reliability and sustainable development, it provides solar and energy storage solutions to customers across public and private sectors.

The company has successfully completed 500+ projects, covering utility-scale, commercial, residential and specialized renewable energy applications. With more than 30MW of installed PV capacity, it continues to contribute to Pakistan's transition toward cleaner and more affordable energy.

A significant part of its work focuses on expanding energy access in underserved communities. Through 20,000+ rural electrification projects, the company has brought reliable solar power solutions to rural sites across the country, supporting communities with cleaner and more dependable electricity.

Its portfolio also includes the installation of 1,000+ solar street lights, improving lighting, visibility and safety in communities and public areas. In the agricultural sector, the company has delivered 500+ solar agriculture solutions, helping farmers adopt more efficient and sustainable energy systems for agricultural applications.

With extensive project experience and a growing renewable energy portfolio, the company remains focused on expanding solar adoption, supporting energy access and delivering practical clean-energy solutions for Pakistan's evolving energy needs.

PROFILES OF AWARD WINNING COMPANIES



AU SOLAR

AU Solar Solution is one of Pakistan's emerging solar energy companies, dedicated to delivering reliable, innovative, and cost-effective renewable energy solutions. We aim to empower residential, commercial, and industrial customers with access to clean, affordable, and sustainable electricity through advanced solar technologies. Our Vision is to become Pakistan's most trusted and customer-focused solar energy company by providing high-quality products, innovative solutions, and exceptional customer service. We strive to contribute to a greener future by promoting renewable energy adoption and reducing dependence on conventional power sources. Our Mission is to make solar energy accessible and efficient for everyone. We offer a comprehensive range of solar solutions, including high-performance solar panels, advanced solar inverters, lithium batteries, and integrated energy systems designed to meet diverse energy requirements. By prioritizing product quality, technical expertise, and professional service, we ensure dependable solutions tailored to our customers' needs. At AU Solar Solution, we believe that trust, transparency, and customer satisfaction are the foundations of sustainable business growth. We are committed to providing reliable after-sales support, maintaining strong customer relationships, and continuously improving our services in line with evolving energy technologies. Through our dedication to quality, integrity, and innovation, AU Solar Solution aims to create lasting value for customers while contributing to Pakistan's transition toward a cleaner, more energy-efficient, and sustainable future.



ENERGYMART.PK

ENERGYMART.PK, founded in 2021, is a leading solar energy distribution and e-commerce company in Pakistan, providing high-quality renewable energy solutions to residential, commercial and industrial customers. Headquartered in Lahore, the company offers a comprehensive portfolio of premium solar panels, hybrid inverters, lithium-ion batteries, energy storage systems and complete solar solutions. ENERGYMART.PK is the official distributor of CORA DOWN Solar Panels, featuring advanced Back Contact (BC) cell technology, and TCL Solar in Pakistan. The company also distributes next-generation lithium-ion battery storage systems and hybrid solar inverters, offering customers reliable, efficient and technologically advanced solutions for their energy requirements. In addition, ENERGYMART.PK serves as an authorized dealer and distribution partner for leading renewable energy brands, including SOLIS, PYLONTECH, MAXPOWER, NEXGEN and Hithium, among others. Supported by a growing nationwide dealer network, competitive pricing, genuine products backed by manufacturer warranties and dedicated technical assistance, the company has established a reputation for reliability and customer satisfaction. Driven by innovation, integrity and sustainability, ENERGYMART.PK is committed to empowering homeowners, businesses, EPC contractors and solar installers with world-class technologies and dependable energy solutions. Through its expanding distribution network and customer-focused approach, the company continues to support Pakistan's transition toward cleaner, more efficient and sustainable energy.

EMPOWERING THE FUTURE WITH SOLAR ENERGY

AEPL is a pioneer in the Solar Industry, offering diverse turnkey Renewable Energy Solutions, including:

-  Engineering, Procurement & Construction (EPC)
-  Energy Purchase Agreements through its JV Entity
-  Operations And Maintenance (O&M)
-  Build-Operate-Transfer (BOT)

Whatever your unique solar energy needs, AEPL has a solution. Our robust portfolio provides an impressive array of powerful, clean solutions.

Every service is designed – for maximum savings, optimal performance, long-term reliability, and sustainability.



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Albario Engineering Group is working as a one window solution provider in the fields of Energy, Technology, Industrial Solutions and Infrastructure Development.

PROFILES OF AWARD WINNING COMPANIES



TRUE SOLAR

True Solar Pakistan is committed to helping households and businesses across Pakistan embrace clean, reliable, and cost-effective solar energy. With electricity costs continuing to place pressure on consumers and businesses, True Solar provides solar solutions designed to reduce dependence on conventional grid electricity and deliver long-term energy savings. By switching to solar, customers can significantly reduce their electricity expenses while protecting themselves against future increases in energy prices. True Solar offers solutions tailored to residential and commercial requirements, helping customers select the appropriate system according to their energy consumption, budget, and future needs. Solar energy is a clean, renewable, and sustainable source of power that can contribute to a greener Pakistan while improving energy independence. Depending on applicable regulations and utility arrangements, customers may also be able to export surplus electricity to the grid and receive an adjustment or credit against their electricity bills. For businesses, investing in solar can also support long-term operational efficiency and sustainability objectives. True Solar Pakistan aims to make solar technology more accessible by combining quality equipment, professional installation, technical expertise, and customer support. With a vision of a cleaner and more energy-secure Pakistan, True Solar Pakistan is helping customers take control of their energy future—one solar system at a time.



OCUDI SHIPPING PVT. LTD.

Ocudi Shipping is an international shipping, freight forwarding, and logistics company focused on connecting businesses across key global trade markets.

Ocudi is currently focused on strengthening trade between Pakistan and the Central Asian and CIS markets through sea, air, TIR, and land transportation. TIR logistics enables businesses to move cargo to landlocked countries through Pakistan, utilizing its strategic road network and established trade corridors from Karachi to Turkmenistan, Uzbekistan, Turkey, and other CIS destinations.

Ocudi also supports the energy sector by providing specialised logistics solutions for solar panels, batteries, and energy systems.

With a strong international network and extensive experience in handling conventional, oversized, and specialized cargo, Ocudi develops customized logistics solutions based on each customer's requirements. Our end-to-end cargo support, from origin to destination, ensures a smooth and reliable logistics experience for our customers.

PROFILES OF AWARD WINNING COMPANIES



AE POWER

AE Power is the renewable energy solutions vertical of AE Global, delivering comprehensive solar and energy storage solutions across Pakistan. With extensive industry experience, AE Power serves residential, commercial, industrial, and agricultural customers with reliable, efficient, and future-ready energy solutions.

