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ENERGY UPDATE

TAXING THE SUN: INDUSTRY SOUNDS ALARM OVER **18% GST ON IMPORTED SOLAR PANELS**

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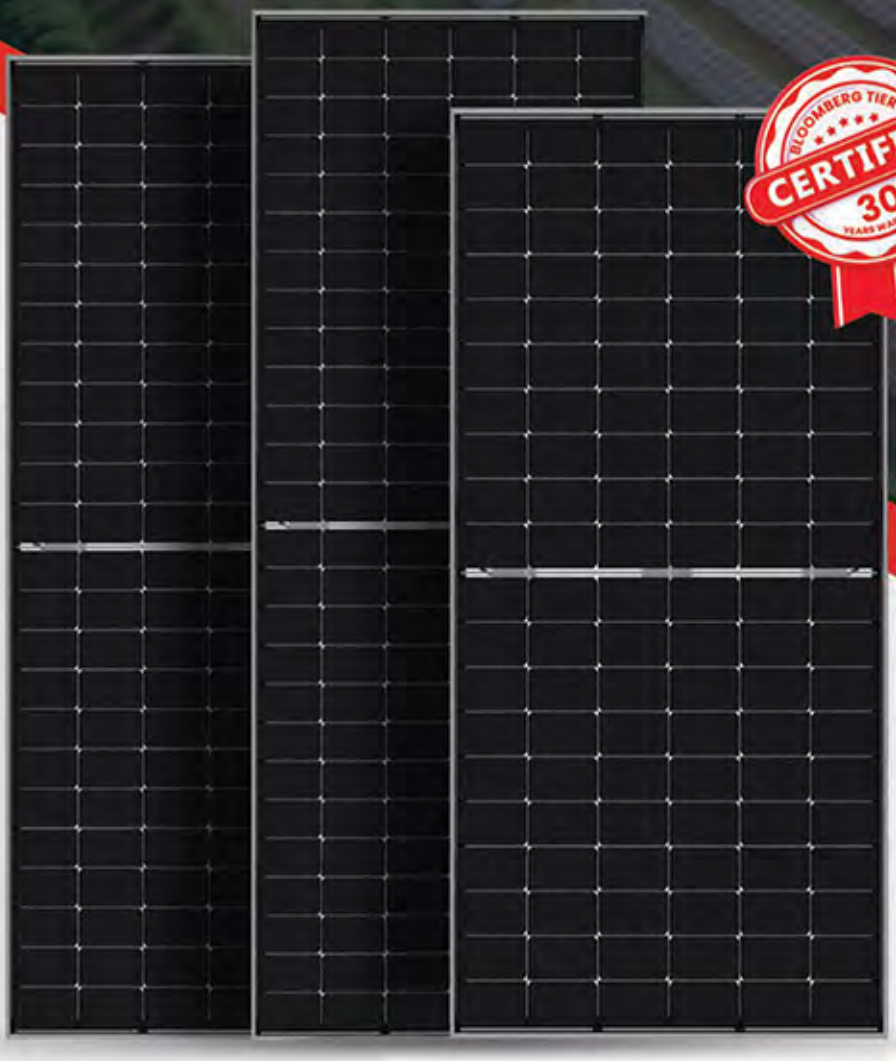

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FROM THE

Editor's desk...

Budget Ignores Public Pain

Pakistan has unveiled its federal budget for the 2025-26 fiscal year with a high outlay of Rs17.573 trillion. One of the most alarming shares of this budget is the ever-increasing allocation for debt servicing, which is Rs8.207 trillion, while defence spending has been raised to Rs2.550 trillion.

The new taxes of Rs500 billion will be imposed, while it has been proposed to raise the petroleum levy from Rs78 to Rs100 per liter, which is a shocking thing. The budget also introduced a 5 per cent tax on large pensions, an 18pc tax on imported solar panels, and an increase in the debt servicing surcharge on electricity to finance not only interest payments, but also principal debt. Subsidy allocations have been reduced by 14pc, which will affect the general public.

This leaves meagre funds for priority areas that include education, healthcare, and employment generation. The public continues to bear the cost of this mismanagement through higher taxes and reduced services. Overall, the budget has ignored the general public's pain of high inflation and the burden of taxes, particularly on petroleum products and electricity bills.

Despite repeated promises of tax reforms, the budget continues to burden the salaried class and small businesses. The removal of certain levies, such as the petroleum development levy, could have provided immediate relief to inflation-hit citizens, but no such move was made. The petroleum products may see further price hikes due to new tax proposals.

A low relief is seen as pensions have been slightly increased, and the minimum wage has been raised to a low level. However, the Benazir Income Support Programme (BISP) has also received an increase in allocation, which is a positive step.

These measures are not enough to counter the harsh impact of rising inflation, which has remained in double digits for several years now. With food, fuel, and utility prices skyrocketing, a small salary or pension raise cannot cover the gap.

The budget fails to present a concrete plan for controlling inflation, which is affecting every segment of society, particularly devastating low and middle-income groups. With no meaningful steps toward price control, food security, or agricultural reform, inflation is likely to continue eroding the purchasing power of the masses.

To create a balanced budget that truly serves the people, the government should stop taking heavy IMF loans, cut unnecessary official expenditures, and shift towards progressive taxes targeting luxury income, properties, and assets of the elite class.

There is also a need to ensure the provision of subsidies for food, fuel, and medicines to protect vulnerable people, besides investing in new jobs and supporting farmers. The budget falls short in providing real and lasting relief.

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Taxing the Sun

Industry Sounds Alarm Over 18% GST on Imported Solar Panels

Mustafa Tahir

Writer is Deputy Editor of Energy Update

Tax could reverse hard-earned progress in transition towards clean energy; a slowdown in installations could negatively affect the demand for allied products such as inverters, batteries, and wiring systems

The Government of Pakistan's recent proposal to impose an 18% General Sales Tax (GST) on imported solar panels has sparked widespread concern across the renewable energy sector. Industry experts warn that the tax could reverse hard-earned progress in the country's transition towards clean energy, raising costs for consumers and businesses alike while failing to spur meaningful local manufacturing.

A Blow to Clean Energy

Pakistan has seen steady growth in solar energy adoption in recent years, driven by the need to reduce dependence on fossil fuels and counter soaring electricity prices. The proposed tax, however, threatens to make solar energy unaffordable for households, industries, and agricultural users.

Stakeholders fear that the new policy will stifle this growth. "An 18% GST on imported solar panels could derail Pakistan's shift towards clean and accessible energy," one industry analyst observed. "This will raise costs for end-users and reduce the overall attractiveness of solar installations."

Moreover, the slowdown in installations could negatively affect the demand for allied products such as inverters, batteries, and wiring systems — diminishing tax revenues from these sectors and limiting the wider solar ecosystem's growth.

Energy Affordability and Economic Ripple Effects

Industry leaders are warning that the tax will significantly raise the cost of electricity for businesses and manufacturers, reducing their competitiveness both locally and internationally. Higher production costs will likely translate into increased prices for goods and services, burdening consumers already struggling with inflation.

"Middle-income families will see their disposable incomes shrink further," one senior economist warned, "and that will have far-reaching consequences for Pakistan's domestic markets and overall economic health." The agricultural sector, heavily reliant on solar-powered tube wells for irrigation, is also expected to suffer. With rising solar installation costs, farmers may no longer be able to afford energy-efficient solutions, endangering food security.

Domestic Manufacturing: A Distant Dream?

While the government appears motivated by a desire to encourage local production, experts argue that the country's solar manufacturing capacity remains extremely limited and underdeveloped.

Inverex: Tax Alone Not Enough

Zakir Ali, CEO of Inverex, supported the government's intention in principle but highlighted that supportive policy mechanisms are essential to make local production viable.

"We need tax-free zones for

manufacturers and duty exemptions on imported equipment," he said. "Otherwise, this tax will just inflate prices for consumers and encourage smuggling through grey channels, which would destabilise the market." Ali proposed a more balanced approach: a modest 5% protective duty on imported finished panels, combined with strong facilitation in terms of finance, technology access, and investor incentives.

Mian Fahad, Country Director for Growatt in Pakistan and neighbouring countries, explained that local manufacturing currently contributes less than 10% of the national solar demand. 'Production is restricted by a lack of access to advanced technology, expensive imported raw materials, and a shortage of skilled labour," he noted.

He further argued that the proposed tax may discourage imports but would not lead to significant growth in local production. "A phased approach would be more effective — including tax exemptions on raw materials, investment in R&D, and targeted skill development," he suggested.

Ground Realities: A Lack of Capacity

Shaaf Mehboob, CEO of Adaptive Technologies, offered a blunt assessment: "To the best of my knowledge, no real solar panel manufacturing is currently happening in Pakistan. The core challenges — lack of advanced technology, raw materials, and skilled labour — remain unaddressed."

This view is echoed by **Maroof Zuberi**, COO of ESL Renewables, who said that while some local manufacturing exists, it is limited to low-wattage panels using outdated technology. "Without economies of scale and significant foreign investment, we cannot expect Pakistan to produce advanced solar panels locally."

He added, "Solar technology evolves rapidly. Pakistan is not yet in a position to produce globally competitive products. Taxing imports may only benefit a few small manufacturers at the cost of national solar adoption."

PSA: Tax May Undermine National Energy Goals

The Pakistan Solar Association (PSA) has submitted a detailed representation to the Ministry of Power, urging reconsideration of the proposed GST. While the association supports the vision of domestic industrial development, it contends that the tax may do more harm than good.

"There is no high-efficiency solar panel manufacturing currently in Pakistan," said PSA Chairman **Waqas Moosa.** "Existing producers are using old P-type technology and producing small wattage panels — not comparable with imported options."

He noted that less than 3% of the national requirement is met locally and that promoting manufacturing must not come at the expense of national access to efficient and affordable solar energy. "Policy must strike a balance between quality access for consumers and long-term industrial goals," he emphasised.

The PSA recommends alternative strategies, such as phased incentives for local assembly and R&D; GST exemptions for residential and small-scale buyers, and tax relief on the import of solar raw materials and machinery.

Agriculture at Risk

PSA Vice-President **Afaq Ahmed** voiced concerns over the tax's impact on the agricultural sector. He pointed out that many farmers rely on solar energy to power irrigation systems affordably.

"With panel prices rising, farmers will be forced to use more expensive diesel or grid electricity," he warned. "This will increase production costs, reduce agricultural yields, and fuel inflation across food markets."

A Call for Balanced Policy

Industry voices are united in calling for a more nuanced approach. Encouraging domestic solar manufacturing is a worthy objective, they argue, but it must be pursued through strategic support, not immediate and heavy taxation.

"The proposed GST risks halting Pakistan's clean energy momentum at a critical juncture," said one industry veteran. "We need policies that foster both affordability and investment in innovation."

In conclusion, the 18% GST on imported solar panels may inadvertently slow down Pakistan's renewable energy ambitions. Industry leaders, investors, and energy experts have urged the government to revisit the proposal and introduce policies that enable, rather than restrict, the country's path to energy sustainability. ■

INDUS WATER TREATY

SUSPENSION BY INDIA CARRIES SERIOUS IMPLICATIONS

WAPDA Chairman **Lt Gen Sajjad Ghani (Retd)** in an interview with Energy Update says India's actions could disrupt hydrological data sharing, alter flow timings during critical crop seasons

M. Naeem Qureshi
Managing Editor Energy Update

Energy Update conducted an interview with WAPDA Chairman Lt Gen Sajjad Ghani (Retd), in which he stated that India's unilateral decision to hold in abeyance the Indus Waters Treaty (IWT) carries serious implications. Mr Ghani said that the President of the World Bank has asserted that the IWT cannot be unilaterally held in abeyance without mutual consent from both Pakistan and India. The WAPDA chairman further said that due to limited storage, Pakistan loses an estimated 27 MAF of water annually to the Arabian Sea during high-flow periods. The economic value of this lost water is nearly US$27 billion per year.

The detailed interview is given below:

Q1. What is the current status of water inflows and availability across Pakistan's major rivers and reservoirs?

Ans: As of June 4, 2025, Pakistan is witnessing moderate to increasing water inflows due to the onset of snow-melt in the upstream catchment areas. Major rivers—Indus, Kabul, Jhelum, and Chenab—are contributing significantly to national water availability. For example:

Indus at Tarbela: **81,400 cusecs**
Jhelum at Mangla: **33,200 cusecs**
Chenab at Marala: **25,000 cusecs**
Kabul River at Nowshera: **23,300 cusecs**

Despite these inflows, the combined live storage in key reservoirs—Tarbela, Mangla, and Chashma—is only 4.205 MAF. This figure is 106% above the last five-year average. The total reservoir storage capacity of 13.354 MAF is just sufficient for 30 days of national water needs. This situation underscores the critical need to expand storage capacity, as Pakistan approaches water scarcity thresholds.

Q2. How does India's recent suspension of participation in the Indus Waters Treaty affect Pakistan's water security?

Ans: India's unilateral decision to hold in abeyance the Indus Waters Treaty (IWT) carries serious implications. The President of the World Bank has stated

that the IWT cannot be unilaterally held in abeyance without mutual consent from both Pakistan and India.

In the short term, India's actions could disrupt hydrological data sharing, alter flow timings during critical crop seasons (e.g., Rabi sowing, early Kharif irrigation), and create artificial scarcity during dry spells.

In the long term, unilateral upstream control increases unpredictability in river flows. The treaty has served as a key legal safeguard for Pakistan's water rights under international law. Its weakening introduces significant geopolitical and environmental risks. Pakistan is actively engaging with global institutions to address these threats and reinforce legal protections.

Q3. How many major dams and storage projects are under construction, and what are their timelines?

Ans: Under its 'Decade of Dams' initiative, WAPDA is accelerating the development of multipurpose water and energy infrastructure. Key ongoing projects include:

Diamer Basha Dam
(Completion: 2029–30)
Live storage: **8.1 MAF**
Power: **4,500 MW**

Mohmand Dam **(2027–28)**
Storage: **1.2 MAF** | Power: **800 MW**

Dasu Hydropower Project – **Stage I (2026–27)**
Type: **Run-of-the-river**
Power: **2,160 MW**

Tarbela 5th Extension **(2026)**
Power: **1,530 MW**

Kurram Tangi Dam – **Phase I (2025)**
Irrigation: **16,000 acres**
Power: **19 MW**

These projects will add over 9 MAF of water storage and significantly reduce reliance on seasonal flows.

The Chenab River remains particularly vulnerable, as Pakistan currently has no major storage on this river. To address this, a storage dam on the Chenab is urgently needed. The feasibility study and detailed design of Chiniot Dam are complete, and the project could be launched within a year.

Q4. What is Pakistan's current water storage capacity, and how much water is lost annually due to insufficient storage?

Ans: Pakistan's total live water storage capacity is approximately 13.354 MAF, down from the original 16.7 MAF due to sedimentation. This capacity allows for only 30 days of storage, far short of the internationally recommended minimum of 120 days.

Due to limited storage, Pakistan loses an estimated 27 MAF of water annually to the Arabian Sea during high-flow periods. The economic value of this lost water is nearly US$27 billion per year. This highlights the urgency of constructing new reservoirs and adopting efficient water management practices.

Expanding water storage is crucial to capturing surplus flows and building resilience against climate variability, including floods and droughts.

Q5. What are the likely economic and agricultural consequences of worsening water scarcity, especially for key crops, and what measures are being taken?

Ans: Water scarcity poses a serious threat to Pakistan's agriculture-based economy. Key crops such as wheat, rice, and cotton, which are vital for food security and exports, are highly water-intensive. Reduced water availability could lead to lower crop yields, food shortages, rise in rural poverty, and macroeconomic instability

To mitigate these risks, WAPDA and government agencies are implementing a multi-pronged approach:

Fast-tracked development of dams and canal systems Promotion of water-efficient irrigation (e.g., drip and sprinkler systems) Coordination with provincial departments for optimal cropping patterns Strengthened groundwater management Support for farmers through subsidies, crop insurance, and extension services These efforts aim to safeguard livelihoods and ensure food security amid growing climate challenges. ■

Lighting the path to energy equity

The global energy scenario is transforming; clean energy is central to sustainable development

Dr Intikhab Ulfat

Every semester, I return to a familiar question while addressing my students: What will power the world when fossil fuels are no longer available? It is a question that moves beyond classroom curiosity. For students in physics, it represents a challenge they will be called upon to answer in real life.