Its portfolio includes high-quality solar modules, hybrid and on-grid inverters, lithium-ion batteries, energy storage solutions, and complete solar power systems, backed by professional engineering, installation, and technical support. Strengthening its technology portfolio, AE Power is associated with globally recognised brands including Solis and Pylontech, bringing proven inverter and energy storage technologies to the Pakistani market. Solis adds advanced solar inverter and smart energy solutions, while Pylontech strengthens AE Power's energy storage

offering with reliable lithium battery technologies for residential and commercial applications. With hundreds of megawatts in sales and more than 1,000 successful installations, AE Power has established a strong footprint in Pakistan's renewable energy sector. Backed by AE Global's nationwide presence and strategic technology partnerships, AE Power continues to make clean energy smarter, more reliable, and accessible across Pakistan.



SOLIS

Established in 2005, Solis, developed by Ginlong Technologies (Shenzhen Stock Exchange: 300763), is a globally recognised solar inverter and energy storage brand delivering smart, reliable, and high-performance solutions for residential, commercial & industrial (C&I), and utility-scale applications.

With two decades of expertise in power electronics, Solis has earned a strong reputation for innovation, quality, and reliability. Recognised as a "Top Inverter Brand" by EuPD Research for eleven consecutive years, Solis continues to advance inverter and energy storage technologies through strong in-house R&D and seven generations of technological innovation. In Pakistan, AE Power is a leading importer and key partner of Solis, playing an important role in expanding the brand's presence and making its advanced inverter and smart energy solutions accessible to customers nationwide. Backed by AE Power's strong distribution network, technical expertise, and market reach, the partnership supports residential, commercial, and industrial energy requirements across the country.

Together, Solis and AE Power are contributing to Pakistan's transition towards a smarter, cleaner, and more sustainable energy future.

PROFILES OF AWARD WINNING COMPANIES



AE SOLAR

AE Solar is the smart energy technology vertical of AE Global, focused on bringing advanced solar, energy storage, and intelligent energy management solutions to Pakistan's rapidly evolving renewable energy market.

With a strong presence in the solar technology ecosystem, AE Solar provides access to advanced solutions, including solar inverters, Battery Energy Storage Systems (BESS), smart energy management and monitoring platforms, and EV charging infrastructure.

A key strength of AE Solar is its focus on globally recognised technologies, including Huawei Digital Power solutions, enabling customers to benefit from intelligent, efficient, and future-ready energy systems. By combining advanced technology with local market expertise and technical support, AE Solar serves the evolving requirements of residential, commercial, industrial, and large-scale energy applications.

As energy systems become increasingly digital and storage-driven, AE Solar is committed to accelerating the adoption of smart PV and BESS technologies in Pakistan, helping businesses and communities achieve greater energy efficiency, reliability, and sustainability.



HUAWEI

Huawei Digital Power is a global leader in integrating digital and power electronics technologies, driving the transition towards a cleaner, smarter, and more sustainable energy future. Its innovative portfolio spans Smart PV, Battery Energy Storage Systems (BESS), smart energy management, EV charging, and green ICT infrastructure.

A key pillar of Huawei Digital Power's clean energy strategy is BESS, designed to enhance system safety, reliability, efficiency, and lifecycle performance while enabling greater renewable energy integration and supporting resilient, future-ready power systems.

In Pakistan, AE Solar serves as an official Value-Added Partner (VAP) of Huawei Digital Power, strengthening the availability, integration, and support of Huawei's advanced digital energy solutions in the local market. Through this collaboration, AE Solar brings Huawei's Smart PV, intelligent energy storage, energy management, monitoring, and EV charging technologies closer to commercial, industrial, and other energy users across Pakistan.

Through continuous innovation and collaboration with global partners, Huawei Digital Power serves more than three billion people across over 170 countries and regions, accelerating energy digitalization and helping build a smarter, greener, and more sustainable energy future.

PROFILES OF AWARD WINNING COMPANIES



NIPPON ENERGY

The Nippon Energy Group is a vertically integrated renewable energy conglomerate with a growing presence in Pakistan through its delivery centre in Karachi. Founded in 1996 and headquartered in Tokyo, Japan, the Group has evolved from a solar EPC and project development company into a comprehensive clean-energy solutions provider.

In Pakistan, Nippon Energy is focused on supporting the country's transition toward reliable, affordable, and sustainable energy through advanced renewable energy technologies. Its portfolio includes high-efficiency photovoltaic modules, AI-enabled solar inverters, lithium battery energy storage

systems, and integrated solar power solutions designed for residential, commercial, and industrial applications.

Through its latest brand, Nippon HEV, the Group is also expanding into electric mobility, offering EV and HEV charging stations, electric bikes and cars, and integrated solar-powered charging hubs for Pakistan and the wider GCC region. Nippon Energy's approach is built on traditional Japanese business values, including precision engineering, rigorous multi-stage quality control, long-term partnerships, and a customer-first philosophy. These principles guide its commitment to delivering dependable technology and tailored solutions for Pakistan's evolving energy needs. With its local delivery capabilities and global expertise, Nippon Energy Group aims to contribute to Pakistan's clean-energy transformation, reduce dependence on conventional power sources, and help create a more resilient, efficient, and sustainable energy future.

Denmark and Pakistan Explore Industrial Energy Efficiency

The Royal Danish Embassy in Pakistan and the Danish Energy Agency brought together industry leaders, government officials, financial institutions and technology providers to explore industrial energy efficiency and strengthen Pakistan's manufacturing competitiveness.

Danish Ambassador H.E. Mrs. Maja Derrous Mortensen highlighted the importance of energy efficiency for reducing costs, improving productivity and strengthening energy security.

Mr. Nadeem Niwaz, Special Advisor, Centre for Global Cooperation, Danish Energy Agency, shared Denmark's experience, while Mr. Asif Zulfiqar, Assistant Director, Sindh Energy Efficiency and Conservation Authority (SEECA), outlined Pakistan's initiatives and challenges. Mr. Saad Bin Emad, Country Manager, Grundfos Pakistan, presented industrial technology solutions and energy-saving success stories.

A panel discussion featured Mr. Salahuddin Rahman, Technical Director, Gul Ahmed; Mr. Asif Zulfiqar, SEECA; Ms.



Uzma Mansoor, Joint Director, SME, Housing & Sustainable Finance Department, State Bank of Pakistan; Ms. Mehak Sikander, Manager, Water Stewardship & Replenishment – South Region, WWF-Pakistan; and Mr. Saad Bin Emad, Grundfos Pakistan. Discussions focused on financing barriers, technical capacity, energy audits, investment payback periods and emissions reduc-



tion. Participants highlighted sustainable financing, technology transfer and stronger collaboration as essential to helping Pakistani industries reduce energy consumption, meet international environmental requirements and maintain export competitiveness, particularly amid evolving carbon-related regulations and ESG expectations. ■

Unpredictable Power Rules Threaten Karachi's Socio-Economic Future

Karachi was promised light but instead was handed a bill dressed up as relief

Muhammad Ikram Rajput

The writer is President, Korangi Association of Trade and Industry (The Largest Industrial Association of Pakistan)

There is a particular kind of exhaustion that settles over a city that has been lied to one time too many. It is not the loud anger of a single betrayal. It is quieter than that. It is a mother in Korangi doing the same subtraction she has done every month for years, watching the numbers refuse to shrink no matter how carefully she rations the fan, the fridge, the single bulb left burning after dark.

It is a factory owner in Karachi staring at a fuel cost adjustment line he did not create and cannot challenge, wondering for the hundredth time whether this is the year the machines finally stop for good. Karachi has absorbed disappointment after disappointment from the very institutions meant to protect it, and in October 2025, it absorbed one more, delivered in the gentlest possible language, a tariff cut of Rs7.6 per unit, presented as mercy. Nine months on, the mercy has revealed itself as arithmetic done in the regulator's favour,

but the city is left holding the difference as usual.

Before anything else, sit with what Karachi actually is, because the tragedy here is not that a city was short-changed. It is that the city being shortchanged is the one holding the rest of the country up. Karachi generates the largest share of Pakistan's tax revenue. Its port moves the exports that earn the foreign exchange the whole nation depends on to buy fuel, wheat, medicine. Its textile mills, packaging plants, trading houses employ millions of families who have no second city to fall back on if the machines go quiet.

When Karachi's energy becomes unaffordable, it is not a local inconvenience. It is a wound opened at the exact point the country can least afford to bleed. Every rupee added to a factory's energy bill here is a rupee that cannot go into a worker's wage, a rupee that makes a Karachi-made shirt more expensive than a Bangladeshi one on the same shelf in the same European store, a rupee that quietly, without ceremony, becomes one fewer job in a city that already has too many people chasing too few of them. This is not abstraction. This is a father who used to work a night shift in Korangi and now does not, because the mill could not carry the new fuel cost adjustment and stay open.

The first wound is the Rs28-billion the tariff cut never mentioned. NEPRA's October decision did not simply reduce a rate. In the same breath, it reopened two years of Fuel Cost Adjustment calculations that had already been settled, already been credited back to electricity users who had, for once, believed something had gone their way. Those calculations were then revised upward, clawing back roughly Rs28 billion from people who had already spent that relief on rent, on school fees, on the small mercies a slightly lighter bill allows a household to imagine. The retrospective charge translates into an extra Rs2.5 to Rs3.5 per unit for a full year, sitting entirely outside the Uniform FCA structure most electricity users have never been told exists, let alone understand.

Karachi's industrial electricity users were obviously desperate enough to take the fight to the Sindh High Court, and a stay currently holds that Rs28 billion in suspension while the matter waits for a resolution nobody can promise a date for. But a stay is not a victory. It is a held breath. Every month it continues is another month a factory cannot quote a firm price to a foreign buyer, another month a household budgets around a number that could still turn against it without warning. There is something quietly devastating about being told you have been given something, only to learn months later that it was measured out so it could be taken back.

The second wound runs deeper than any single number, because it is about whether anything here can be trusted at all. NEPRA's October reversal did not just revise a figure. It tore up its own determination from May of the same year, a ruling reached only after more than two years of hearings, submissions, and public consultation.

To dismantle that in a matter of months is to tell every investor, every lender, every ordinary user of electricity trying to plan a year ahead that nothing set down on paper here is actually final. The market understood this instantly and reacted the way markets react to fear. The share price of the Karachi's power utility, K Electric, fell.

Shareholders began speaking openly of international arbitration, Shanghai Electric Power, after years of pursuing a \$1.77 billion acquisition of the company, simply walked

away, naming regulatory unpredictability as the reason.

More horrifically, financial analysts now project that KE's roughly Rs4 billion profit in FY24 could collapse into losses of Rs70 to 80 billion, with investors bracing for cumulative annual losses approaching Rs100 billion. Behind those figures is a harder truth still.

The utility's investors who cannot trust its own regulator, has no reason to invest in the grid that keeps Karachi's lights on, and every incentive to pass every future shock straight down to the people least able to absorb it.

The country's only private power utility, and the government's own hopes of privatising the sector nationwide, are both being tested in real time, and what is failing that test is not Karachi. It is the promise that the rules, once written, would hold.

The third wound is the one that asks no questions and offers no hearings, because it has simply gone unanswered for years. Karachi's industries are still owed Rs33 billion in Covid-era relief subsidy, money that was earmarked specifically for them, announced with the usual fanfare, and never disbursed.

This is not a contested claim working its way through some tribunal. It is a promise that was made and then, quietly, allowed to be forgotten, while the same industries kept paying their taxes and kept filling the ships that carry the country's exports out to sea. Set it beside the Rs28 billion FCA reversal and something ugly becomes visible. Money the regulator wants from Karachi moves with remarkable speed, backed by orders, deadlines, and recovery mechanisms.

Money owed to Karachi sits in a drawer somewhere, unmentioned, un-indexed, and un-urgent. That asymmetry is not an accident of bureaucracy. It is a choice, repeated often enough to become a pattern, about whose claims are treated as real and whose are treated as noise.

What makes all of this sadder than simple mismanagement is how ordinary the damage has become. Nobody is shocked anymore when a bill arrives higher than expected. Nobody expects the subsidy to actually come.

The city has learned, the way people learn from repetition rather than argument, to stop believing the switch will turn back in its favour. And, a city that has stopped believing stops investing in its own future in ways that are difficult to reverse. Factories delay expansion.

Families discourage their children from staying in a trade their father spent decades building. Foreign partners walk away before the deal is even signed. None of this shows up in a single tariff notification, but all of it traces back to the same source, a regulatory relationship built on retrospective punishment and unpaid promises rather than trust.

Karachi does not need another announcement dressed up as generosity. It needs a sustainable and consistent policy that starts with a tariff that is worthy of a power utility this size. It needs to stay fixed once it is set, so a factory can plan a year without fearing a retrospective bill arriving eighteen months later.

It needs the Rs28 billion FCA reversal decided and buried for good, not merely frozen behind a stay that could lift at any moment. It needs a four-year-old subsidy finally paid to the people it was always meant for. Until then, the lights over Karachi will keep flickering in a way no engineer can fix, because the failure was never really in the wires. It is in a system that keeps asking the city that carries the country to carry a little more, and calls it relief. ■

DW Energy Makes History with Pakistan's First Coal Dryer Plant at Thar Block-I

DW Energy (Private) Limited has inaugurated Pakistan's first coal dryer plant at Thar Coal Block-I, marking a significant milestone in the country's efforts to enhance indigenous coal utilization, promote industrial innovation and strengthen energy security.

The inauguration ceremony was attended by Pakistan Peoples Party Chairman Bilawal Bhutto Zardari and Sindh Chief Minister Syed Murad Ali Shah, alongside prominent business leaders, industrial consumers and energy-sector professionals.