From our laboratories to the underserved communities on the fringes of our cities, the urgency for clean and dependable energy is not abstract. It is immediate and deeply felt. In Pakistan, we are caught between rising demand for electricity and increasing instability in supply. The limitations of conventional fuel sources and the environmental damage they cause are now impossible to ignore. The time to act has already arrived.

The global energy scenario is transforming. Clean energy is no longer an experimental field. In fact it is central to sustainable development. The pressure to shift away from fossil fuels is driven by rising fuel costs, the threats of climate change, and the desperate need to bring electricity to billions who still live without it. For developing countries like ours, the situation is even more critical. We must innovate or remain locked in cycles of shortage and pollution.

In both my teaching and my research at the University of Karachi, I see the transition to renewables not as a distant policy matter but as a deeply practical and scientific challenge. Students are no longer simply learning the basic laws of thermodynamics or electromagnetism, they are applying these principles to design the next generation of energy solutions.

One of the most promising developments in recent years is the rise of what are called Hybrid Renewable Energy Systems. These systems combine more than one energy source (such as solar, wind and biomass) along with energy storage methods like batteries. The goal is to provide a stable and uninterrupted power supply, even when the weather or environmental conditions fluctuate.

These systems are ideal for areas where the power grid does not reach or is unreliable. In such settings, a hybrid system can act as a standalone solution, with solar panels providing energy during the day, wind turbines contributing during breezy hours, and batteries storing excess energy for use at night or during cloudy days. The results can be transformative. Homes lit, clinics powered, crops irrigated, and schools enabled to function with basic electronic tools.

However, building such systems is not simple. They must be carefully designed to match the local energy needs and environmental conditions. A system that is too large can waste resources, while one that is too small will fail to deliver adequate energy. Optimisation is the key. In our department, students and researchers are using computer models, artificial intelligence and advanced control methods to finetune these systems for real world use.

Technology alone is not enough. Public policy, investment and education all play crucial roles. Countries that have succeeded in clean energy adoption did so not just by building turbines and panels but by fostering a culture of research, removing administrative barriers, and supporting early stage projects. Pakistan needs a strong roadmap for renewable energy that encourages local innovation and international cooperation.

The road ahead is long, but there is cause for hope. In the enthusiasm of students, in the quiet determination of researchers, and in the small but growing examples of clean energy projects in our country, we can see the beginnings of change. Every time a student in my class asks how energy from the sun becomes electricity, I am reminded that knowledge is the seed of transformation.

The journey to a sustainable energy future will require many steps. It demands engineers, scientists, educators, policymakers and citizens to work together with resolve. It begins not with massive installations or sweeping declarations, but with thoughtful questions, careful experiments and a commitment to building a better tomorrow — one clean watt at a time. ■

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Converting surplus MWs into jobs

Ammar H Khan

The writer is assistant professor of practice at IBA, member of the Tariff Determination Thar Coal Energy Board, and CEO, NCGCL

Availability of surplus power in the country, often a source of fiscal constraints, can become the cornerstone of a new industrial policy aimed at attracting energy-intensive manufacturing to the country, integrating value chains, and increasing exports. A surge in consumption of electricity through solar and an increasing prevalence of battery storage at a household level will continue to erode demand from the grid at an accelerated level, which can potentially threaten grid stability.

However, integrating the same into the planning process and allocating surplus power to energy-intensive manufacturing can provide the necessary demand, as well as a stimulus to economic growth and jobs.

Such reallocation of surplus power would require a transition away from an archaic and often pedantic ivory-tower-driven view of cost-plus pricing, which is grossly inefficient in terms of allocating resources. There is a dire need to move towards a marginal cost regime, wherein surplus power can be auctioned or made available to industries or sectors that generate incremental economic value, whether that is through exports, job generation, or simply higher industrial growth.

There needs to be a rethink of what kind of industrial growth we want, and that should drive decisions regarding power pricing while also ensuring no cross-subsidies or direct subsidies are at play.

At this point, Pakistan has an opportunity to develop an energy-intensive industry stack that may include steel, copper smelting, aluminium, and other energy-intensive industries. An incentive framework can be created wherein surplus power is made available at marginal cost, while both forward and backward integration processes can be initiated and completed before a sunset period.

The kind of industrial growth we want should drive decisions regarding power pricing while also ensuring no cross or direct subsidies are at play

Another area that can substantially benefit from the availability of power at marginal cost is cold-chain infrastructure within the agricultural space, which is non-existent at this point. A lot of the same can be attributed to a distorted tax policy which actively discourages any value-addition, but also due to the high cost of power for such interventions, which makes most such projects uneconomical. A blend of solar and grid would effectively reduce power costs in a way that can make many such projects feasible – but the same needs to be designed in a way that is long-standing and not dependent on the whims of one office or another.

A World Bank working paper tracking

the "return of industrial policy" counted a surge of subsidy-fuelled interventions after 2008, noting that subsidies now distort trade four times more than tariffs in manufacturing sectors. The same study stresses that climate goals and supply-chain security are the dominant motives, with import barriers and domestic subsidies as the preferred instruments.

Supporters argue that carefully targeted state intervention can surface a "latent comparative advantage", industries that markets overlook because early movers bear discovery costs.

A scorecard for an effective, successful industrial policy is suggested by the economist Dani Rodrik through design principles that measure results, keep incentives time-bound, and, above all, let losers go. We need to get losers to go and not nurture them to become perpetual infants. Installed generation capacity has galloped far ahead of peak demand, and the gap may continue to increase as the surge in solar adoption and storage of power through batteries continue. This will further shave off demand from the grid, making it economically or even technically unsustainable.

That gap saddles remaining consumers on the grid with capacity-payment surcharges, but it also means thousands of idle megawatts that could be sold at different points during the day, at marginal or fuel-only prices. It is entirely possible to provide electricity in the range of three to five US cents per kWh through a time-of-use mechanism for qualified industrial feeders, focusing on generating incremental demand for electricity and exports. Availability of such power at marginal prices can be tied to an increase in exports.

Even from a legal and regulatory perspective, this would simply mean carving out existing Power Purchase Agreements, such that surplus demand can be mopped up by greenfield or brownfield industries demanding incremental power. Once price certainty can be ensured, domestic and foreign investors alike can gravitate towards investing.

There are two options: allow surplus capacity to remain a budgetary albatross while risking a stranded grid, or convert it into the low-cost electrons that power a new generation of metal, mineral and agrifood exports. Done with discipline, Pakistan's power-led industrial policy could turn a liability into an engine of growth. Done badly, it risks reinforcing the very distortions that critics of industrial policy lament. ■

Capacity payments weigh heavily on electricity users

If we examine the total installed capacity, almost 50pc comes from IPPs

Khalid Hasnain

Although the country's total installed power generation capacity is set to rise to 46,605 megawatts in the outgoing fiscal year (FY25), substantial capacity payments to idle power plants continue to burden electricity consumers nationwide.

However, energy experts in both the public and private sectors remain optimistic that this capacity payment burden — estimated at Rs12 to Rs15 per unit and passed on to consumers — will gradually decline, as the government has halted new power projects and terminated power purchase agreements (PPAs) with several independent power producers (IPPs).

"The issue of capacity payments is not considered very painful during summer, but it becomes more significant in winter when our total electricity demand drops to just 12,000-13,000 MW," a senior official at the Ministry of Energy told Dawn on Monday.

According to the Economic Survey, the country's total installed electricity generation capacity reached 46,605MW, with the energy mix comprising hydel (24.4 per cent), thermal (55.7pc), nuclear (7.8pc) and renewables (12.5pc).

During July-March FY25, total electricity generation stood at 90,145GWh — hydel (30.4pc), thermal (46.3pc), nuclear (19.1pc), and renewables (4.2pc). Electricity consumption during the same period was 80,111GWh, with households accounting for 49.6pc, industrial users 26.3pc, agriculture 5.7pc, and commercial consumers 8.6pc.

According to the survey, six nuclear power plants with a total capacity of 3,530MW supplied 17,174 million units of electricity during July-March FY25.

The 46,605MW installed capacity includes an addition of over 2,800MW through solar net metering, reflecting a 1.6pc increase compared to the 45,888MW recorded in the corresponding period of FY24. While thermal power still makes up the largest portion of the electricity supply at 55.7pc, its share has declined in recent years, indicating a shift towards more indigenous and sustainable sources. Hydel, nuclear and renewable sources now collectively account for 53.7pc of total electricity generation.

"If we examine the total installed capacity, almost 50pc comes from IPPs, including around 5,000MW from four RLNG plants owned by the Punjab and federal governments. Excluding these, the share of IPPs is around 16,000-17,000MW. Of this, 4,000-5,000MW worth of plants remain under annual maintenance. Meanwhile, the generation capacity of old government-owned plants at Guddu (Gencos) has also reduced to almost half or so. So, the generation from IPPs usually stays around 10,000MW during summer," explained an official, on condition of anonymity.

According to him, total generation from IPPs, hydel, nuclear and other non-IPP sources ranges between 33,000MW and 34,000MW, while demand reaches around 32,000MW. "Thus, we roughly pay capacity charges for 1,000-2,000MW in summer and 3,000-5,000MW in winter, when hydel generation declines due to reduced water availability," he said, adding that terminating PPAs with idle IPPs and halting new power projects would help reduce the overall tariffs. ■

Environmental degradation to reduce Pakistan's GDP by 20pc

South Asia's 90 percent population expected to face intense heat

Conventional cooling methods are a major contributor to global greenhouse gas emissions. Demand for cooling solutions expected to triple by 2050, which will lead to even higher emissions; urban climate action is essential for cities to protect their populations

Special Report by Mansoor

Near-surface temperatures in 2025 are predicted to be higher than the 1991-2020 average in almost all regions across the globe, including Pakistan, except for parts of the South Pacific and Southern Ocean.

The annually averaged global mean near-surface temperature for each year between 2025 and 2029 is predicted to be between 1.2°C and 1.9°C higher than the average over the years 1850-1900. There is an 80% chance that at least one year between 2025 and 2029 will be warmer than the warmest year on record (currently 2024). And there is an 86% chance that at least one year will be more than 1.5°C above the pre-industrial level, according to a new report by World Meteorological Organization.

There is a predicted 70% chance that the five-year average warming for 2025-2029 will be more than 1.5°C, according to the report. This is up from 47% in last year's report (for the 2024-2028 period) and up from 32% in the 2023 report for the 2023-2027 period. Every additional fraction of a degree of warming drives more harmful heatwaves, extreme rainfall events, intense droughts, melting of ice sheets, sea ice, and glaciers, heating of the ocean, and rising sea levels.

According to the World Bank, South Asia is facing a sharp rise in extreme weather, with nearly 90 percent of the population expected to be exposed to intense heat and more than one in five people at risk of severe flooding by 2030. With public budgets under pressure, much of the adaptation effort will need to come from the private sector.

More than 60 percent of households and firms have experienced extreme weather in the last five years, and more than 75 percent expect it for the next decade. Many households and businesses are already taking steps to adapt to climate risks. Around 80 percent of households and 63 percent of firms have taken some measures to adapt.

Households with more education or access to formal finance are more likely to adopt advanced strategies. Similarly, better-managed firms with fewer regulatory barriers tend to be more adaptive. Removing these barriers would enable more effective adaptation by households and firms.

"Private sector adaptation could reduce one-third of the region's projected climate damage, but this requires governments to strengthen enabling environments," said Franziska Ohnsorge, World Bank Chief Economist for South Asia. "Adaptation is most effective when markets function well and when essential services like transport, water, healthcare, and digital connectivity are widely accessible."

In Bangladesh, investments in early warning systems and cyclone shelters have helped reduce fatalities during major storms. In India, cities like Ahmedabad are leading with heat action plans to protect urban populations from rising temperatures. They demonstrate how targeted investments and effective institutions can help scale up local adaptation successfully.

Urban climate action is essential for cities to protect their populations, build strong and resilient economic foundations, and meet targets for greenhouse gas mitigation. The economic viability of cities in low- and middle-income countries is in jeopardy because of rapidly increasing climate change hazards and nonresilient urban growth pathways.

The combined risks of extreme climate-related events, environmental degradation, and air pollution are projected to reduce Pakistan's GDP [gross domestic product] by at least 18pc to 20pc by 2050. This will significantly slow down economic progress and hinder efforts towards poverty reduction.

Globally, 56 percent of the world's population lives in cities. Because cities increasingly concentrate people and assets, they also concentrate many climate risks, and cities account for 70 percent of global GHG emissions.

Public capital costs of resilient and low-carbon urban investments in all low- and middle-income countries, across several sectors, are estimated to be about US$256–821 billion annually. This estimate includes the cost of public investments for resilient and low-carbon urban transportation; energy efficiency in buildings; resilience and reduced emissions from urban water supply and wastewater treatment; protection from flood and heat hazards elevated by climate change; and solid waste management to control methane emissions and reduce flooding.

The estimated cumulative capital cost of these investments from 2020 to 2050 is between US$7.9 trillion and US$25.5 trillion. This is equal to US$256 billion and US$821 billion per year, respectively, or 0.8 to 2.6 percent of the combined GDP of L&MICs. The cost of operating and maintaining these investments adds between US$525 billion and US$548 billion each year to these costs, an additional 1.7 to 1.8 percent of GDP.

Expanding access to cooling is essential, but it must be done sustainably. Conventional cooling methods are a major contributor to global greenhouse gas (GHG) emissions, consuming 20% of electricity globally. With demand for cooling solutions expected to triple by 2050, this will lead to even higher emissions. In fact, the Global Cooling Watch 2023 report found that left unchecked, cooling-related emissions could double by 2050 to reach 6.1 billion tons of carbon dioxide equivalent (CO_2e), most of them in developing countries. Emerging economies generate about two-thirds of global cooling-related emissions, and without further action, this share could increase to 80 percent by 2050.

That's where sustainable cooling comes in. These approaches are increasingly seen as the best way to help people and products adapt to rising temperatures while minimizing the impact on the planet. Some of them rely on energy efficiency, while others use insulation, shading, reflectivity, or innovative technologies like district or biomass cooling. Adopting sustainable cooling in developing economies could result in over $8 trillion in avoided costs by 2050 through lower electricity bills and reduced power infrastructure investments.

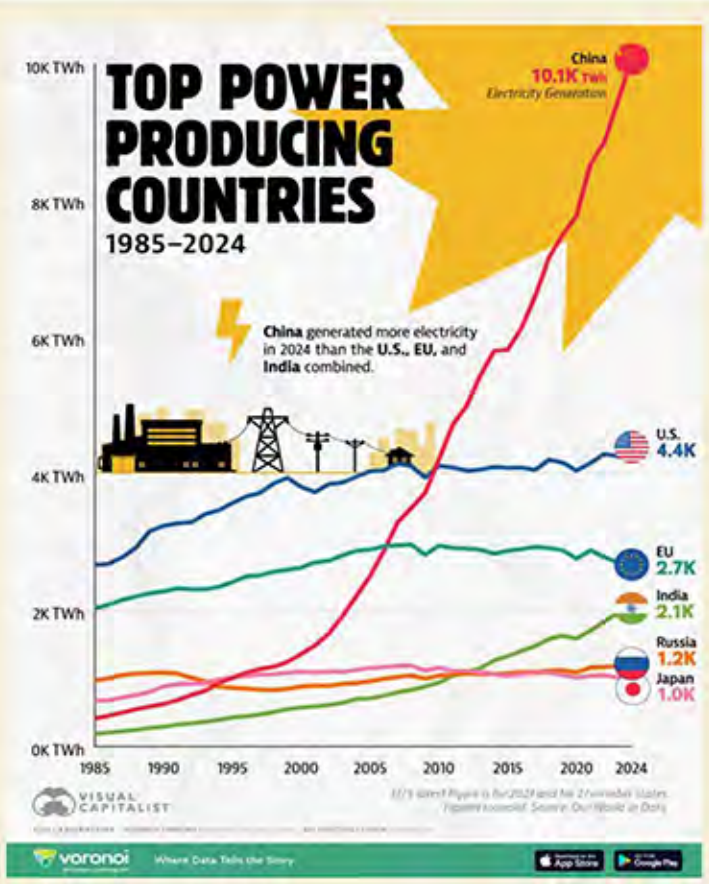
Adaptation to climate change: Cooling technology

As global temperatures rise, the demand for cooling technology will increase as a key climate adaptation strategy. Minimum energy performance standards (MEPS) for cooling products can improve efficiency and reduce emissions. In the United States, a series of MEPS applied to domestic refrigerators over a forty-year period

period led to a 75 percent reduction in electricity consumption and a 50 percent reduction in capital cost (UNEP 2023). At present, however, while 115 countries have established MEPS for cooling and refrigeration technologies, in Asia, Oceania, and Africa, 40 percent to 60 percent of countries do not have MEPS that cover cooling or refrigeration appliances (UNEP 2023). Implementing and updating MEPS can phase out outdated cooling technologies and promote more efficient models. Developing countries must also prioritize passive cooling standards (embedded in building materials and codes), as well as urban planning standards that integrate nature-based options to adapt to increasing heat stress

Supportive Policies Can Help Catalyze Private Investment

Most of the capital needed for scaling up sustainable cooling will need to come from the private sector. With projected market demand of at least $600 billion by 2050, governments and regulators have a critical role to play in making sustainable cooling in developing economies more attractive to private investors – with policies like minimum energy performance standards and new building codes, systems approaches to supply chains, incentives to promote innovation, and the adoption of nature-based solutions for outdoor heat reduction.