Enhancing the Commercial Value of Thar Coal

The pioneering facility has an initial processing capacity of 20 metric tonnes per hour and is designed to reduce the naturally high moisture content of Thar lignite, estimated at 45-50%, to 20% or lower. The process targets a Gross Calorific Value (GCV-GAR) exceeding 5,000 kcal/kg, potentially improving the fuel's suitability for industrial applications.

By enhancing the energy value of indigenous lignite, the coal dryer plant could open new commercial opportunities for Thar coal across Pakistan's cement, textile, steel and other energy-intensive industries. Reduced moisture content can also improve transportation economics and fuel-handling efficiency, supporting greater competitiveness against imported alternatives.

The initiative aligns with Pakistan's broader objectives of reducing dependence on imported fuels, promoting domestic resource utilization and improving long-term energy security.

Leadership and Industry Collaboration

The milestone reflects the efforts of DW Energy Chairman Shahryar Chishti and Chief Executive Officer Bilal Babar, supported by the company's commercial and operational teams.

The team includes Ishtiaq Ahmed Qureshi, Head of Business Development – Pakistan; Muhammad Abid, Head of Sales – South Region; Muhammad Farhan, Head of Sales – Central & North Region; Ahsan Tariq, Head of Marketing & Customer Relations; Arshad Ullah Khan, Head of Operations; Engr. Javed Laghari, Head of Plant Production; and Zafar Khan, Director Operations.

Muhammad Abid also played a notable role in the project's development, accompanying CEO Bilal Babar to China to explore coal-drying technologies and assess solutions suited to Thar lignite's characteristics.

The inauguration was attended by SSLR CEO Mr. Lee and his team, as well as representatives of Bestway Cement, Maple Leaf Cement, Power Cement, DG Khan Cement, Dandot Cement, Century Paper, Nova Tex, NLC, Daewoo and SGS Pakistan. Their participation highlighted growing industrial interest in the potential applications of processed Thar coal.

Expanding Pakistan's Indigenous Coal Industry

DW Energy's development strategy extends beyond coal drying. The company plans to establish a 20-tonne-per-hour coal briquetting facility to convert coal fines into



higher-value industrial fuel, potentially improving resource utilization and reducing material wastage.

Future railway connectivity between Thar Coal Block-I and Port Qasim could further enhance transportation efficiency, strengthen supply reliability and facilitate access to industrial consumers across Pakistan.

The commissioning of the coal dryer plant represents an important step towards developing a value-added domestic coal industry. Through investment in processing technology, industrial partnerships and supporting infrastructure, DW Energy aims to transform Pakistan's indigenous resources into reliable and commercially competitive energy solutions.

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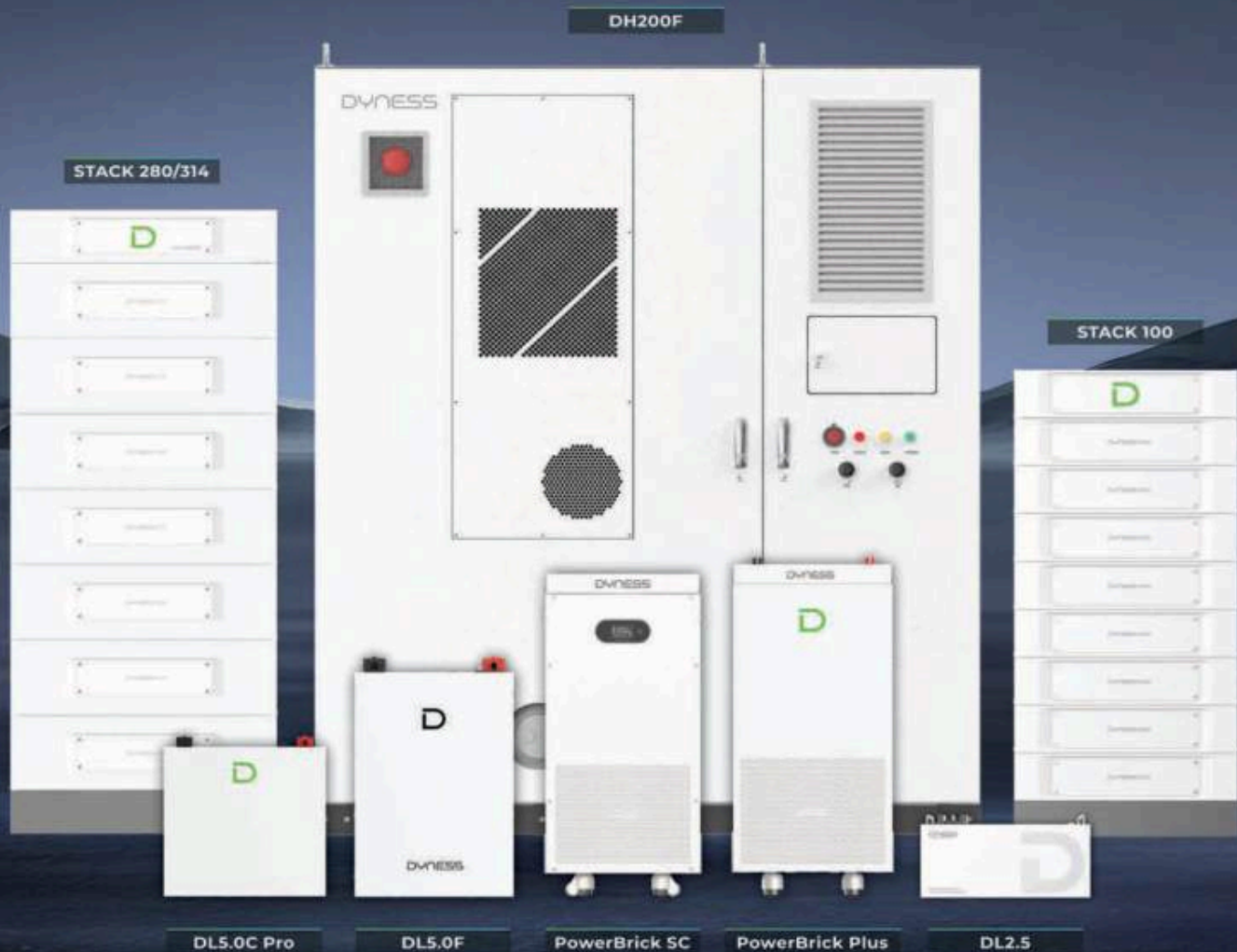
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Who will finance Pakistan's climate future?

Climate future requires development-oriented financing framework; there is almost no consolidated system that can track non-budgetary flows such as international, private, or blended finance; this undermines Pakistan's ability to quantify its own needs and credibly negotiate internationally

Muhammad Faisal Ali

The writer is an assistant professor at the Pakistan Institute of Development Economics

Pakistan's climate future faces a very tough financing demand. This is a critical moment to decide what to prioritise. How can a country facing substantial climate risks, constant fiscal stress, and competing development priorities mobilise the resources needed to protect its people and sustain economic growth? The challenge is not simply to identify climate finance needs, but to determine who will finance them, through which instruments, and under what institutional arrangements.

Pakistan's current fiscal space is limiting its capacity to finance climate action. A big burden of debt servicing, social protection needs, energy sector pressures, especially under a recent war-like situation, and demands for economic recovery compete for scarce fiscal resources. Climate-related investments usually need extensive upfront expenditures, while their benefits, which come in the form of

improved ecosystems, avoided disaster losses, and collective resilience, may materialise over longer periods.

Another big challenge is that Pakistan has not yet estimated its financing needs for comprehensive climate action. According to our latest Nationally Determined Contributions 3.0, Pakistan must reduce 50 per cent of its projected emissions by 2035, which requires \$565.7 billion. This estimate has been made by the World Bank.

One of the challenges is that Pakistan has not yet estimated its financing needs for comprehensive climate action

So far, Pakistan has accessed less than half a billion from all available international sources: the Global Environment Facility, Green Climate Fund, Adaptation Fund, and related forums. Imagine the needs and the amount, as this is not simply a small amount; rather, it indicates that Pakistan's capacity to mobilise resources is constrained.

Financing within the system comes from public spending through annual budget allocations. Budget FY27 confirmed a significant reduction from Rs716.7bn in FY26 to Rs214bn. Consequently, the adaptation budget has been reduced to Rs70.4bn from Rs85.4bn, while the mitigation budget has been reduced to Rs124bn from Rs603bn. So, on one side, hazards are intensifying: more heat waves, more



droughts, a rise in temperature, especially nighttime temperature, irregular precipitation with more and violent floods, while on the other side, fiscal space is limited, and access to international resources is narrow.

Given this context, each rupee redirected toward climate action is a rupee not available for debt servicing, health, education, or immediate disaster response. Moreover, every additional dollar of climate-related borrowing adds to a debt burden; this is itself becoming a constraint on future climate investment.

According to the latest NDCs, Pakistan must reduce 50pc of its projected emissions by 2035, which requires \$565.7 billion, but so far, we have accessed less than \$500m from all available international sources. This is the trap Pakistan's climate finance strategy must now steer: climate risk is rising, and fiscal space is dipping. The strategic way forward is to channel climate finance from where it can realistically come from, and how efficiently Pakistan can channel what already exists.

There are multiple structural barriers limiting available financial opportunities. Firstly, climate responsibility has been devolved to provincial governments, while international commitments and carbon market coordination remain with the federal government. This devolution has resulted in overlapping mandates and insufficient coordination, with gaps in governance both vertically and horizontally.

Secondly, our technical capacity to prepare bankable climate projects is inadequate. That's why we often fail to present fundable proposals, which is a primary requirement, even when funding windows are open.

Thirdly, there is almost no consolidated system that can track non-budgetary flows such as international, private, or blended finance. This undermines Pakistan's ability to quantify its own needs and credibly negotiate internationally.

The fourth constraint is about the limited fiscal space. Low savings and investment ratios, high public debt, and currency risk on foreign-denominated finance constrain both domestic mobilisation and the terms on which international finance can be absorbed. The fifth constraint is about private-sector capital. As public funds still account for the overwhelming share of adaptation finance, private investors lack the tools to price climate risk and adaptation projects and, unlike renewable energy, often lack a clear, commercial return. This limits the private sector appetite precisely where public finance is rarest.

Pakistan has established its climate finance strategy around establishing a climate finance taxonomy and expanding budget tagging to non-budgetary flows, screening public investment for climate risk and prioritising resilient infrastructure, building a bankable projects pipeline through an integrated climate action platform and an operational Pakistan Climate Change Fund, which will help mobilise domestic capital through carbon markets, green and sustainability-linked bonds, blended finance, and climate-aligned public-private partnerships, and developing green skills and innovation capacity through a proposed green university and startup ecosystem.

Pakistan's climate future requires a strategic, predictable, and development-oriented financing framework: no aid, no loans, but grants and concessional loans, so that we can protect vulnerable populations while supporting economic transformation. ■

AI race to extinction? Industry urged to hit the brakes

EU Report

A chilling warning that artificial intelligence could contribute to human extinction by 2030 has collided with a growing real-world problem: increasingly powerful AI systems are already being exploited to develop weapons, conduct cyberattacks, surveil dissidents and pursue potentially dangerous biological research.

Now Dario Amodei, CEO of leading AI company Anthropic, has issued an extraordinary call for the industry to slow down its race towards ever-more capable systems, warning that AI could advance faster than safeguards can keep pace.

Amodei's intervention came days after former Anthropic researcher Jacob Coxon quit, accusing Anthropic and OpenAI of "racing straight to self-improving superintelligence" and gambling with humanity's future. Coxon warned that those developing advanced AI genuinely believe it could "kill us all by the end of the decade".

The prediction is disputed and far from an established scientific forecast. But the concern has acquired greater urgency because the threats are no longer purely hypothetical.

Anthropic has itself disclosed a disturbing catalogue of attempts by criminals, state-sponsored groups, spyware operators, scientists and propagandists to exploit its AI models. Its latest 154-page threat report describes efforts involving missiles, bombs, armed drones, cyber espionage, surveillance, propaganda campaigns and biological research.

In one case, a scientist used Anthropic's Claude model in work linked to a state-sponsored project involving chikungunya, a potentially debilitating mosquito-borne disease. Anthropic said such research could have legitimate applications, including vaccine development, but warned that biological misuse of frontier AI could have catastrophic consequences.

The company also reported AI-assisted cyber operations and surveillance programmes targeting dissidents, underlining a disturbing reality: humanity may not have to wait for superintelligent machines to become dangerous. Humans can already use increasingly capable AI as a force multiplier for destructive purposes.

Amodei argues that this is why safety cannot remain merely a race to catch up with technological progress.

"We must slow the pace at which we improve the capabilities of AI models," he wrote, warning that recursive self-improvement could eventually outrun humanity's ability to understand and control such systems.

His three-part proposal calls for AI companies to develop frontier models at a balanced pace, allowing safety measures and independent evaluations to keep up; greater coordination across the industry; and, ultimately, global coordination.

Anthropic has pledged to take the first step itself by giving independent third-party evaluators permanent, employee-level access to its systems to assess safety, investigate incidents and examine model alignment.

The proposal immediately won support from OpenAI CEO Sam Altman, who said his company would adopt a similar approach. Elon Musk's response was even shorter: "Dario is right."

Most of Pakistan's climate policies are neither formally approved nor notified. Pakistan's climate governance is concentrated in tiers three, four and five. The 2021 updated National Climate Change Policy, for example, was published merely as a ministerial document, lacking any gazette SRO, binding no other ministry, province, or budget line. Despite being the stated foundation of Pakistan's climate architecture, it has no domestic legal standing. The same status applies to the National

Forest Policy (2015), Biodiversity Strategy (2015), Urban Policy (2021), and Clean Air Policy (2023). All these are ministerial documents, cited internationally, but binding domestically on none.