China's rapid rise in electricity generation fueled its equally rapid economic growth. In fact, research found that 1% increase in its electricity production corresponded to 0.17% increase in GDP (but not vice-versa).

However, in 2015 the Chinese government mandated a dual control policy to power generation. This meant reducing energy intensity by forcing shutdowns along with developing renewable sources to curb their emissions. For reference, China also produces the most wind and solar energy in the world

If electricity generation (and consumption) correspond so closely to economic growth, then why is China still the second-largest economy in the world when it's far outpaced the U.S. in power production? The answer lies in how electricity is consumed in each country. Data from the IEA shows that industry is the primary consumer for China's electricity.

Country	Main Consumption Sector	Share of Total Electricity Use
China	Industry	59%
U.S.	Residential	8%

On the other hand, America's primary electricity consumers are residential homes. A quick reminder that over the last two decades, manufacturing and heavy industries (with the exception of oil and gas production) have moved to China from the rest of the world, driving its extraordinary economic growth. Meanwhile, the U.S. economy is powered by consumption of goods and high-value services, both which aren't as energy-intensive as manufacturing. Thus, China needs more to power itself because of its economic structure, and not only because it has more people.Finally, the emergence of AI, and the demand for data centers means that U.S. electricity consumption (and generation), which has been steady for the last 20 years, is ticking up again.

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FPCCI Event Marks World Environment Day with Urgent Call to Action

Pakistan produces 55 billion Plastic Bags Annually; Moot Told

M. Naeem Qureshi

Provincial governments in Pakistan should launch mass awareness campaigns to encourage the public to adopt environment-friendly alternatives to plastic shopping bags and PET bottles and to promote the reuse and recycling of waste to reduce the carbon footprint associated with daily consumption habits in society.

This was the key consensus among environmentalists, climate activists, media professionals, and industrialists at an event held to commemorate World Environment Day. The United Nations has designated this year's theme as "Beat Plastic Pollution." The event was jointly organised by the FPCCI's Central Standing Committees on Environment and Sustainable Development Goals (SDGs).

Speakers at the event, held at the FPCCI Head Office, stressed that government-imposed bans on plastic bags can only be effectively implemented if incentives are provided to manufacturers to transition towards environmentally friendly alternatives, such as biodegradable carrier bags. They noted that producers in the plastic industry would naturally cease manufacturing single-use plastic bags if consumers stopped demanding them.

The concerned environmentalist who attended the event told its audience that in recent years, only 9.5 per cent of the 400 million tonnes of plastic produced globally had been made from recycled materials. The majority of the recycled products were produced using fossil fuels, highlighting that the recycling industry should adopt sustainable practices. They highlighted that a recent scientific study showed that microplastics hindered plant photosynthesis, potentially curtailing production of valuable crops by four per cent to 14 per cent. The speaker disclosed that Pakistan produced 55 billion plastic bags annually with a 15 per cent annual increase rate. Plastic waste accounts for over 60 per cent of total urban waste generated in the country, which is a massive cause of environmental degradation. A study conducted along Karachi's coastline detected significant microplastic contamination in marine sediments.

Imran Sabir, Director of Natural Resources at the Sindh Environmental Protection Agency (SEPA), informed the audience that a province-wide ban on plastic shopping and carrier bags would come into effect in Sindh from 15 June, following a decision by the provincial cabinet. He clarified that plastic bags used for wrapping industrial goods, food items, agricultural produce, and merchandise would remain exempt from the forthcoming ban. This exemption, he said, is intended to ensure continued functionality in essential sectors while discouraging non-essential single-use plastics. He added that earlier campaigns led by the Sindh government had successfully phased out the use of more harmful black-coloured plastic shopping bags and promoted the adoption of biodegradable alternatives at major retail outlets and grocery stores in Karachi. He emphasised that the government had already initiated an awareness drive to inform consumers, producers, and shopkeepers about the impending ban.

Afia Salam, senior environmental journalist and climate activist, expressed concern over the public's insufficient support for plastic waste recycling. She noted that inadequate waste collection and recycling infrastructure had led to the widespread littering of plastic bags and bottles in urban areas. Improper disposal of plastic bags, she said, is a leading cause of stormwater drain blockages, which result in urban flooding during the monsoon season. She urged consumers to adopt more responsible habits by rejecting plastic bags.

Zainab Naeem, Research Fellow at the Sustainable Development Policy Institute (SDPI), called on the government to support start-ups and SMEs offering eco-friendly alternatives to plastic products. She encouraged consumers to actively choose items made from recycled materials to reduce the environmental impact of their consumption. She highlighted that Pakistan generates over two million tonnes of plastic waste annually, making its collection, safe disposal, and recycling a formidable challenge.

Haleema Khan, Deputy Convener of the FPCCI Central Standing Committee on SDGs, called for robust enforcement of environmental protection and waste management laws by provincial authorities to effectively address plastic pollution. Salman Javed former MD PTDC, Engr Nadeem Ashraf, Aman pir, Fatima Aziz also spoke on this occasion.

More than 100 participants, including stakeholders from the industrial, academic, civil society, and governmental sectors, attended the event both in person and online, reflecting growing public concern and commitment towards tackling plastic pollution in Pakistan.

Salman Javed Former MD PTDC, Engr. Nadeem Ashraf, Saquib Ejaz, Aman Paracha VP FPCCI, Fatima Aziz, Aman Pir, Halima Khan and others also spoke on this occasion. ■

Curious case of Bitcoin mining in Pakistan

Syed Faizan Ali Shah

The author is a Sr. Energy expert with over 15 years of experience in the power sector

Bitcoin mining involves solving complex computational problems using specialized hardware; significant energy consumption as an input required;

Recent media reports have highlighted the allocation of 2000 MW of power for Bitcoin (BTC) mining. In a country like Pakistan, where such developments are relatively uncommon, this marks a significant and noteworthy milestone. However, amid the rapidly evolving global energy landscape, this initiative also presents a complex dilemma, balancing the potential economic benefits of innovation with the challenges of managing the existing energy resources.

What Is Bitcoin Mining? How to Get Started

To fully grasp the situation, it is essential to understand how Bitcoin mining operates, including its key inputs and outputs, the valuation associated with the process, and the potential advantages it may bring to Pakistan.

"Bitcoin mining involves solving complex computational problems using specialized hardware (Application-Specific Integrated Circuits - ASICs), which requires significant energy consumption as an input. The output is the creation of new bitcoins as well as the validation of transactions on the blockchain for which the miners earn a transaction fee."

The total computational power used to mine bitcoin and process transactions on the Bitcoin network is referred to as Hash rates. It increases when more miners or more powerful hardware are used. Bitcoin's mining difficulty adjusts over time to ensure consistent block times (10 minutes), which may indirectly influence the required computational effort.

"The hash rate is directly proportional to the computational effort required to solve cryptographic puzzles in the Bitcoin network. Since this computational effort relies on continuous processing by specialized hardware, it is also directly proportional to energy consumption. In essence, a higher hash rate reflects increased computational intensity, which in turn demands greater electrical power input."

Think of the Bitcoin network like a city bus system. Each bus represents a new block of Bitcoin transactions, and passengers are the transactions waiting to be confirmed. A bus arrives roughly every 10 minutes, picks up passengers based on available space, and drives off just like how new blocks are added to the blockchain. But here's the twist: Before a bus can leave, the driver has to solve a tricky puzzle, kind of like solving a brain-teaser under pressure. The first driver to solve it gets to leave with passengers and earns a reward (Bitcoins and transaction fees).

To solve these puzzles faster, drivers (miners) need powerful engines (hardware, ASIC, GPUs etc), and those engines burn a lot of fuel (electricity). As more drivers join the race with faster, more energy-hungry machines, the whole system ends up using more and more energy.

Bitcoin mining hardware, like powerful bus engines in our analogy, consumes significant energy. High-performance ASIC miners (200–300 TH/s) use around 3,500 to 4,000 watts continuously, equating to 3.5–4 kWh per hour per device. As the network's hash rate has surged to around 900 EH/s, global competition has intensified, driving both energy use and mining difficulty higher.

To estimate daily Bitcoin mining output and costs: a high-performance ASIC mining hardware (250–300 Tera Hash/s puzzle solving rate) costs around USD 3,500–5,000.

Assuming a 2,000 MW load (allocated by the Government) for Bitcoin mining, roughly 350,000 number of ASIC machines (worth of USD 1.25-1.75 billion) could be deployed, potentially generating

around 49 BTC per day. At a Bitcoin price of USD 150,000, this translates to daily revenue of approximately USD 7.35 million. But the catch is that as the hash rate of Bitcoin starts to increase it will require more hardware to mine the same number of bitcoins on daily basis.

Future Bitcoin price

Energy price remains a critical factor in the viability of crypto mining. While Pakistan is often described as energy-surplus, the reality is more nuanced. During peak summer months (May to September), the gap between available generation capacity and peak demand ranges from 4,700 to 6,700 MW. With ongoing revenue-based load shedding of 2,000–3,000 MW, this margin shrinks to just 2,700–3,700 MW. Adding a continuous 2,000 MW crypto mining load could place significant stress on the generation system during these critical months.

Furthermore, the reported energy price for the 2,000 MW crypto mining allocation is around 5–6 cents/kWh. However, this may fall below the marginal cost of generation during summer peaks, when expensive, imported-fuel-based plants are dispatched. As a result, miners may be implicitly subsidized, with the cost burden effectively shifted to other consumers.

Given the concessional energy pricing offered to crypto mining, it is worth questioning whether this electricity could be more productively allocated to sectors such as textiles, manufacturing, or automotive; industries that generate greater value through job creation, exports, and foreign exchange inflows. In contrast, crypto mining is highly capital and energy-intensive, offers minimal employment, and may depend on imported fossil fuels, thereby adding to the global GHG emissions.

Additionally, as more miners join the Bitcoin mining network and the global hash rate increases (as forecasted), mining becomes even more energy-intensive. Ultimately, the national benefit will depend on the structure of the revenue sharing model and whether the returns from mining justify its economic and opportunity costs. Therefore, the government should carefully evaluate energy allocation priorities to ensure long-term economic resilience, industrial competitiveness, and equitable value creation. ■

BOOSTING SOLARIZATION

Growatt donates solar power to light up rural school

In a heartening initiative bridging renewable energy and social welfare, global solar energy solutions leader Growatt New Energy has addressed critical energy challenges for Madrasa Al Hussain, a religious boarding school dedicated to nurturing over 200 underprivileged orphaned students in rural Pakistan.

Growatt recently donated a cutting-edge Hybrid Inverter (SPH 10000TL-HU) and Lithium Battery (HOPE 5.5L-A1) system, ensuring uninterrupted energy supply for the institution while advancing its mission of enabling everyone to benefit from sustainable energy.

The school serves as a critical sanctuary for orphaned boys, offering full boarding until they turn 18, while supporting girls through their education until marriage, including covering marriage expenses. Previously, the institution faced challenges due to an unstable power supply, 16 Hours Plus electricity outage and under-voltage issues, which disrupted educational activities, students' living conditions and religious rituals like "Azan" and recitation of the Holy Quran.

Growatt's advanced solar hybrid system now guarantees uninterrupted electricity, powering classrooms, dormitories, and essential facilities. The lithium battery storage ensures energy resilience during outages, reducing dependency on the grid.

Analysis: Half-empty or half-full?

Nasir Jamal

THE economic survey for fiscal year 2025 perfectly encapsulates the dichotomy of the "glass half-full or half-empty" analogy.

Was there real growth in the outgoing financial year, or did the perpetually teetering economy fail to turn the tide? The survey has affirmative answers for both questions, so it's really a matter of which indicators a person wants to weigh more.

The macro fundamentals have improved considerably. The headline Consumer Price Index inflation has dramatically declined, the current account balance is expected to be in surplus, the fiscal deficit is billed to decline to 5.5pc of GDP from the last five years' average of 7.13pc, the debt-to-GDP ratio is down from 68pc to 65pc, the rupee has been stable since September 2023, workers' remittances are rising and reserves have been rising. These are the goods that have also been recognised by the IMF, other multilateral lenders and the global economic agencies.

But, there's also the bad.

The economic growth is sluggish, agriculture and big industry are in serious trouble, exports are not increasing fast, large portions of the economy still operate in the shadows and tax burden remains lopsided, with more and more being squeezed out of the salaried class and corporate sector.

Finance Minister Muhammad Aurangzeb's press conference on Monday clearly showed he was focusing on the goods."We needed to fundamentally change the economy's DNA, and for that, we needed structural reforms which are elusive in this country," the minister said, hinting towards failed past efforts to undertake critical economic reforms.

"We must resist the 'sugar rush. The last thing we want is to go through another round of boom and bust cycles," the minister maintained.

Balancing tax burden

The minister's optimism wasn't shared by many who have repeatedly seen enthusiastic reforms being sacrificed at the altar of political expediency. Economic experts wonder if the next budget — set to be announced today — would be any different from the previous ones. Would it lay a foundation for the structural shift? Will there be serious efforts to broaden the tax base by targeting untaxed and under-taxed sectors to cut the fiscal deficit? Will there be reforms needed to boost exports?

Abdul Aleem, the chief executive of the Overseas Investors Chamber of Commerce and Industry, said the salaried class and the corporate sector have borne a "disproportionate share of tax burden for far too long". "It is putting a huge drag on investment, exports and economic growth," he told Dawn last week. "Enough is enough. This cannot go on any longer. Something's got to give," he said about the disproportionate taxation. According to Mr Aleem, the government's expenditure is rising, particularly defence. To meet this growing need for money, the tax structure would have to be overhauled to offload pressure on compliant taxpayers. This implies that the tax rates for the sectors shouldering excessive revenue burden would be cut, and for those not paying according to their size in the economy, increased.

On the face of it, this measure should provide relief to the salaried class and the corporate sector they have been imploring for. Yet, many suspect the government's intentions and consider it a ploy to not touch the powerful lobbies with political clout.

The broadening of the tax net is also crucial for the government to build infrastructure for future growth. The allocation for the public sector development projects as a ratio of the size of the economy is being curtailed every year to contain the fiscal deficit.

This means the government is spending less and less on people's socioeconomic benefits. Had development spending not been curtailed, the average fiscal deficit could have topped 10pc of GDP in the last five years, an economist said.

Industrial reforms

Fair taxation is not the only demand the government would have to address in the next budget. The industry is also calling for measures to make the manufacturing sector cost-competitive in order to compete in international markets.

According to Gohar Ijaz, an industrialist, a "consistent 5-Year industrial and export policy" is essential to revive the sector. "Investors need predictability; the economy needs direction," the former caretaker trade minister wrote in a social media post.

He also called for removing what he dubbed as a bias in the Export Facilitation Scheme against the domestic value chain. The government has a very tight fiscal rope to walk. How will it balance demands for relief with the IMF's goal of debt sustainability without structural tax reforms is anyone's guess. ■

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Pakistan's solar journey is feeling the heat from cost shifting

A proposed shift to lower compensation for solar exports may slow adoption, but energy storage and a smarter grid offer a way forward

Saadia Qayyum

In 2015, Pakistan quietly ushered in a new era of decentralised energy. The drily named Net Metering Regulations bill allowed households and businesses to install solar panels and sell excess electricity back to the grid, earning at the same rate they paid to consume electricity. It was a bold step in a country struggling with power shortages, rising import bills and growing public frustration with costly, unreliable electricity.