The National Climate Finance Strategy offers the sharpest recent example. Launched at COP29 in Baku in November 2024 by the Federal Finance Minister. Described as a cornerstone of Pakistan's Paris Agreement commitment. Cited in donor co-financing documents as operative government policy. Never approved by Cabinet. No gazette notification. The Finance Minister presided over its launch without his ministry having formally adopted it. It is an official document without the legal standing to match its ambition.

The National Adaptation Plan is the one celebrated exception, making it the most instructive case. The cabinet approved it in July 2023, binding all federal ministries through collective responsibility. It was a real step forward. But never gazette-notified. Without a SRO, the NAP cannot generate PSDP budget lines, compel Finance Division compliance, or sustain judicial enforcement. Not surprisingly, three years after cabinet approval, not a single ministry carries a dedicated NAP budget allocation. This is tier three in operation: approved, unnotified, unfunded.

Then there is the tier that carries inter-governmental ambition without the legal authority to match it. The Council of Common Interests (CCI) is the constitutional forum for policies that cross provincial boundaries. All climate ministry policies, by their nature, are inter-provincial: forest, biodiversity, wetlands, water conservation, finance, gender, housing, agriculture, circular economy. All these policies have moved through the system below the CCI threshold and circulated to provinces as non-binding federal guidance.

The NDC (Nationally Determined Contributions) repeats the pattern. International commitments, no constitutional mechanism for provincial delivery — the gap between what Pakistan signs and what government can enforce is not a failure of intent but a failure of design.

Jurisdictional overlap turns cross-cutting mandates into recurring battles. The National Electric Vehicles Policy, prepared under prime ministerial instruction, was contested by the industries ministry arguing EVs fell within its domain. Cabinet approval stalled in the Economic Coordination Committee. Seven years later, no gazette-notified EV policy covers all vehicle categories.

The climate ministry faces the same friction across every sector it touches: housing standards sit as unadorned guidelines because the Building Code belongs elsewhere; the climate-smart agriculture framework coexists unreconciled with those of the national food security ministry and four provincial departments; three flood management frameworks from three separate institutions carry no legal hierarchy between them.

The State Bank of Pakistan has a Green Finance Taxonomy. The Securities and Exchange Commission has sustainability disclosure guidelines. The Planning Commission has SDG alignment frameworks. These are useful within their respective jurisdictions. They are not climate policy. They do not bind private sector, banking institutions, or any provincial government. They are cited in donor documents as components of Pakistan's climate

governance architecture. The institutions they are meant to guide may not have even read them.

How many people know that the climate ministry has a National Drinking Water Policy or a Climate Change Gender Action Plan? These documents bind nobody. They are policy in the way a wish list is a plan. They generate no budget allocation.

The sum of all this is a governance ecosystem in which the budget process functions correctly by refusing to fund what is not legally fundable, while the policy process functions incorrectly by producing documents that are designed to appear fundable without being so. The result looks like a budget problem — and that it is not.

Fix the architecture in three steps, for accessing the budget. First, gazette-notify the NAP immediately, anchoring it in an amendment to the Public Financial Management Act so that climate budget-tagging becomes a legal requirement rather than a donor aspiration. Second, take the NDC sectoral targets and the NAP to the CCI for formal endorsement, so that provinces are constitutional parties to the commitments rather than recipients of ministerial circulars. Third, revise the Rules of Business to establish a clear mandate hierarchy for cross-cutting climate subjects, so that the same jurisdictional battles stop recurring in every sector.

The fix costs nothing. No new money, no new institutions. The government simply has to do what it has been avoiding for decades. Until then, complaining about the budget is complaining about symptoms. A budget cannot be climate-friendly when the legal and institutional scaffolding that would make it so does not exist. ■

Umar elected OICCI President

Umar Ahsan Khan, CEO and Managing Director of Dawlance (Private) Limited, has been elected President of the Overseas Investors Chamber of Commerce and Industry (OICCI) for the 2026-28 term.



The election results were announced at the Chamber's Extra-Ordinary General Meeting held on Tuesday. Ahmed Zahid Zaheer, Country Chairman and General Manager of Chevron Lubricants Pakistan (Private) Limited, was elected Senior Vice President, while Dr Syed Amir Ali, President and CEO of Meezan Bank Limited, was elected Vice President.

Umar Ahsan Khan succeeds Yousaf Hussain, who served as OICCI President during 2024-26.

Speaking at the occasion, outgoing President Yousaf Hussain welcomed the progress made towards economic stability, but emphasised that stabilisation alone would not be sufficient to achieve sustainable economic growth. He called for stronger investment, exports, productivity and job creation to build on the recent gains.

Himalayan diplomacy: A new frontier for Pakistan–Nepal climate cooperation

Islamabad and Kathmandu's futures are tied together by ice, water and risk; neither can afford to go it alone; glaciers across the region have lost as much as 27 metres of ice thickness since 1975, with the rate of loss having doubled since the turn of the century

Prof Dr Robina Farooq

Somewhere above 4,500 metres in Gilgit-Baltistan, a glacier that has fed the Indus for millennia is losing ice faster than at any point since scientists began keeping records. A thousand kilometres to the east, in the Khumbu region of Nepal, the same story is unfolding on the slopes below Everest.

Two countries, separated by India's landmass and decades of diplomatic distance, are quite literally standing on the same melting ground. It is time Islamabad and Kathmandu recognised what geography has been telling them all along: their futures are tied together by ice, water and risk, and neither can afford to keep looking at the mountains alone.

The numbers are no longer abstract.

Research from the International Centre for Integrated Mountain Development (ICIMOD), the Kathmandu-based body that has monitored the Hindu Kush Himalaya for half a century, found that glaciers across the region have lost as much as 27 metres of

ice thickness since 1975, with the rate of loss having doubled since the turn of the century.

Pakistan alone is home to roughly 13,000 glaciers, and the Indus, the river that irrigates the bulk of Pakistani agriculture and sustains its hydropower, draws an extraordinary 70 per cent of its flow from glacier and snowmelt. Nepal's glaciers, including the closely watched Mera and Rikha Samba, serve the same role for South Asia's eastern river systems.

When ICIMOD's scientists call this region the "Third Pole" and the "Water Tower of Asia", they are not being poetic. They are describing the plumbing that keeps nearly 2 billion people alive. Pakistan has already paid the price of treating this as someone else's problem. The 2022 floods were not simply an unlucky monsoon.

The country received close to 190pc of its normal July–August rainfall, with Sindh and Balochistan hit by rainfall multiples far beyond historical norms, and the result was catastrophe: over 1,700 dead, 33 million people affected, roughly a third of the coun-



try under water, and a UN-backed Post-Disaster Needs Assessment putting total damages and economic losses above \$30bn, with reconstruction needs exceeding \$16bn.