The impact was swift. Spurred by falling solar panel prices and some of the highest retail electricity tariffs in South Asia, Pakistan experienced a solar boom. In 2024 alone, 22 gigawatts of solar panels were imported — an astonishing figure given Pakistan's total installed capacity is 46 GW.

Yet, behind this success lies a quieter tension: the fundamental problem of "stranded costs".

There is a growing economic mismatch between how utilities recover costs and how electricity is now being consumed. Pakistan's utilities have historically relied on volumetric tariffs — charging per kilowatt-hour sold — to recover both energy and fixed infrastructure costs (poles, wires, substations and administrative overheads). As more customers adopt distributed solar and generate a portion of their own electricity, the number of kilowatt-hours sold by the utility shrinks.

This doesn't reduce the actual cost of running the grid. Instead, the fixed costs get spread over a smaller base, triggering rate increases for all other customers. In turn, these higher tariffs make distributed generation even more financially attractive, particularly for commercial and industrial customers, who account for a significant share of utility revenue. As large customers reduce their reliance on grid power, utilities are left with stranded assets – infrastructure that was built assuming higher demand and now has no clear recovery pathway.

Still, the financial pressure on utilities is real. Pakistan operates a single-buyer electricity market, where the Central Power Purchasing Agency (CPPA-G) signs deals with power producers and state-owned distribution companies (DISCOs) are responsible for selling electricity to end users, collecting payments and curbing theft. As more affluent customers install solar and reduce their reliance on the grid, DISCOs face shrinking revenues and growing losses. The utility's sales volumes decline, while its fixed costs persist or rise and tariffs for remaining customers go up, prompting further defections. This creates a feedback loop known as the "utility death spiral".

What are 'fixed costs' for utilities

Saddled with high distribution losses, poor billing recovery and heavy reliance on imported fuels, these state-owned distribution companies are caught in a bind: unable to stop the bleeding, yet politically constrained from raising tariffs enough to cover their losses. This is not just taking place in Pakistan, a similar situation is also unfolding in South Africa.

From net metering to net billing

Pakistan's National Electric Power Regulatory Authority (Nepra) has proposed a shift to net billing. This has already been approved by the Economic Coordination Committee and now awaits cabinet ratification. If finalised, Nepra will formally incorporate the changes into the regulatory framework, potentially ending Pakistan's near decade-long net metering regime.

Mirroring the US state of California's Net Energy Metering (Nem) 3.0 policy, it compensates solar customers based not on retail prices, but on the utility's avoided cost – what it would have spent to generate or procure that electricity — typically a much lower rate than the retail tariff.

Under the new Nepra proposal, compensation for customers exporting excess energy to the grid would more closely reflect the value of that power to the system. In Pakistan, this is often between per kilowatt-hour (kWh), compared to retail rates above PKR 27 per kWh in many

parts of the country. In theory, this brings greater fairness to the system by reducing cross-subsidisation (where non-solar users shoulder more of the grid's fixed costs) and keeps utilities financially afloat.

But it also reshapes the economics of solar. For new adoptees, the payback period for rooftop systems without storage more than doubles from 1-2 years to 4-5 years. While the move is likely to stabilise the grid and protect non-solar users, it could slow down the pace of new installations. This is unless they are paired with innovative business models, such as solar-plus-storage (which allows users to avoid buying expensive peak-time power) or peer-to-peer energy trading (which lets them sell surplus energy directly to others).

California's experience offers a cautionary tale. After transitioning to net billing in 2023, rooftop solar installations declined. However, it also saw a surge in battery adoption, as customers sought to store energy for use during expensive peak hours. Pakistan could see a similar trend: a slowdown in installations of pure rooftop photovoltaic systems but growing interest in self-sufficiency solutions that combine solar with lithium-ion batteries and smart inverters.

Fixing the bigger problem: inefficient distribution

Still, net billing alone won't fix Pakistan's energy challenges. The high electricity prices pushing consumers toward solar stem from deeper structural issues: operational inefficiencies, overpriced fuel contracts, mounting circular debt and weak governance.

Even as Nepra changes its regulations for distributed generation, state-owned distribution companies must urgently reduce technical losses, modernise metering and billing systems, optimise power procurement — and be held accountable. Until the underlying cost of electricity comes down, consumers will continue to seek alternatives to grid supply, regardless of how they are compensated. This points to a deeper truth: grid defection in Pakistan in favour of solar isn't so much a vote for clean energy, but an economic escape route.

A glimpse into the future: batteries and a smarter grid

Even as Pakistan shifts to net billing, its solar journey is far from over. Storage technologies — especially lithium-ion batteries — are becoming more affordable and accessible. As battery prices fall, more solar users will opt to store energy for self-consumption, particularly during evening hours.

Rooftop solar paired with battery storage can significantly enhance grid resilience by reducing reliance on the grid during peak hours and power outages. By storing excess solar energy during the day and using it in the evening — when Pakistan's grid is under the most strain — these systems can help flatten peak demand, reducing the need for costly peaking plants that rely on imported fuels.

This shift not only cuts national fuel expenditures but also defers the need for new transmission and distribution infrastructure, easing pressure on a grid already burdened by high losses and capacity constraints. In effect, distributed solar-plus-storage acts as a decentralised buffer, strengthening the grid while empowering consumers.

To stay ahead of these trends, Pakistan's power planners must look beyond short-term fixes. Strategic investments are needed in 'demand response' systems, smart grids and tariff designs that reflect the true value of electricity, varying by time of use and location.

What is demand response?

Encouraging consumers, through flexible pricing and monetary incentives, to shift their electricity use to times when it is more plentiful or general demand is lower. This can also support greater use of renewable power.

A smarter, more responsive grid would empower consumers by allowing households and businesses to shape their energy use based on real-time conditions, reducing the strain on the system while giving consumers more control.

This article was originally published by Dialogue Earth

Petroleum minister reviews PPL's performance

EU Report

Federal Minister for Petroleum Ali Pervaiz Malik visited the head office of Pakistan Petroleum Limited (PPL) in Karachi on Thursday. He was accompanied by Additional Secretary (Policy), Petroleum Division, Zafar Abbas, and Deputy Secretary Waqas Ahmed Barlas, according to a news release. Upon arrival, the minister was received by Managing Director and CEO of PPL, Imran Abbasy, who introduced him to the company's senior leadership. The minister received a briefing on PPL's operations and outcomes in exploration and production over the past three years. The management informed the delegation about increases in output across natural gas, crude oil, and mining operations. The MD also outlined current operational and strategic challenges and requested continued support from the Ministry to address them. ■

PARCO Participates in Baku Energy Week 2025 to Boost Global Energy Ties

EU Report

PARCO proudly represented Pakistan at Baku Energy Week 2025, joining global energy leaders to shape the future of the sector. Federal Minister for Petroleum, Mr. Ali Pervaiz Malik, held key discussions with Mubadala Energy's CEO Mr. Mansoor Mohamed Al Hamed and COO Mr. Adnan Omer Bu Fateem to enhance bilateral energy cooperation. PARCO's Managing Director, Mr. Irteza Ali Qureshi, also attended, highlighting PARCO's commitment to Pakistan's long-term energy goals. The event served as a platform for strengthening international energy partnerships, driving innovation, and promoting sustainability.

SAARC, SCO, and OIC conferences be held in the country

Indus Water Treaty Breach: Pakistan Won't Relent

World Bank, UN, and the international community need to move for a fair resolution of water conflict between India and Pakistan; weaponizing water by India endangers peace in South Asia; agriculture is the backbone of Pakistan's economy; any reduction in water supply poses risks to livelihoods, GDP, and rural employment

M. Naeem Qureshi

Managing Editor Energy Update

Pakistan has recently voiced alarm at the United Nations meeting that India's unilateral decision to suspend the Indus Waters Treaty (IWT) has shown a dangerous escalation that violates international law and threatens the survival of more than 240 million people. At this forum, Pakistan urged the world community to act before such actions triggered a humanitarian catastrophe or destabilised the region. The UN forum was used to appeal for international consensus against the weaponisation of water.

World Bank President Ajay Banga has also recently clarified in a media report that the Indus Waters Treaty cannot be unilaterally suspended or altered. He said that any changes to the agreement require mutual consent from both India and Pakistan. "There is no provision in the treaty to allow for its suspension," he said.

The Indus Water Treaty, brokered by the World Bank in 1960, resolved a long-standing dispute over the use of the Indus River waters between India and Pakistan following the 1947 partition of British India. The treaty ensured to fix and delimit the rights and obligations of both countries concerning the use of the Indus River system's waters.

The treaty breach is not just a bilateral issue; it is a test case for the resilience of international water agreements. India's actions threaten to unravel a treaty that has safeguarded peace for over six decades. If left unchecked, these violations may lead to humanitarian crises, environmental disasters, and geopolitical instability in South Asia.

It is imperative for the World Bank, the UN, and the international community to hold India accountable and push for a fair, transparent resolution. Respect for international law and equitable access to water must prevail for the peace of the region.

The treaty was meant to peacefully divide the shared rivers of the Indus Basin. However, recent years have seen growing Indian violations, threatening not just the treaty's credibility but also Pakistan's water security and regional peace.

The Indus Water Treaty has served as a rare example of cooperation, but India's violations threaten its survival. Pakistan has started a struggle through legal, diplomatic, and technical means to secure its water future. The world must recognize that weaponizing water endangers peace in South Asia.

The IWT allocates the waters of the Indus River System, consisting of three eastern rivers - Ravi, Beas, Sutlej — allocated to India, while western rivers - Indus, Jhelum, Chenab — are allocated to Pakistan. Under the treaty,

India can use the western rivers for hydroelectric power generation and irrigation without altering their flow.

In recent years, India's construction of dams and hydroelectric projects on rivers allocated to Pakistan has raised serious concerns about violations of the treaty. These breaches not only undermine the legal framework of the agreement but also threaten regional peace and Pakistan's water security.

Over the last two decades, India has initiated multiple hydroelectric projects on the western rivers, especially on the Chenab and Jhelum, which are crucial for Pakistan's agriculture and economy. These include Baglihar Dam (Chenab River). Commissioned in 2008, the Baglihar Dam in Jammu and Kashmir became the first major point of contention. Pakistan objected, claiming the design allowed for excessive storage and manipulation of river flow. Though the matter was referred to a neutral expert, the ruling allowed India to continue construction with minor modifications.

Kishanganga Hydroelectric Project (Jhelum River): Completed in 2018, this project diverts water from the Neelum (Kishanganga) River, a tributary of the Jhelum, to another tributary, reducing downstream flow into Pakistan. The Permanent Court of Arbitration (PCA) in The Hague allowed India to continue, but upheld Pakistan's right to receive a minimum environmental water flow.

Ratle and Pakal Dul Projects: India's projects like the Ratle (Chenab) and Pakal Dul (tributary of Chenab) also raised similar objections regarding storage capacity and water flow control. These concerns remain unresolved despite Pakistan's repeated appeals and diplomatic efforts.

India's unilateral construction of dams and water diversion projects has several direct consequences for Pakistan. Reduced flow of water in the Indus basin affects irrigation, especially in Punjab and Sindh, leading to crop failures and food insecurity. Agriculture is the backbone of Pakistan's economy. Any reduction in water supply poses risks to livelihoods, GDP, and rural employment. Altered river flows disrupt aquatic ecosystems and groundwater recharge. These violations deepen mistrust and increase the risk of conflict between the two nuclear-armed neighbors.

Pakistan has exclusive rights over the western rivers for agriculture and other uses. The World Bank acts as a guarantor and mediator under the treaty, providing a dispute resolution mechanism through neutral experts and Court of Arbitration processes.

While the UN has not directly intervened in the IWT dispute, several UN-affiliated water and peace reports highlight India's actions as a threat to regional water security. The UN Secretary-General has repeatedly stressed the need for respecting bilateral treaties and avoiding actions that escalate tensions in South Asia.

Water insecurity in Pakistan could fuel domestic unrest, agricultural failure, and economic loss. The World Bank must assert its authority as a guarantor and ensure that neutral experts and arbitration mechanisms are honored. The United Nations should appoint special water envoys or mediators to ensure that treaty obligations are respected and that escalation is avoided.

The breach of the Indus Waters Treaty by India is not just a bilateral issue; it is a test case for the resilience of international water agreements. India's actions threaten to unravel a treaty that has safeguarded peace for over six decades. If left unchecked, these violations may lead to humanitarian crises, environmental disasters, and geopolitical instability in South Asia.

Pakistan needs to strengthen bilateral dialogue through the UN and the World Bank. It will be good to use dispute resolution forums effectively, besides ensuring regular, accurate, and transparent data sharing on river flows and project designs. There is also a need to train diplomats and water officials in transboundary water law and conflict resolution.

At the local level, Pakistan should pursue a consistent diplomatic strategy to get its water rights, besides engaging India through the Permanent Indus Commission (PIC), which is the bilateral body established under the Indus Water Treaty.

The Commission holds annual meetings, even during periods of political tension, to address technical and operational issues. Hence, the country should use these meetings to raise concerns over India's violation of water rights. It also needs to highlight IWT concerns through parliamentary debates, local diplomatic briefings, and media engagement. The government also needs to strengthen its legal expertise and technical capacity.

Rather than resorting to reactionary politics or threats, Pakistan must adopt a forward-looking strategy that combines legal rigor, proactive diplomacy, technical innovation, and public engagement.

It would also be beneficial to organise the thought-provoking conferences of SAARC, Shanghai Cooperation Organisation (SCO), or OIC in Pakistan so as to raise the voice for the permanent restoration of the suspended Indus Water Treaty. ■

India unveils plans for 10MW hydropower projects in Ladakh

This cruel and heartless act by India is nothing short of death sentence for Pakistan, Guterres told

Khalid Mustafa

India, under its master plan to block the mighty Indus River's flow that begins in Ladakh, a disputed territory under UN resolution, has unveiled plans for 10MW hydropower projects in Ladakh, including Achinthang-Sanjak, Parfila, Sunit (Batalik), and Khalsti.

These projects not only violate the storage capacities allowed under the treaty but also raise grave concerns about the diversion and reduction of water flow into Pakistan. The purpose of these projects, it seems, is to provide heating and energy facilities for troops stationed on the frozen expanse of the Siachen Glacier — while the poor, marginalised people of Ladakh are left in the cold, this has been unearthed in a letter from Arshad H Abbasi, an eminent water expert of Pakistan with headline of 'A Humanitarian Crisis in the Making: The Indus Waters Treaty and India's Actions' to António Guterres, Secretary-General, United Nations.

Abbasi says in his letter: "Under the provisions of the IWT, India is permitted to store up to 0.25 million acre-feet (MAF) of water for general and power storage in Ladakh. But in a shocking disregard for these limits, India has developed plans that far exceed these allowances. Over the years, India has constructed hydropower projects in Ladakh, including Nimoo Bazgo and Chutak, with capacities of 45MW and 44MW, respectively, to serve not the people of Ladakh but the Indian Army's XIV Corps. Established in 1999, this massive military deployment operates in the Kargil-Leh area, supported by residential colonies, military airports such as the Kushok Bakula Rimpochee Airport, and the Thoise Airbase near the colossal Siachen Glacier."

Abbasi drew the attention of Secretary General saying that this cruel and heartless act by India is nothing short of a death sentence for Pakistan. But it is not merely that — it signifies the end of an era, the demise of the Indus Valley Civilization, one of the most ancient and enduring civilizations in all of human history. The sacred Indus River, immortalised by the Greeks in 325BC under Alexander the Great and revered by ancient Iranians as "Sindhu," meaning "river" in Sanskrit, has been a lifeline for countless generations.

He requested for an investigation into how the UNFCCC, a crucial organ of the UN, awarded carbon credits to India for the controversial Nimoo Bazgo and Chutak hydropower projects. "Both projects are located on the Indus River in Ladakh, and both were undertaken without prior consultation with Pakistan or the required transboundary assessment."

Even more alarming, he said, is India's construction of a 45-kilometer inland water transport route on the Indus in Ladakh, stretching from Upshi village to Shey village (NW-46).

"The question is not whether Ladakh needs such projects but why they are being pursued at all. Ladakh is sparsely populated, with a population that suffers from severe energy losses during transmission. In winter, the Indus often freezes, rendering these hydropower projects ineffective. Yet, Ladakh has over 300 sunny days each year and enormous potential for solar energy. Leh, Ladakh's capital, enjoys an average daily solar output of 5.29 kWh/kWp—far exceeding Delhi's 4.0 kWh/kWp. But instead of harnessing this renewable wealth, India has chosen hydropower and water transport projects for reasons that serve an agenda of domination, not development."