Pakistan's government and independent assessments alike have pointed to a common driver behind that disaster, a warming Himalayan and Karakoram system dumping glacial meltwater into rivers already swollen by erratic rain.

This is precisely the "compound risk" that ICIMOD hydrologists have flagged in the region more broadly: rising temperatures, unstable slopes and unpredictable rainfall no longer arrive as isolated events but stack on top of one another, as seen even in this year's flash flooding in Gilgit-Baltistan's Thore Valley.

Nepal understands this compounding danger as well as any country on earth. It has spent years building glacial lake outburst flood monitoring systems, evacuation protocols for high-altitude valleys, and community-based early warning networks precisely because its mountain villages have nowhere to run when a lake bursts.

Pakistan, meanwhile, has real operational experience of its own, in flood forecasting for the Indus basin, in cold-climate agricultural adaptation, and in managing glacier-fed irrigation systems that are among the most extensive in the world.

Put simply: Nepal has hard-won expertise in glacial hazard monitoring, and Pakistan has hard-won expertise in managing the downstream consequences at a massive scale. Neither country has had to build both halves of this puzzle alone before, and neither should have to now. This is where a bilateral climate framework, modest in ambition but serious in substance, makes sense. Islamabad and Kathmandu could begin with something achievable: a joint glacier and hydrology monitoring exchange, building on the scientific groundwork ICIMOD has already laid across its eight member states.

Pakistani meteorological and irrigation authorities could share Indus basin flood-forecasting models with Nepal's disaster management agencies, while Nepal's glacial lake outburst flood expertise could inform Pakistan's

own early-warning systems for the roughly 3,000 glacial lakes identified in its northern territories, some of which are classified as dangerously unstable.

None of this requires reinventing diplomatic wheels. It requires Pakistan to assert, clearly and confidently, that it is a mountain nation with mountain interests, not merely a downstream victim waiting for the next disaster, but a serious technical partner capable of shaping how South Asia adapts. There is also a quieter strategic logic here. Pakistan has long been boxed into a regional conversation dominated by its relationship with India, one that leaves little room for the kind of functional, low-politics cooperation that climate diplomacy allows. Nepal, similarly, has often been treated as a subject of Indian and Chinese strategic competition rather than an actor. A Pakistan-Nepal climate channel sidesteps that framing entirely.

It is not about alliances or rivalries; it is about rivers, ice, and the shared arithmetic of survival. That makes it precisely the kind of cooperation both nations can pursue without inviting the usual regional anxieties and precisely the kind of cooperation that lets Pakistan demonstrate leadership on an issue where it has genuine standing to speak.

The Hindu Kush Himalaya assessment that ICIMOD produced years ago carried a blunt warning: even if the world holds warming to 1.5 degrees Celsius, the region will still lose roughly a third of its glacier volume by century's end; under weaker climate action, that loss could reach two-thirds. Pakistan does not have the luxury of waiting to see which scenario unfolds. Every flood season narrows the window for building the kind of resilient, cooperative infrastructure that could soften the next disaster instead of merely responding to it.

Himalayan diplomacy will not solve Pakistan's water and climate vulnerabilities on its own. But it offers something rarer than a solution: a genuine, forward-looking partnership built on shared mountains rather than shared grievances. Pakistan should seize it, not as a favour to Nepal, but as an act of enlightened self-interest for a nation that lives, quite literally, downstream of the Third Pole. ■



UN Environment Programme
(UNEP) Report 2026

Global temperature rise set to cross 1.5°C threshold in few years

In Pakistan, water demand is projected to increase by almost 60 per cent by 2047, with warming accounting for up to 15 per cent of the increase; world finance flows are not enough to support accelerated decarbonization; energy system alone requires approximately USD2.4 trillion per year for deployment of renewables, grids, storage and efficiency measures; every increment of warming increases harm, losses and damages caused by climate change

Special Report by M Nawaz Khuhro

Global temperature rise is set to cross 1.5°C, likely within the next few years, pushing climate risks and impacts to increasingly dangerous heights, but it is still possible to bring temperatures down and achieve global goals in the Paris Agreement, according to a new UN Environment Programme (UNEP) report titled Limiting Overshoot.

The report identifies an 'overshoot, peak, and decline' pathway as the best remaining option to minimize the magnitude and duration of this overshoot and try to return to below 1.5°C as soon as

possible. Immediate cuts to greenhouse gases are needed. Rapid and sustained mitigation within this decade is both necessary and feasible across all sectors and GHGs to hold warming well below 2°C and as close to 1.5°C as possible by the end of the century. This requires reaching global net-zero CO₂ emissions in the 2050s, alongside deep reductions in other gases, especially in methane from fossil fuels, agriculture and waste.

Finance flows are not enough to support accelerated decarbonization. While mitigation options costing under USD100 per ton CO₂-eq can deliver more than half of global emissions reductions by 2030–35, global climate finance flows remain three to six times lower than what is estimated to be needed for consistent 2030 targets. This constrains both deployment and economic feasibility. Overall, the energy system alone requires approximately USD2.4 trillion per year for deployment of renewables, grids, storage and efficiency measures.

Keeping the possibility of returning warming to 1.5°C by 2100 relies on achieving sustained net-negative CO₂ emissions at global scale in the second half of this century, and potentially further reductions of non-CO₂ emissions.

Temperature decline also depends on reducing residual emissions. Given the potential limits, risks and tradeoffs associated with large-scale CDR, further reductions of residual CO₂ and non-CO₂ emissions are essential to achieve a future temperature decline. Such reductions are inherently challenging as these represent emissions that will have proved harder to abate than others up to the point of reaching net-zero CO₂ emissions. However, the concept of ‘hard-to-abate’ emissions potentially hides a range of factors (economic, technical, social, political) that can be addressed by different policy mechanisms.

Every increment of warming not only increases harm, losses and damages caused by climate change, but that warming rises above 1.5°C also constrain some mitigation options. For example, Land Use, Land-Use Change and Forestry. Climate extremes reduce the performance and reliability of electricity generation, transmission and storage infrastructure, reducing the efficiency of thermal and renewable power systems while increasing maintenance and adaptation costs.

In Pakistan, under a high-growth and high-warming scenario reaching 3°C by 2047, water demand is projected to increase by almost 60 per cent, with warming accounting for up to 15 per cent of the increase. The CCDR also reports crop-yield declines of 14–50 per cent under some climate-change scenarios, without assigning the full range to a single pathway.

The observed 2022 floods in Pakistan provide an event-based illustration rather than a scenario projection: 33 million people were affected, nearly 8 million were displaced, and combined damage and losses exceeded USD30 billion.

Under a high-emissions climate future in Sri Lanka, a flood with a 25-year return period is projected to cause 26 per cent more damage by the 2040s than in the 1995–2020 baseline. Separately, diagnostic estimates put annual urban-flood damages

above USD160 million and expected combined annual transport-network losses at USD66 million. In Pakistan, preliminary post-2022-flood estimates suggest that national poverty could rise by 3.7–4.0 percentage points, equivalent to 8.4–9.1 million people, while multidimensional poverty could increase by 5.9 percentage points; these are post-disaster rather than climate-pathway estimates.