Abbasi called upon the United Nations to take swift action to reinstate the Indus Waters Treaty. ■

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Tech Meets Sun:

Huawei FusionSolar Ignites Innovation at ISEM 2025

EU Report

Strategic partnerships and smart energy solutions drive Huawei's record-breaking presence at Pakistan's leading solar expo.

Lahore – Huawei FusionSolar energized the 10th International Solar Energy Meet (ISEM) Pakistan Solar Energy Exhibition 2025 with a cutting-edge showcase of intelligent solar technologies. Partnering with Diwan International, AE Power (Value Added Partner), Ayan Solar, and Aexon Solar (Tier 2 Partners)Huawei demonstrated why it leads Pakistan's fast-growing solar market.

The exhibit featured high-efficiency Inverters, LUNA2000-10KW-C1-power module, LUNA2000-7KW-E1-battery module (HYBRID SOLUTION FOR RESIDENTIAL) and the latest Commercial Battery Energy Storage Systems (BESS). With record foot traffic, the booth sparked strong interest from residential users, industry buyers, government officials, and clean energy advocates.

Huawei's focus on energy efficiency, digitalization, and system safety resonated amid rising energy costs. Live demos showcased remote monitoring, battery optimization, and real-time analytics—highlighting Huawei's advantage over traditional PV systems.

Partners reported a surge in inquiries and confirmed orders during the event. AE Power, recognized as Value Added Partner, presented successful case studies and praised Huawei's commitment to capacity building and training.

More than technology, Huawei aims to co-create a smarter, greener Pakistan by fostering strong partnerships and investing in local talent. Huawei experts also shared insights on grid resilience, net metering, and hybrid solar solutions at key panels.

At ISEM 2025, Huawei FusionSolar didn't just present tech—it redefined what's possible when solar meets smart in Pakistan's energy future.

HUAWEI Digital Power Hosts Groundbreaking Energy Solutions Event in Faisalabad




EU Report

Huawei Digital Power, a global leader in smart energy technologies, recently hosted a high-impact event in Faisalabad, showcasing its latest advancements in Commercial Battery Energy Storage Systems (BESS), Smart Uninterruptible Power Supply (UPS) systems, and innovative Residential Hybrid Power Solutions.

The event brought together energy professionals, engineers, homeowners, and local stakeholders to explore how smart energy solutions can drive a more reliable, efficient, and sustainable future for Pakistan's energy ecosystem—especially at the residential level.

Key Highlights from the Event:

Commercial BESS Solutions:
Huawei presented its advanced Battery Energy Storage Systems designed for commercial users, emphasizing peak load management, backup power reliability, and integration with solar PV systems for cleaner energy usage.

Smart UPS Systems:
Attendees were introduced to Huawei's next-generation UPS systems, delivering intelligent backup protection for residential and small business applications. These systems offer seamless transition during power outages and smart energy optimization through AI-based monitoring.

Residential Hybrid Power Systems:
The centerpiece of the event was Huawei's launch of its residential hybrid energy solution, combining rooftop solar, home battery storage, and grid backup in one smart, AI-driven system. This technology empowers homeowners with 24/7 energy availability, energy cost savings,

and the ability to operate independently from grid failures and load shedding. It's a game-changing solution tailored to the specific challenges faced by households across Pakistan.

Huawei's commitment to empowering communities through digital and sustainable energy was clearly evident. With power challenges affecting both urban and rural areas, these residential hybrid systems offer a practical and forward-looking solution for homeowners looking to take control of their energy needs.


Unbearable weight of plastic in Pakistan

Properly managed landfills and next-generation chemical recycling are part of answer that Pakistan can adopt to beat plastic pollution

Dr Abid Qaiyum Suleri

The writer heads the Sustainable Development Policy Institute (SDPI) and is a member of the advisory board of the Asian Development Bank Institute

From the clogged drains of Lahore and Karachi, to the crop fields of southern Punjab, and along the Indus River where it meets the Arabian Sea, plastic waste is everywhere.

Whether it is plastic wrappers tangled in crops, polyethene bags choking storm drains, or turtles ingesting bottle caps off the coast – Pakistan is awash in the very material once heralded as the hallmark of modern convenience. However, Pakistan is not alone in it. Plastic pollution is a global menace. Which is why the world is observing World Environment Day today, with the theme 'Beat Plastic Pollution'.

Pakistan is estimated to generate nearly 3.5 to 4 million tonnes of plastic waste annually. A substantial portion (up to 70 per cent) remains uncollected or mismanaged. In urban centres, single-use bags and food packaging overwhelm weak waste systems, clogging drains and worsening urban flooding. In rural areas, plastic mulching sheets, discarded drip irrigation pipes, and packaging waste (which often contain hazardous chemicals such as pesticides and herbicides) litter farmland, degrading the soil and posing a risk to livestock.

In the country's fragile marine ecosystem, the Indus River, already among the most plastic-polluted rivers globally, carries tonnes of waste into the Arabian Sea, endangering fisheries, biodiversity and coastal tourism.

The economic cost is no less alarming. Urban flooding causes billions of rupees worth of infrastructure damage. Farmers face declining yields due to soil degradation, and fishermen report that plastic waste now outnumbers fish in their nets. Burning plastic waste pollutes the air, exacerbating respiratory illnesses and imposing health costs on already strained systems. Amidst Pakistan's chronic economic challenges, these invisible costs silently erode public finances and human development alike.

However, tackling plastic pollution through knee-jerk bans and slogans is neither desirable nor practical. In its April 2025 stories on plastics, The Economist magazine offers a valuable perspective on how to frame the problem. The magazine reminds us that plastics are not inherently evil. Quite the opposite, in fact: the modern world, and particularly much of the developing world, relies heavily on plastic's unique combination of low cost, durability and lightness.

The magazine highlights that a litre of water in a plastic bottle weighs only five per cent of what it would in glass, and packaging meat or milk in plastic reduces spoilage and emissions far more than traditional methods. Plastic pipes have made housing cheaper; plastic components are indispensable in mobile phones and solar panels. The global plastics trade, valued at $1.2 trillion annually, has enabled goods, ranging from powdered milk to meat, to reach communities that would otherwise remain excluded.

If plastic hadn't replaced ivory, tortoiseshell and exotic wood, the environmental damage to biodiversity would have been far worse, argues the piece. Without plastic syringes (for vaccines) and PPE, the Covid-19 response would have crumbled, allowing the pandemic to sweep away the human race. Plastic's lightweight has reduced freight emissions. Its role in food preservation helps feed millions affordably.

As The Economist rightly puts it – and I concur – the issue is not that plastic exists, but that we have failed to manage it effectively. The real issue is that of the 350 million tonnes of plastic discarded annually worldwide, only nine per cent is recycled. Around 50 per cent ends up in landfills, and nearly one-third isn't collected at all, left to clog rivers or be burned in the open air. A staggering 95 per cent of all plastic packaging is used once and discarded. There is also the fact that much of the world's plastic recycling still relies on informal workers, who are often exposed to unsafe and degrading conditions.

What's worse, even when recycling is attempted, it often proves technically and economically unviable. Most plastics degrade with each cycle. Sorting is labour-intensive; additives and dyes make certain plastics unrecyclable. Many types of recycled plastics tend to be more expensive than virgin alternatives. This has led many wealthy nations to export plastic waste to developing countries, including Pakistan, where the recycling industry utilises a portion of this imported waste. However, due to weak regulatory oversight, a significant quantity of this waste ends up incinerated, dumped or in rivers.

Many in developing countries have grown up in a society which was less reliant on plastics. Until a few decades ago, shoppers in these countries used to carry their own cloth bags and utensils for grocery shopping or buying milk. Many have been making a refundable deposit for glass bottles of soft drinks until the introduction of PET bottles. However, even in developing countries, a complete ban on plastic is not viable.

As mentioned earlier, plastic is the most cost-effective method for airtight storage and transportation of many products, including various food items. Until sustainable alternatives become both affordable and scalable, bans on plastics risk shifting the problem rather than solving it.

Plastic pollution in Pakistan will not be solved overnight. But tackling it is not impossible. The country can transition to a plastic-resilient economy with better policy design, consumer awareness, industry co-responsibility and global partnerships.

Instead of imposing overnight bans which don't even get enforced, Pakistan should take three steps to improve the management of plastic pollution: rationalise use, invest in better disposal, and back policies with enforcement mechanisms. First, we must reduce avoidable single-use plastics (SUP), particularly low-value items like plastic cutlery, straws, and ultrathin shopping bags. Existing bans on SUP, such as the one enforced in Islamabad (and announced in Sindh and Punjab), need to be replicated across all provinces, backed by strict enforcement, not merely cosmetic compliance. Second, the state must invest in infrastructure: dedicated recycling hubs, waste segregation systems in municipalities, pilot projects for circular plastics and registration of informal waste collectors to improve their working conditions. Public-private partnerships can help recover value from post-consumer plastic, turning bottles into roads, pipes, or insulation.

Third, Pakistan must legislate Extended Producer Responsibility (EPR) schemes, holding manufacturers accountable for plastic waste through buy-back mandates and minimum recycled content requirements. Existing regulations and recent climate policies are a good start, but they require effective implementation, adequate funding and transparency.

Beyond domestic action, international alignment is key. Pakistan has rightly joined the Global Plastics Treaty negotiations, but it must negotiate harder for technical and financial support. Rich countries that offload their plastic waste onto the developing world should co-finance recycling infrastructure and technology transfers. The same logic that drives climate finance applies here: Pakistan bears the consequences of consumption patterns it did not initiate.

Innovative methods are emerging. From Finnish firms using incineration by-products as plastic feedstock, to countries like Turkey integrating energy recovery in waste management, the world is moving beyond the binary of 'ban vs pollute'. Properly managed landfills, advanced incineration with carbon capture and next-generation chemical recycling are part of the answer that Pakistan can adopt to beat plastic pollution.

While I would love to see some of our old traditions revived (cloth bags, and carrying our own utensils to buy milk), which now form the foundation of the modern-day circular economy, I also think that beating plastic pollution is not about vilifying a material that has built the modern world. It's about changing our relationship with it – using what we need, designing for circularity and managing the waste we generate. ■

Inverex EV Xio Steals the Show at 10th ISEM

A Bold Leap Toward Pakistan's Green Mobility Future

EU Report

Inverex made a powerful impact at the 10th International Solar Energy Meet (ISEM), held from May 23 to 25, 2025 at Expo Center Lahore, where it proudly unveiled its highly anticipated Inverex EV Xio — Pakistan's first bold step into electric mobility under the company's clean energy banner.

The Inverex EV Xio emerged as the showstopper of the exhibition, drawing immense attention from industry professionals, energy experts, policymakers, and the general public alike. The electric vehicle's modern design, performance capabilities, and energy efficiency perfectly aligned with the event's theme of promoting sustainable technologies and solar innovation.

The stall was officially inaugurated by the esteemed Mr. Syed Yousaf Raza Gillani, Chairman Senate of Pakistan, who applauded Inverex's pioneering efforts in clean energy and innovation. Another notable dignitary, Mr. Rana Mashhood Ahmad Khan, Chairman of the Prime Minister's Youth Programme, also visited the booth and appreciated Inverex's role in empowering the youth with future-ready technologies and green solutions.

Mr. Muhammad Zakir Ali, CEO of Inverex, shared his thoughts:

"Inverex has always stood at the forefront of innovation. The launch of the EV Xio marks a new chapter in our journey towards a cleaner, greener Pakistan. Our aim is to provide integrated energy solutions — from solar panels to smart inverters and now sustainable mobility."

Public engagement at the Inverex booth was overwhelming, with thousands of visitors experiencing the interactive display of Inverex's next-gen solar energy solutions alongside the EV Xio. From residential solar kits to large-scale com-

mercial systems, the booth demonstrated Inverex's vision for a decentralized, energy-independent Pakistan.

With this successful showcase, Inverex has once again proven itself as a leader in sustainable energy, setting new benchmarks in Pakistan's transition towards a cleaner and smarter energy ecosystem.

AirAudit

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Customers witness impact of a holistic approach on energy savings and carbon reduction

Imtiaz Rastgar

The writer is a veteran industrialist and former CEO of the Engineering Development Board under Pakistan's Ministry of Industries

Compressed air is often dubbed the "fourth utility" in industry after electricity, water, and gas. It powers everything from pneumatic tools to automated production lines in factories, hospitals, and hotels.

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- Custom Energy Strategies
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- Training & Technical Capacity Building
- Upskill your team for sustainable, long-term efficiency

AirAudit doesn't just find problems. We implement solutions, verify the savings, and train your people to keep performing. AirAudit clients consistently uncover major system inefficiencies—many hidden in plain sight. Through our structured audits and hands-on support, we help businesses:

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- Achieve regulatory compliance
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Breaking the tariff trap

Dr Muhammad Zeshan

The writer is head of the Trade, Industry & Productivity (TIP) research group at the Pakistan Institute of Development Economics (PIDE), Islamabad

Usual suspects will trot out same tired arguments about protecting local industry

Picture this: You walk into a Pakistani electronics store in 2027, and for the first time in decades, you don't need to choose between buying overpriced local products or smuggled goods. Quality smartphones, laptops and home appliances are competitively priced, local businesses are thriving through healthy competition, and consumers actually have real choices.

Sound too good to be true? Well, it all hinges on what our policymakers do with import tariffs in the upcoming FY 2026 budget. And folks, this isn't just another boring fiscal policy debate – this is about fundamentally rewiring Pakistan's economic DNA.

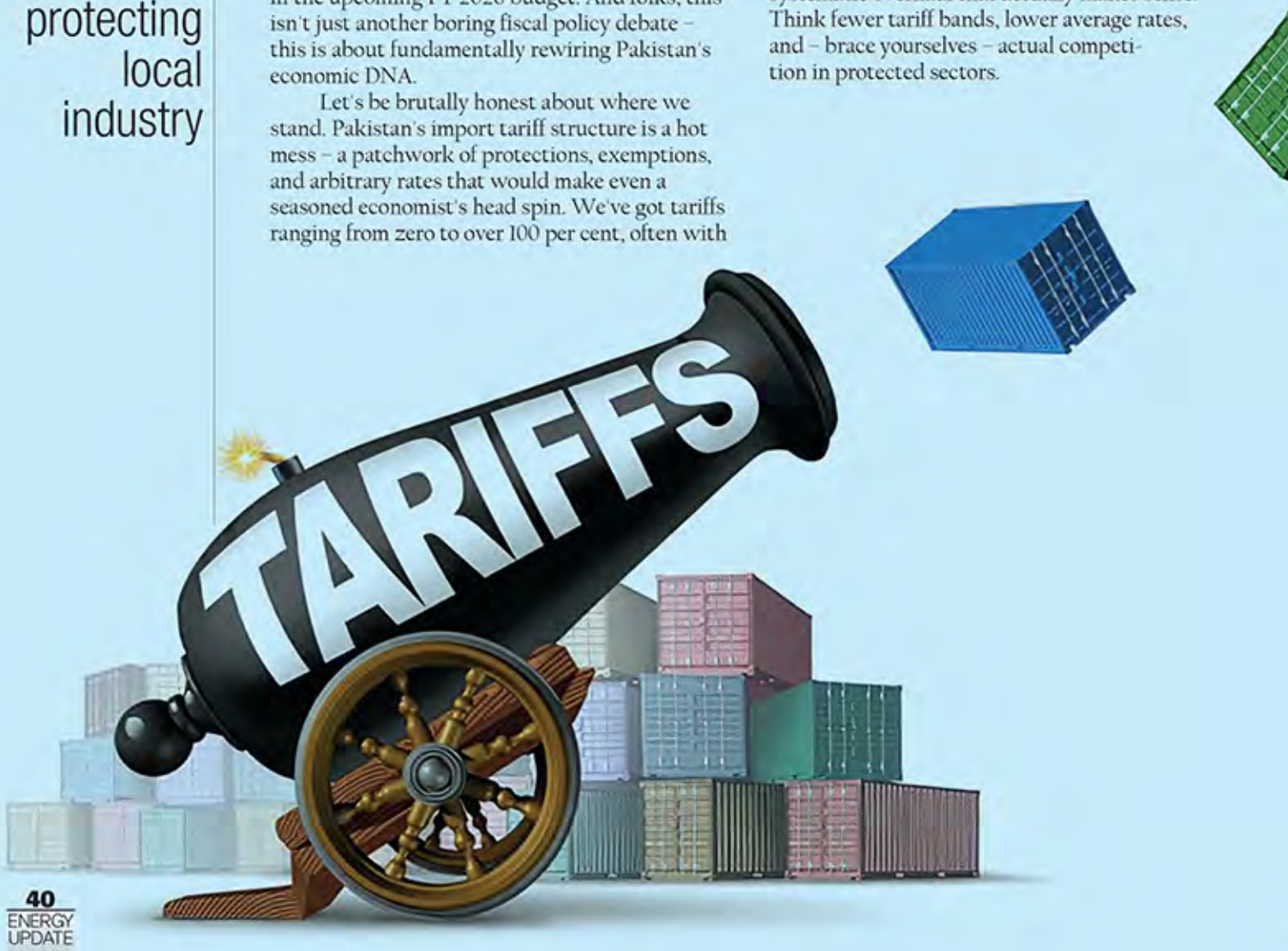
Let's be brutally honest about where we stand. Pakistan's import tariff structure is a hot mess – a patchwork of protections, exemptions, and arbitrary rates that would make even a seasoned economist's head spin. We've got tariffs ranging from zero to over 100 per cent, often with no rhyme or reason.

The original idea was noble enough: protect local industries, encourage domestic production, and shield our manufacturers from unfair foreign competition. But somewhere along the way, we created a big problem. Instead of nurturing competitive industries, we've bred complacency. Instead of protecting consumers, we've made them hostages to high prices and limited choices.

Take our auto industry – please! After decades of sky-high tariffs, what do we have to show for it? Cars that cost twice what they should, waiting lists that stretch for months, and technology that's perpetually stuck in the past. Meanwhile, countries like Vietnam and Thailand became automotive hubs by embracing competition, not hiding from it.

Here's where the FY2026 budget comes in. This isn't just another annual fiscal exercise – it's potentially the most important economic policy decision of the decade. Why? Because the global economy is reshuffling, and Pakistan needs to decide: Are we going to be players or spectators?

The smart money says we need a comprehensive tariff rationalisation programme -- not the half-hearted tweaks we've seen before, but a bold, systematic overhaul that actually makes sense. Think fewer tariff bands, lower average rates, and – brace yourselves – actual competition in protected sectors.



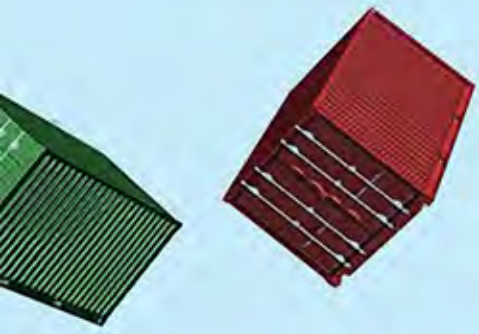
But here's the political reality check: Every tariff cut will face fierce resistance from vested interests. The textile lobby will scream about unfair competition. Auto manufacturers will warn of job losses. The usual suspects will trot out the same tired arguments about protecting local industry.

Now, I'm not suggesting we throw caution to the wind and eliminate all tariffs overnight. That would be economic suicide. But we need a carefully calibrated approach that balances reform with pragmatism.

Picture a five-year roadmap where tariffs are gradually reduced across sectors, giving local industries time to adjust while ensuring consumers start seeing benefits immediately. Start with intermediate goods and raw materials – stuff that makes our manufacturers more competitive. Then gradually open up consumer goods where we're clearly not globally competitive. Take smartphones, for instance. Our attempts at local assembly have been lukewarm at best. Why not reduce tariffs gradually while incentivising genuine technology transfer and local value addition? Let consumers benefit from lower prices while encouraging real, competitive local production.

Here's the elephant in the room that nobody wants to talk about: We're addicted to tariff revenues. When you're desperate for revenues, those customs duties look mighty attractive. But it's a shortsighted game in the long run. Lower tariffs can actually boost overall tax revenues through increased economic activity. More imports mean more business, more jobs, and ultimately more income and sales tax. It's not rocket science – it's basic economics. Countries like Chile and Vietnam figured this out decades ago.

The FY2026 budget needs to bite this bullet. Yes, tariff revenues will initially decline. But the increased economic dynamism will more than make up for it – if we have the political courage to see it through.



Here's what really gets me excited about meaningful tariff reform: the competition dividend. When local businesses actually have to compete, magic happens. They innovate, improve quality, reduce costs, and become genuinely competitive.

Look at our IT sector – one of the few industries that grew up in a competitive global environment. Result? Pakistani software developers are competing globally, winning contracts, and building world-class companies. That's what happens when you don't wrap industries in cotton wool.

We've been systematically ripping off our own consumers for decades through high tariffs. A middle-class family in Lahore pays more for basic appliances than their counterparts in Bangkok or Mumbai. That's not protecting local industry – that's daylight robbery.

Tariff reform in FY2026 could trigger a consumer revolution. Lower prices, better quality, more choices – imagine that. And before you ask about local jobs, remember that cheaper inputs and more competitive markets often create more employment than they destroy.

So here's the million-rupee question: Does Pakistan have the political will to break free from the tariff trap in FY2026? Can we finally graduate from an economy built on protection to one built on competition?

The stakes couldn't be higher. Get it right -- and we could unleash a wave of economic dynamism that transforms Pakistan into a competitive, consumer-friendly economy. Get it wrong -- and we'll keep stumbling along with our current dysfunctional system. The choice is ours. The budget is coming. The question is: Are we ready to choose courage over complacency?

Time will tell. But one way or another, FY2026 will be remembered as the year Pakistan either broke free from its tariff chains or decided to keep wearing them. Which Pakistan do you want to live in? ■

ENERGY NEWS

Petroleum minister discusses energy priorities with OICCI

EU Report

Petroleum Minister Ali Pervaiz Malik has reaffirmed the government's commitment to structural reforms, accelerated policy execution, and enhanced industry engagement. At an interactive session with the Overseas Investors Chamber of Commerce and Industry (OICCI), the minister cited recent resolution of refinery-sector challenges as a positive example of collaborative progress. The session was attended by senior business leaders from local and multinational companies. The minister outlined key investment opportunities in upstream exploration, pipeline development, and downstream processing, aligned with the global shift toward cleaner energy. He further highlighted the recent FDI-related successes in attracting foreign investment in the mining sector, which aim to unlock the country's untapped natural resources and drive future exports and industrial diversification.

Net metering hits 2,500MW

EU Report

Federal Minister for Energy Sardar Awais Ahmad Khan Leghari has urged consultation to deal with the net metering which has now reached 2500 MW and has serious impact on the grid. A consultative meeting was held at the Private Power and Infrastructure Board (PPIB) regarding the transition from net metering to net billing and was attended by experts from the solar industry, representatives from relevant government institutions, provincial governments, and other stakeholders. While thanking all participants, the Federal Minister for Energy clarified that the government is not abolishing net metering, but is considering transforming its current framework into a more effective, transparent, and sustainable model. He averred that he himself had played a key role in introducing net metering back in 2017-18, when the system was still in its early stages.

Public participation urged for environmental improvement

Ruqiya Naeem

In order to improve the environment of the city and country and eliminate pollution, it is essential for the public to adopt better habits and attitudes alongside government institutions. Every individual has a key role to play in this cause.

These views were expressed by speakers and experts during a colorful event organized by the National Forum for Environment & Health (NFEH) in collaboration with Naya Nazimabad to mark World Environment Day.

Speaking on the occasion were Muhammad Naeem Qureshi (President, NFEH), Saeed Ahmed (Chief Executive, Management Committee), Samad Habib (Head of Naya Nazimabad), SM Talha (President, Gymkhana), cricketer Asad Shafiq, environmentalist Rafiul Haq, Abu Muhammad Faisal, Salman Siddiqui, Yogi Wajahat, Engineer Nadeem Ashraf, Ruqayya Naeem, Shahid Masroor, and Amanullah Kakakhel.

Children also presented paintings, poetry, and essays focused on environmental awareness. This year's World Environment Day theme was "Beat Plastic Pollution".

Speaking at the event, Muhammad Naeem Qureshi highlighted that plastic waste constitutes 65% of the country's waste, with plastic pollution increasing by 15% annually. He also emphasized that 98% of plastic bags are non-biodegradable and cannot be reused, urging citizens to reduce plastic usage.

Environmental expert Rafiul Haq stressed that alternative solutions must be provided before imposing a ban on plastic bags, and strict implementation of relevant laws is necessary. Saeed Ahmed advocated for 'Zero Plastic Waste Zones' and emphasized the importance of recycling and responsible consumption.

SM Talha shared that 30,000 fruit-bearing and shade-giving trees have been planted in Naya Nazimabad to support environmental sustainability.

After the seminar, fruit-bearing trees were planted in a park, and awards were distributed to children who presented exceptional environmental-themed work.

Chashma-5 Nuclear Power Plant to Add 1,200 MW Clean Energy to National Grid

The under-construction Chashma-5 Nuclear Power Plant is poised to inject 1,200 megawatts (MW) of clean, safe, and low-cost electricity into Pakistan's national grid, further strengthening the country's energy mix.

During a recent media briefing at the Chashma Nuclear Complex, General Manager Engineer Habibur Rehman shared updates on the project, underscoring Pakistan's ambition to raise its nuclear power capacity to 8,000 MW. He emphasized the role of nuclear energy in ensuring a sustainable and affordable power supply.

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CBAM, carbon trap, and impact of irrational gas policies

Shahid Sattar | Sarah Javaid

Shahid Satttar has served as Member Energy of the Planning Commission of Pakistan. Sarah Javaid is an Economist

The EU's Carbon Border Adjustment Mechanism (CBAM) is now a pressing challenge for exporters worldwide. By pricing the carbon content of imports, CBAM ensures companies outside the EU face the same climate costs as European manufacturers under the EU Emissions Trading System (ETS). It is a key part of the EU's goal to be carbon neutral by 2050, preventing "carbon leakage" ensuring that all carbon emissions - regardless of origin - are equally penalized.

In its first phase (2023–2025), the CBAM targets high-carbon sectors such as iron, steel, cement, aluminum, and fertilizers. However, from 2030 onwards, textiles are expected to be included, posing serious implications for textile manufacturing countries.

While textiles are not as energy-intensive as the sectors currently covered under CBAM, the policy could still undermine Pakistan's export competitiveness, given the dependency on textile export revenue. With the EU as Pakistan's largest export market and textiles as its major export, future market access will increasingly depend on the carbon footprint of Pakistani goods. Given the price-sensitivity and highly elastic nature of textiles, even marginal cost increases from carbon tariffs could lead to a noticeable drop in demand.

For Pakistan, the risk of losing competitiveness is especially urgent due to three interrelated structural challenges in its industrial sector.

First, industrial emissions in Pakistan have steadily risen over the past five decades, driven by a growing reliance on coal. This shift could make the country's manufacturing base increasingly carbon-intensive and less competitive in a climate-conscious global market.

Second, Pakistan is a net importer of carbon emissions - an often overlooked aspect of its climate profile. The carbon embedded in imported raw materials and intermediate goods adds to the emissions footprint of its export value chains, inflating the overall carbon intensity of its final products.

Third, recent energy reforms - such as the gas levy and the proposed CPP levy legislation under IMF conditionalities - appear designed to push industries away from cleaner, gas-based self-generation toward the more carbon-heavy national grid, risking an increase in emissions per unit of output.

Together, these trends not only raise Pakistan's exposure to CBAM-related costs but also risk non-compliance with international climate obligations under the UNFCCC, the Paris Agreement, and Sustainable Development Goals (particularly SDG 7 on clean energy and SDG 13 on climate action).

In an era where climate standards

are becoming a precondition for access to global markets, Pakistan's energy trajectory - marked by rising emissions, imported carbon, and coal reliance - could undermine its export competitiveness and expose it to carbon and trade penalties if left unaddressed.

Coal reliance and accelerating carbon emissions in Pakistan:

Pakistan's emissions profile underscores the urgent challenge ahead. Coal power, which accounts for 40% of the country's energy mix, is a significant contributor to rising emissions. Despite its environmental costs, Pakistan remains heavily reliant on coal imports due to its low cost and CPEC-linked investments that have deepened this dependence.

However, this reliance clashes with the global shift toward carbon accountability. Over the past five decades, carbon emissions from industrial processes in Pakistan have increased at an average annual rate of 5.3%, signaling not only sustained but accelerating carbon intensity in domestic production.

Pakistan as a net importer of carbon:

Importantly, Pakistan's carbon challenge extends beyond domestic emissions. As a net carbon importer, much of the emissions embedded in its exports come from imported raw materials and machinery, particularly from high-emission economies like China (figure 2).

This outsourced carbon, combined with rising local emissions, could make Pakistan's supply chains carbon intensive - a situation that should be avoided at all costs.

Since CBAM taxes emissions across the production process, Pakistan's status as a net carbon importer heightens the vulnerability of its exports. In contrast, regional competitors like Vietnam, China, and India are net carbon exporters (figure 3), shifting their emissions abroad.

For instance, Zhang and Chen (2022) find that over 6% of China's exports contain carbon transferred to other Belt & Road Initiative countries, most of which are net carbon importers. Pakistan's growing reliance on Chinese inputs raises the embedded emissions in its textile exports - thereby potentially eroding Pakistan's price competitiveness in major markets.

Potential violation of international conventions:

The implications extend beyond trade and competitiveness. Increased coal use driven by distorted energy pricing risks violating Pakistan's international commitments.As a signatory to the United Nations Framework Convention on Climate Change (UNFCCC), and the Paris Agreement, Pakistan is obligated to reduce emissions by 20% by 2030 and transparently report its progress. Increased reliance on coal will spike carbon emissions, drawing international scrutiny and weakening Pakistan's credibility in climate negotiations.

CHPs for industrial decarbonization:

To avoid the rising costs of carbon non-compliance and trade penalties, Pakistan must urgently reorient its industrial energy strategy. The path forward lies in smartly integrating renewable energy with gas-based Combined Heat and Power (CHP) systems. CHP offers a low-carbon, flexible solution capable of stabilizing the intermittency of renewables like solar, while leveraging existing gas infrastructure.

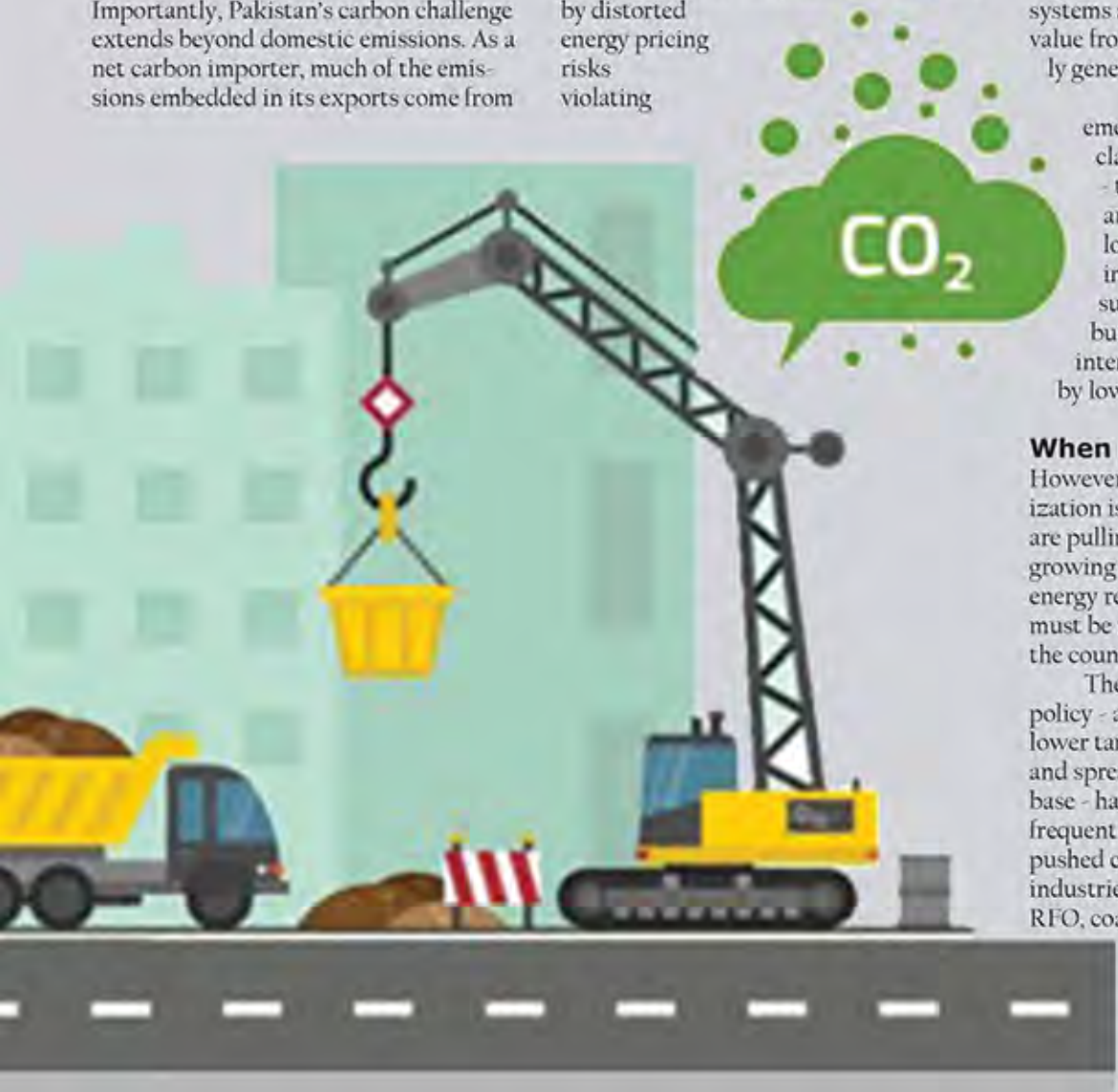
Additionally, CHP engines can be integrated with solar PV and battery energy storage systems (BESS), creating a practical and scalable route to decarbonize industrial energy use while reducing dependence on imported coal. These systems also extract maximum economic value from gas molecules by simultaneously generating electricity and useful heat.