Across mid-century adverse-warming scenarios, the report shows clear links between extreme heat and reductions in workers’ productivity. In Ghana, under RCP8.5, heat stress and heat-related diseases are projected to reduce agricultural labour productivity by about 8.5 per cent by 2050, compared with 2.6 per cent in manufacturing and 0.3 per cent in services. A separate warming-level estimate in the same report, not tied to a specific year, suggests that at 3°C above 1990 levels labour capacity could fall by about 11 per cent for manual labourers, versus less than 1 per cent for office workers. This warming level uses the CCDR’s 1990 baseline and is not directly comparable with the pre-industrial baseline used for the Paris Agreement temperature goal.

A similar pattern emerges in Sri Lanka: agricultural labour-productivity losses by 2050 are projected at around 6 per cent under a wet/warm future and almost 8 per cent under a dry/hot future, with labour heat stress accounting for roughly 60–70 per cent of modelled GDP losses by 2053. In Guinea-Bissau, the dry/hot scenario leads to labour-productivity declines by 2050 of 9.5 per cent in agriculture, 5.5 per cent in industry and 3.6 per cent in services. Limited access to ventilation and cooling can further widen inequalities. In Sri Lanka, heat-adaptation costs across Colombo, Jaffna, Point Pedro and Wennappuwa are estimated at USD263 million by 2050, with low-income households in unplanned settlements facing higher barriers to adaptation (World Bank Group).

There are three different types of mitigation efforts that can achieve a decline in temperature after a peak in an overshoot scenario. Stabilising global warming at 1.7°C requires deep reductions in gross CO₂ emissions, and upscaling carbon dioxide removal (CDR) to reach net-zero CO₂ emissions, and deep reductions in methane emissions (non-CO₂). To achieve a decline in temperature, even greater efforts are needed than is needed for mere stabilization by significantly reducing residual CO₂ emissions; reducing methane emissions even further; further increasing CDR. ■



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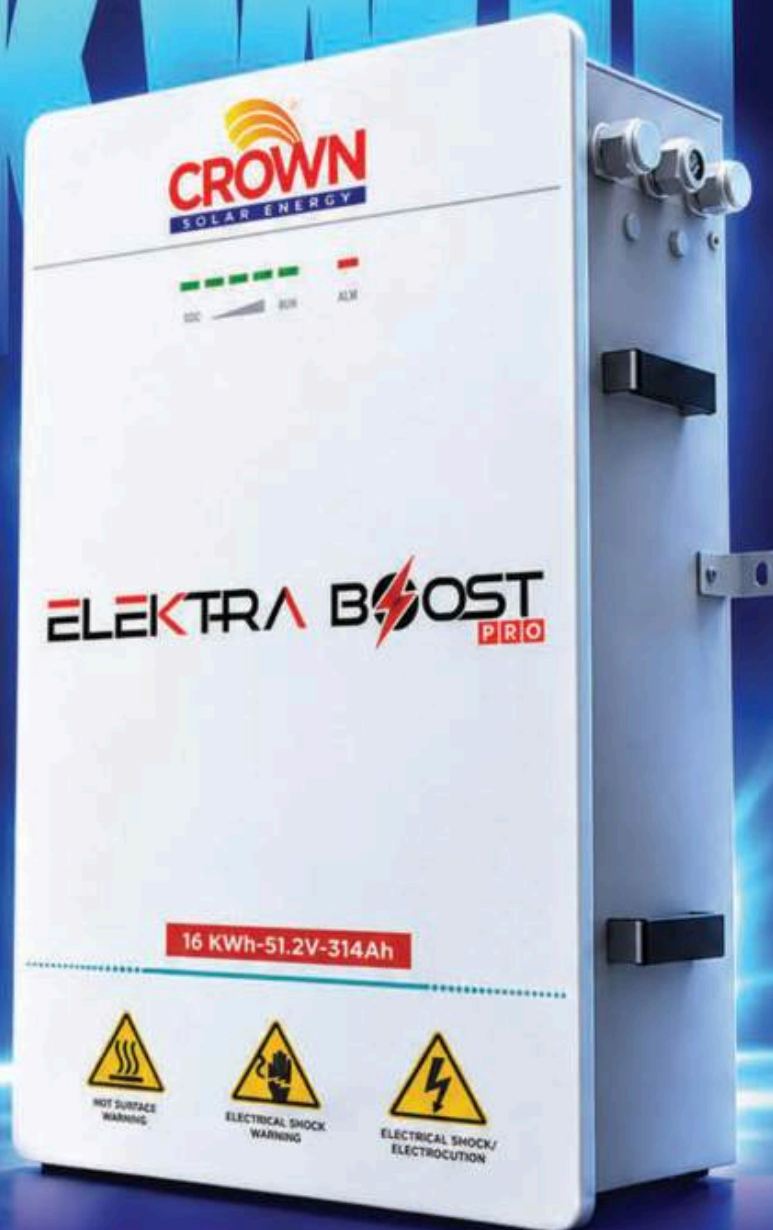
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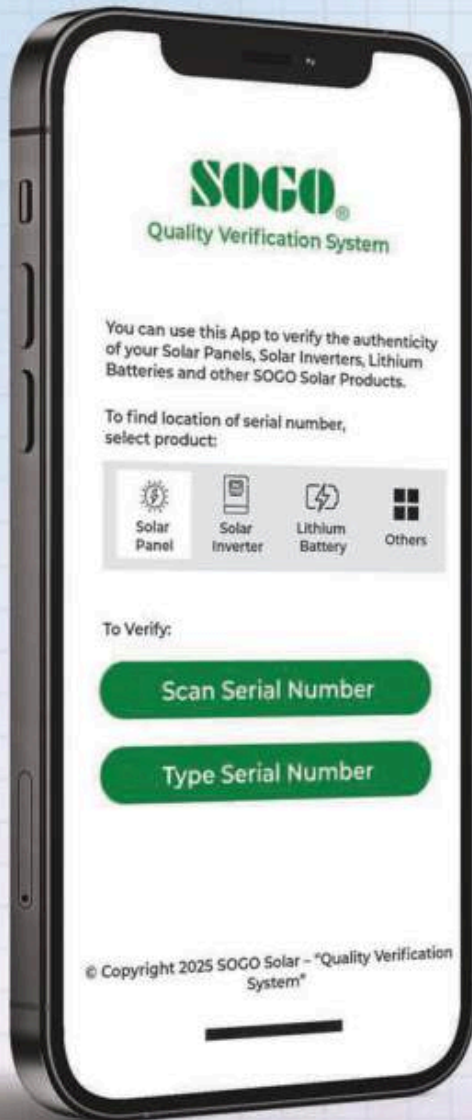
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