In this context, gas and RLNG emerge as essential bridge fuels - classified as cleaner technologies - that can complement renewables and enable the transition to a low-carbon industrial base. Aligning with this strategy not only supports compliance with CBAM but also helps uphold Pakistan's international climate commitments by lowering industrial emissions.

When reforms backfire:

However, while the need for decarbonization is clear, current policy measures are pulling in the opposite direction. The growing disconnect between Pakistan's energy reforms and its climate obligations must be urgently addressed to preserve the country's industrial future.

The objective of the IMF-backed policy - aimed at maximizing grid usage to lower tariffs by increasing consumption and spreading fixed costs over a broader base - has failed to materialize. Instead, frequent outages and rising costs have pushed consumers toward solar and industries toward alternative fuels like RFO, coal, and biomass. ■



Sheikh Osama Nadeem

CEO, E-Turbo Motors

Standardisation is Key to Unlocking Pakistan's EV Potential

M. Naeem Qureshi
Managing Editor Energy Update

In an exclusive conversation with Energy Update, Sheikh Osama Nadeem, CEO of E-Turbo Motors, discusses the phenomenal growth of the electric vehicle (EV) market in Pakistan — particularly in the two-wheeler segment — and sheds light on the urgent need for regulatory reforms and standardisation. He emphasises that without a universal EV charging infrastructure and component uniformity, especially in urban centres like Karachi, the industry cannot realise its full potential. He also speaks about E-Turbo Motors' role in leading local production and what the government must do to make EVs a sustainable reality for Pakistan.

Energy Update (EU): How do you view the current state of the electric two-wheeler market in Pakistan?

Sheikh Osama Nadeem: The electric two-wheeler or electric scooter market has seen phenomenal growth in Pakistan. In the first year, about 6,000 units were sold. This jumped to 14,000 in the second year, and 24,000 in the third — which shows more than 100 per cent growth annually. It reflects a clear demand for green, low-cost, and environment-friendly mobility options, especially among middle-income families.

EU: Despite this growth, what challenges are limiting the wider adoption of EVs in Pakistan?

Mr Nadeem: One of the biggest challenges is the lack of charging infrastructure, especially in urban centres like Karachi where a large portion of the population lives in apartments. These residents don't have access to private charging setups. Another serious concern is the frequent theft of EV batteries, which are quite expensive and create financial stress for customers.

EU: What role does standardisation play in tackling these issues?

Mr Nadeem: Standardisation is crucial. Currently, around 45 companies are offering electric scooters in Pakistan, each with about five different models. The problem is that each model has a different set of components — from charging connectors to internal wiring — which leads to confusion and difficulty in finding spare parts. Without standardisa-

tion, the availability of spare parts and the development of a universal charging infrastructure are impossible.

EU: Can you elaborate on how standardisation impacts infrastructure development?
Mr Nadeem: A universal charging infrastructure simply can't exist if every electric vehicle — whether a scooter or a car — uses different batteries with varying charging parameters. That's why the government must introduce a comprehensive regulatory and standardisation policy. It should not just be suggested, but mandatory for all market players. This is essential for setting up public and home-based charging systems, especially in cities.

EU: What initiatives have the federal or provincial governments taken in this space?
MrNadeem: The Punjab government and the Alternative Energy Development Board (AEDB) have been proactive. Punjab, in particular, has announced subsidies for electric two-wheelers and rickshaws, which will encourage more people to switch. But these efforts need to be complemented by a strong regulatory framework on the national level for consistent growth.

EU: What is your take on the affordability of EVs in the local market?
Mr Nadeem: Right now, EVs are relatively expensive due to high import duties imposed by our government on these vehicles and their components. To address this, local production is key. At E-Turbo Motors, we've already begun manufacturing some components locally. This not only reduces costs but also creates employment opportunities for skilled workers in Pakistan. With more support from the government, such as tax breaks or incentives for local manufacturing, we can bring prices down further.

EU: Beyond cost and convenience, how important are EVs for Pakistan's broader economic and environmental goals?
Mr Nadeem: Extremely important. Electric vehicles, especially two-wheelers, can significantly reduce our dependence on imported fossil fuels. If just 30 per cent of conventional motorcycles in Pakistan were replaced with electric ones, the country could save billions spent on fuel imports. Plus, it's a huge step forward in tackling climate change. EVs align perfectly with Pakistan's green transition goals.

EU : What message would you give to policymakers and industry stakeholders?
Mr Nadeem: The EV market is growing rapidly, and now is the perfect time to scale it sustainably. But this will only be possible if the government enforces a binding policy on standardisation and supports local manufacturing. We need a coherent national strategy — and we need it now — to make EVs truly accessible, affordable, and impactful for Pakistan.

ENERGY NEWS

KP Prioritizes Timely Completion of Hydropower Projects

EU Report

Khyber Pakhtunkhwa Chief Minister Ali Amin Gandapur has declared the timely and high-quality completion of hydropower projects a top priority for the provincial government to harness KP's significant renewable energy potential. Chairing a high-level meeting of the Energy and Power Department, the chief minister reviewed progress on various hydropower schemes under the Annual Development Programme (ADP). He emphasized that 100% financial progress must be achieved by the end of the current fiscal year, along with meeting the scheduled physical progress targets. Officials presented detailed briefings on the status of both small and large-scale projects. The chief minister underscored that accelerated development and proper execution of these projects are vital for long-term energy security and economic growth in the province. He also reiterated the government's commitment to solarisation, terming it a flagship initiative of the current administration, and ordered the expedited implementation of solar energy solutions across the province. ■

18 killed as torrential rains batter Punjab

EU Report

As torrential rains and violent thunderstorms swept through Punjab, at least 18 people lost their lives and 110 others sustained injuries in rain-related incidents, the Provincial Disaster Management Authority (PDMA) confirmed. DG PDMA Punjab Irfan Ali Kathia termed the weather conditions "unprecedented" and "beyond expectations", saying that although heavy rainfall had been forecast, the severity of the system was not anticipated. Furthermore, 124 collapse incidents were reported across Punjab province. Some 80% of structural collapses involved solar plates. A majority of these incidents were linked to rooftop solar panels. Kathia said, "Eighty per cent of the collapsed structures involved solar plates. Except for three incidents, all others were caused by these installations," he revealed. "We welcome solar technology, but installations must be secure to prevent such tragedies." He urged citizens to be prepared for worsening weather patterns, highlighting the link between increasing temperatures and extreme climate events. ■

Diwan International Shines as Gold Sponsor at ISEM

EU Report

Diwan International Pvt. Ltd. made a commanding presence at ISEM 2025, Pakistan's leading B2B solar exhibition, as the gold sponsor, drawing major attention with its impressive showcase and strong industry partnerships. The company's dynamic booth became a hub for EPCs, installers, and energy leaders, fostering impactful discussions and exploring sustainable solutions for Pakistan's growing energy needs.

A key highlight was the official launch of Jinko Solar's Tiger Neo X20, the high-efficiency panel offering up to 670W output and 24.8% efficiency. In a moment of pride, Mr Shehan, Director Sales at Jinko Solar Pakistan, presented a commemorative 20-busbar PV cell shield to Mr. Faaz Diwan, Director of Diwan International, recognizing their strategic alliance.

Diwan also spotlighted innovations from its global partners, including Jinko, LONGi, Trina Solar, Huawei, BYD, Pilot, KUKA Cable, Leoch, and CHINT, reinforcing its commitment to driving solar excellence in the region. ■

Rising power rates, tax burden haunt Pakistanis

EU Report

While economic concerns continue to ease, rising electricity prices and the tax burden remain worrying for more Pakistanis.

This was the crux of the Consumer Confidence Index for the second quarter of the current year, conducted by research company Ipsos. The survey was carried out across the country with over 1,000 people interviewed via telephone.

When asked about the most worrying issues, the respondents cited electricity bills and continuously increasing taxes. However, the findings showed that two in five Pakistanis believed the country was on the right track. Optimism was at its peak in Khyber Pakhtunkhwa followed by Punjab - higher among rural population and middle-income groups.

The report claimed that optimism had increased sharply in last couple of years, now breaking all records, reaching the ever highest in six years. Moreover, three in 10 Pakistanis believed that the country's economic condition was strong. Current perceptions of economy being strong are ever highest since August 2019.

It claimed that one in five Pakistanis now feels more comfortable while meeting household expenses than a year ago. There is even better feeling in rural citizens.

The survey report added that one in five Pakistanis was now comfortable in making daily household purchases and this ratio nearly doubled in the last one year.

Replying to a question about the future, two in five Pakistanis expected that the economy will get stronger in next six months, with Punjab (41pc) and lower-middle class (43pc) being most optimistic. It is the first time in the last six years that optimism about local economic conditions has just overtaken pessimism.

More than one in three Pakistanis also expected their personal financial conditions would get stronger in the next six months. Women and young citizens were more optimistic. While one-fourth Pakistanis feel confident to invest in future, reaching ever highest in six years, confidence in the ability to make major purchases jumped to 17pc from mere 1pc a couple of years ago.

According to the report, three in 10 Pakistanis felt secure about jobs with rural people and middle-income groups and youth being more secure. Confidence in job security has attained its best level since 2019. ■

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Between IMF and the untouchable elites

By advocating for reform of bureaucratic privileges, the IMF can have a pivotal role in promoting social equity and institutional integrity; Adequate investment in public transport could alleviate burden on urban infrastructure and reduce environmental pollution

Muhammad Zaman

The writer is the founder of School of Sociology at Quaid-i-Azam University, Islamabad

The International Monetary Fund has long been regarded as a pivotal player in Pakistan's economic landscape, often stepping in to provide financial assistance during times of crisis. Recent data suggests some success: inflation fell to a historic low of 0.3 percent in April 2025, and a primary surplus of 2.0 percent of GDP was achieved in the first half of FY25.

However, these headline figures conceal a deeper malaise. IMF's reform agenda, while rigorous on paper, has been unable to address the entrenched structural privileges of Pakistan's elites.

The typical IMF prescription includes austerity: cutting subsidies, increasing taxes and reducing public expenditure. These steps, while fiscally prudent on paper, disproportionately impact the low-income segments of the society. For instance, the removal of energy subsidies has led to higher electricity tariffs, burdening households already struggling with inflation. The lavish perks enjoyed by senior bureaucrats and influential business tycons remain largely untouched.

A comprehensive study by the Pakistan Institute of Development Economics has shed light on the extent of these privileges. Civil servants in Grades 17 and above receive many benefits in addition to their salaries. These include government maintained housing, official vehicles, fuel allowance and free or subsidised utilities.

These perks significantly inflate the actual cost of maintaining a bureaucrat. For example, the total cost of a Grade 20 officer can be more than double their basic salary.

The cumulative effect of these privileges is staggering. Estimates suggest that the annual expenditure on public servants, including salaries, pensions and perks exceeds Rs 8 trillion (houses, various allowances, pension, gratuity, discount plots, medical care, POL, vehicles and their maintenance, insurance and foreign visits).

The PIDE study revealed that there are more than six dozen kinds of perks and privileges. For instance, the use of official vehicles for personal purposes by Grade 20-22 officers costs more than 1.2 times their basic pay.

Housing perks are another area of concern. Only a small fraction of civil servants reside in government-owned accommodations. A majority receives substantial house rent allowances. In cities like Islamabad, this allowance can be as high as 45 percent of the basic pay.

The monetisation policy, intended to replace in-kind benefits with cash allowances, has not been universally implemented. Many senior officers continue to have government-provided housing and vehicles. In Islamabad alone, 17,471 government houses sit on land worth Rs 1.45 trillion. The official cars for senior officers cost Rs 1.53 billion. These figures underscore the substantial opportunity costs associated with maintaining such privileges.

Had the bureaucracy lived like other citizens, they might have been compelled to upgrade the broken civic infrastructure. Cocooned in official residences and surrounded by comfort, they remain insulated from the common man's misery.

The allocation of luxury housing for bureaucrats continues. The Punjab government recently approved the construction of 27 luxurious houses at a cost exceeding Rs 1.64 billion. Such expenditures highlight the gulf between the state's fiscal policies and the lived reality of its citizens.

This privileged class consumes a major share of the national budget. Yet, they continue to demand salary hikes in every budget.

Had the bureaucrats lived like other citizens, they might have been compelled to upgrade the broken civic infrastructure. Cocooned in official residences, chauffeured in government vehicles, guarded by security agencies and surrounded by comfort and serving staff, they remain insulated from the common man's misery. They neither experience the hardship at public hospitals nor the frustration of failing schools and crowded public transport.

Let us end this privilege. Let us treat them like other Pakistanis. Only then, perhaps, will they design public transport systems they will be willing to use; build schools good enough for their own children; and hospitals they will not mind visiting when needed.

While the IMF mandates reduction of subsidies that directly affect the poor, it remains silent on the extravagant expenditure incurred by the bureaucratic elite. This approach not only perpetuates inequality but also undermines the credibility of the reforms.

If the IMF had a more equitable reform agenda it would make its support conditional on a commitment by the government to curtail the bureaucrat's privileges. This could start with the monetisation of all in-kind benefits. The savings could then be redirected to health, education and public transportation sectors.

Adequate investment in public transport could alleviate the burden on urban infrastructure and reduce environmental pollution. If government officials were to forgo vehicles and fuel allowances, the state could channel those funds into developing efficient and affordable public transit systems that would benefit the entire population.

If the IMF's reform agenda included the rationalisation of bureaucratic perks, it could lead to more equitable resource allocation. Redirecting funds from excessive administrative expenses to sectors like education, healthcare and public transport can foster public trust in governmental institutions.

The IMF's efforts to stabilise Pakistan's economy are noteworthy. However, a more holistic approach, addressing the structural inefficiencies, is imperative. By advocating for reform of bureaucratic privileges, the IMF can play a pivotal role in promoting social equity and institutional integrity. ■

Petroleum minister visits Parco

EU Report

Minister for Petroleum Ali Pervaiz Malik visited the Corporate Headquarters of Pak-Arab Refinery Limited (Parco) on Friday. He was received by Managing Director of Parco Irteza Ali Qureshi, along with the company's senior leadership team, according to a statement issued by the company. During the visit, the minister was given a comprehensive briefing on Parco's modular growth strategy, its five-decade legacy of operational excellence, and its future strategic roadmap. The presentation highlighted Parco's critical role in strengthening Pakistan's energy infrastructure through innovation, efficiency and sustainability. The minister acknowledged the importance of Parco's contribution to Pakistan's energy sector and commended the company's commitment to maintaining high standards of operational performance and strategic foresight. ■

Nazir Appointed as MD National Grid Co

EU Report

Engineer Muhammad Shahid Nazir has been appointed as the Managing Director of the National Grid Company of Pakistan (formerly NTDC). The company's Board of Directors has officially approved his appointment and issued the notification.

Prior to this appointment, Engineer Shahid Nazir was serving as General Manager Project Delivery (North) and has played a pivotal role in the execution of several national power transmission projects across Pakistan. Notably, he served as Project Director for the Matiari–Lahore Transmission Line.

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ENERGY UPDATE MAGAZINE

Power sector: where theft wants reward

Country loses Rs600bn annually to power pilferage

Samir Fazal

The writer is an economist with nearly 20 years of experience, and has an interest in Pakistan's stock market, energy and auto sectors

The country loses Rs600 billion annually to electricity theft; the figure, even by conservative estimates, is a stark reminder of the system and governance failures that have compromised our institutional capability to reform the energy sector.

Federal Energy Minister Awais Leghari's comments on different occasions also make another thing clear: there is sufficient power supply available, but additional demand is coming from areas entrenched in non-payment and power theft. It's not Pakistan's energy capacity, but the people's ability and willingness to pay. Supplying energy to areas where power theft is rampant would inflict additional losses on the national exchequer. These are not technical or operational issues—they are also a massive bone of contention for honest, paying consumers and institutional reform efforts.

K-Electric's data-driven, economic loss-based load shedding is not arbitrary—it is fundamental to fairness to regularly paying customers. Recently in areas like Malir Colony, Jinnah Square and Khokrapar—where losses are at least 90%, if not more, and cumulative dues stand at Rs 1.087 billion—as per information from the power utility, a mob protest was held by a political party.

Only a couple of kilometers away in Model Colony and adjacent areas like Shah Faisal Colony and Indus Mehran, residents pay their bills and face no loadshedding. Are these citizens to be punished for compliance, while defaulters get political sympathy and power?

Protests and political sloganeering cannot overwrite the fact that non-payment is also parallel to theft of power and is now being adopted by masses as a choice to get free electricity.

The optics of protests in economic hub Karachi, led by organized factions, only serve to amplify investor unease. This isn't just a civic management issue, it's an investment risk. If law-abiding areas are destabilized for political mileage, what credibility does Pakistan hold in global capital markets?

The Federal Government and Special Investment Facilitation Council (SIFC) have done heavy lifting: unlocking capital, negotiating tariff rebasing, and aligning government priorities with investor confidence. All of this is jeopardized if the narrative shifts toward subsidizing theft and undermining compliance. What are lawmakers in Provincial Assembly of Sindh pushing for when they want uninterrupted power supply also threatening arrests of officials of the sole power supplier of the city.

There is no room—nor justification—for free electricity. Any deviation from this principle is a direct threat to fiscal reform, investor sentiment, and the integrity of Pakistan's power sector roadmap. The message to all stakeholders must be clear: compliance is rewarded, theft is penalized. Anything less is economic self-sabotage.

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President Approves Captive Power Plants Levy Bill Amid Industry Concerns

Mushtaq Ghumman

President of Pakistan has signed into law the Off the Grid (Captive Power Plants) Levy Bill, 2025, following its approval by both Houses of Parliament. The legislation imposes a phased levy on natural gas and RLNG consumption by captive power plants (CPPs), sparking concern among industrial stakeholders.

Introduced by Federal Minister for Petroleum Ali Pervaiz Malik and passed by the National Assembly on May 22, the bill mandates an immediate 5% levy, increasing to 10% by July 2025, 15% by February 2026, and reaching 20% by August 2026. The move faced strong opposition in Parliament but was passed by majority vote.

According to the Ministry of Parliamentary Affairs, the bill received presidential assent on June 6 and has been forwarded to the relevant ministries for implementation.

Under Clause 3, all CPPs must pay the levy in addition to the OGRA-notified gas price, with collection facilitated by designated agents. Clause 4 outlines the levy calculation, based on the gap between NEPRA's B3 industrial tariff and CPP self-generation costs.

Clause 5 stipulates that collected levies will be used to reduce electricity tariffs for all consumer categories. An annual utilization report must be submitted to Parliament within three months of each fiscal year's end.

Non-payment will trigger recovery action under the Public Finance Management Act, 2019, and repeated defaults may lead to termination of gas supply (Clause 6). However, Clause 7 allows the levy as a deductible expense under the Income Tax Ordinance, 2001.cClause 10 empowers the President to resolve implementation issues not inconsistent with the law.

The National Assembly Standing Committee on Petroleum, in its May 22 meeting, stressed the need for a smooth transition and industry consultation. It urged the Power Division to submit a detailed transitional plan, especially regarding coordination with K-Electric, and suggested an in-camera session to discuss the Memorandum of Economic and Financial Policies (MEFP).

The Committee also recommended that captive power users retain gas access but pay higher tariffs, especially for non-export sectors. It emphasized a structured, transparent transition process with minimal disruption to industrial operations.

The bill now moves toward phased enforcement amid close monitoring by parliamentary committees and industry stakeholders. ■

Sindh CM Opposes 18% GST on Solar Panels, Allocates Rs25 Billion for Solar Projects

Sindh Chief Minister Syed Murad Ali Shah, in a detailed post-budget press conference, strongly opposed the federal government's proposed 18% General Sales Tax (GST) on imported solar panels, calling it unjust and counterproductive to the nation's clean energy goals.

Highlighting Sindh's commitment to renewable energy, the Chief Minister announced a significant allocation of Rs25 billion for solar projects, which will also contribute to climate change mitigation. He acknowledged the rising poverty linked to the stringent IMF fiscal constraints but emphasized that the provincial government is still prioritizing sustainable development. The Chief Minister revealed that Karachi's K-IV water supply project is also being integrated with renewable energy solutions, including plans for a high-capacity desalination plant powered by clean sources. A Rs20 billion feeder line has been earmarked to facilitate this effort.

Shah criticized the federal government for excluding major energy and infrastructure projects in Sindh from the Public Sector Development Programme (PSDP) and expressed concern over the slashed federal allocation for the Sukkur-Hyderabad Motorway. He stressed that such exclusions and tax burdens, like the proposed solar GST, undermine the province's developmental potential.

Further, Shah announced a Rs600 billion water and sanitation initiative to uplift rural living standards, indirectly supporting health and energy efficiency by reducing waterborne illnesses and boosting clean water infrastructure.

In his remarks, Shah reiterated that the *Pakistan People's Party will not support the federal budget unless development funds are fairly distributed* and unjust taxation like the solar GST is reversed. ■

ECC Approves Power Purchase Agreements for Karachi Nuclear Power Plants K-2, K-3

Mushtaq Ghumman

In a key development for Pakistan's energy sector, the Economic Coordination Committee (ECC) has approved the signing of Tripartite Power Purchase Agreements (TPPAs) for the Karachi Nuclear Power Plants Unit-2 (K-2) and Unit-3 (K-3), each with an installed capacity of 1,145 MW.

The agreements will be signed between the Pakistan Atomic Energy Commission (PAEC), National Grid Company (NGC)—formerly NTDC—and the Central Power Purchasing Agency-Guaranteed (CPPA-G), the market operator.

According to a briefing by the Power Division, K-2 and K-3 are strategic baseload facilities located in Karachi and operated by PAEC. NEPRA granted generation licenses to the plants in December 2019 (K-2) and February 2021 (K-3), with commercial operations beginning on May 21, 2021, and April 18, 2022, respectively.

The nuclear plants have been supplying electricity to the national grid at some of the most economical rates. NEPRA initially granted interim tariffs on a "Take or Pay" basis, followed by final tariff determinations in January 2022 and April 2023. CPPA-G's Board has already approved procurement of power from both units.

The TPPA will be based on the standardized draft prepared under the Power Generation Policy 2015, with project-specific and performance-based amendments. NEPRA cleared the draft agreements in April 2024.

The ECC approved the Ministry of Energy's proposals, paving the way for the formal execution of TPPAs to ensure reliable, clean, and affordable power from these nuclear plants.

Government nears revised PPAs with wind power producers Amid Tough Talks

Khalid Mustafa

The federal government is expected to finalize revised Power Purchase Agreements (PPAs) with wind power plants (WPPs) within the next two weeks, following the model already applied to Independent Power Producers (IPPs) and government-run plants (GPPs).

A senior official from the Power Division, involved in the negotiations, confirmed progress despite earlier resistance, especially from project lenders. 'Talks were challenging due to debt repayment concerns, but we are hopeful of achieving a Re0.13 per unit relief,' the official stated.

The task force, led by Power Minister Sardar Awais Khan Leghari, includes key figures such as Adviser to the Prime Minister on Privatisation Muhammad Ali, National Coordinator Lt-Gen Zafar Iqbal, and representatives from CPPA-G, PPIB, SECP, and NEPRA. Negotiations initially hit stalemates due to lender opposition, but resumed after authorities warned of forensic audits.

The government aims to secure revised agreements transparently and in the country's best interest. Pakistan currently operates 36 wind power projects with a combined capacity of 1,845.475 MW, mostly located in Sindh's Gharo-Jhimpir wind corridor.

However, transmission bottlenecks continue to limit wind energy's full potential. Of these, five projects fall under the China-Pakistan Economic Corridor (CPEC) umbrella.

Jinko Solar Partners with Diwan International to Distribute High-Efficiency Tiger Neo (X20) Panels in Pakistan

Jinko Solar has signed an MoU with Diwan International Pvt Ltd, appointing them as a premium distributor for its latest high-efficiency solar panel, the Tiger Neo (X20), in Pakistan. With an impressive efficiency of up to 24.8%, the Tiger Neo (X20) represents cutting-edge solar technology. The agreement was signed by Mr. Daniel of Jinko Solar and Mr. Muhammad Saleem Diwan of Diwan International, in the presence of Mr. Shehan, Mr. Faaz, and Mr. Amin. This partnership aims to accelerate solar adoption in Pakistan and strengthen Jinko Solar's regional footprint.

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SOLAR ROUND UP

Mou Signing Ceremony Between Jinpeng Group and Inverex Held at Jinpeng Headquarters, China. M. Zakir Ali CEO Inverex with Jinpeng team singing the MOU

M. Naeem Qureshi and team Energy Update with Team AIKO at event organized by AIKO.

Team Energy Update with Team Pakistan Solar Association at Cake cutting ceremony.

Group Photo of Team Energy and Team Pakistan Solar Association with Solar Friends

Group Photo of Saleem Diwan CEO Diwan International and his team with team Huawei

Team Energy Update with Team Dyness at Product launch of Dyness

Glimpse of K-Star stall at SNEC

Team Energy Update with Rana Abbas CEO A Power

Longi Launched HIBC Panels at SNEC

M. Zakir Ali CEO Inverex at SNEC visiting stalls

Team Energy Update with Hammad Aarora GM Marketing at Ziewnic

Team EU with Team Inverex Solar Energy

Team EU at Ningbo Green stall with solar experts

Group Photo of Team Growatt at SNEC

Group Photo of Team Trina Solar at SNEC

Pakistan's glacier crisis and global goal on adaptation

Ecosystem-based solutions play a key role in enhancing resilience to climate change impacts; one of the most urgent priorities is integrating glacier conservation into national water management policies; regional cooperation is essential for addressing the transboundary nature of water resources

Soha Nisar

The writer is a policy analyst and researcher with a master's degree in public policy from King's College, London

As Pakistan struggles with a deepening water scarcity crisis, the spotlight has once again turned toward the glaciers and snow-capped peaks that sustain life across much of the country. For nations like Pakistan, where a majority of water resources depend on the melting snow and glaciers of the Hindu Kush-Himalayas, the stakes are incredibly high. The International Centre for Integrated Mountain Development, in partnership with regional stakeholders, has been spearheading efforts under the Global Goal on Adaptation to address the challenges of climate change in mountainous regions. A recent participation in the Regional Experts' Workshop on developing mountain indicators for the GGA has deepened our understanding of the critical need for focused action to preserve glaciers and ensure water security.

The HKH glaciers, often referred to as the Third Pole, are vital sources of freshwater for millions of people, including over 240 million in the mountainous regions and more than 1.6 billion downstream. In Pakistan, the Indus River system, which sustains the livelihoods of countless communities, is heavily reliant on snowmelt from the Karakoram and other mountain ranges. As the planet warms, these glaciers are retreating at an alarming rate, triggering cascading impacts on water supply, agriculture and the broader ecosystem. This is not just a regional issue; it is a global crisis that requires innovative and collective solutions.

The Global Goal on Adaptation,

adopted under the Paris Agreement, presents an unprecedented opportunity for Pakistan to align its climate adaptation strategies with global efforts. The GGA aims to enhance adaptive capacity, strengthen resilience and reduce vulnerability to climate change.

Given the international recognition of the GGA's importance, the challenge lies in translating these high-level frameworks into actionable policies. For Pakistan, this means focusing on innovative solutions that go beyond traditional water management and climate resilience strategies. Let's consider some potential pathways to ensure the long-term survival of glaciers and the sustainable management of water resources.

One of the most urgent priorities is integrating glacier conservation into national water management policies. Pakistan's water resources are in a precarious state, with over 90 percent of the country's water use directed toward agriculture, highly dependent on irrigation. The retreat of glaciers in the Karakoram and Himalayan ranges means less water for agriculture, which exacerbates food insecurity and reduces agricultural productivity. Water-use efficiency needs to be prioritised through smart irrigation technologies, such as drip irrigation and rainwater harvesting systems, which can optimise water use and reduce waste. Additionally, Pakistan must invest in climate-resilient infrastructure, such as reservoirs and dams that capture and store seasonal glacier melt for use during dry periods.

Pakistan's future depends on its ability to protect and manage its mountain ecosystems, especially the glaciers that are the lifeblood of its water resources.

The GGA's focus on early warning systems is another crucial aspect. Given the increasing frequency of glacial lake outburst floods (GLOFs) that can devastate downstream communities, Pakistan should prioritise the development of real-time monitoring systems for glaciers and glacial lakes. These systems can alert communities to potential risks, allowing for early evacuation and disaster mitigation. Integrating community-based monitoring with satellite data can enhance the accuracy of these systems, ensuring that local communities are both informed and empowered to take action.

Ecosystem-based solutions also play a key role in enhancing resilience to climate change impacts. Mountain ecosystems, which include glaciers, forests, wetlands and springs, are integral to maintaining water quality and supply. Pakistan must focus on restoring and protecting these ecosystems, particularly through wetland restoration projects and the conservation of forests and biodiversity. These ecosystems act as natural buffers, regulating water cycles, preventing soil erosion and sustaining biodiversity. Community-driven initiatives, such as community forest management and the restoration of traditional water systems, can ensure that adaptation strategies are locally rooted and effective.

Another innovative solution lies in financing climate adaptation. One of the key takeaways from the GGA workshop was the recognition of the growing financial gap in climate adaptation, particularly in developing countries. Pakistan must advocate for increased international climate financing to support adaptation projects in vulnerable regions. However, reliance on external funding alone is not sustainable. Pakistan should also explore public-private partnerships and climate-risk insurance schemes to incentivise private investment in climate-resilient infrastructure and water management projects. Innovative financing mechanisms, such as green bonds and blended finance, can be used to attract private-sector investment and mobilize capital for climate adaptation initiatives.

A key focus of the GGA is ensuring that adaptation policies are inclusive, taking into account the needs of vulnerable communities, including women and indigenous groups. Finally, regional cooperation is essential for addressing the transboundary nature of water resources in the HKH region. The Indus River system, which provides water to Pakistan, is shared with India and China, making cooperation crucial for managing water resources sustainably. The GGA framework emphasises the importance of collaborative adaptation efforts between countries that share water bodies. Pakistan should continue to strengthen its regional partnerships and actively participate in forums that promote science diplomacy, ensuring that knowledge, data and best practices are exchanged to address the common challenges posed by climate change.

Pakistan's future depends on its ability to protect and manage its mountain ecosystems, especially the glaciers. The Global Goal on Adaptation provides a valuable framework, but it is up to us to innovate and act boldly. ■

Electric Vehicle Plant in Karachi Soon

EU Report

Sindh's Senior Minister for Information and Transport Sharjeel Inam Memon has announced that Pakistan's automobile sector is on the brink of a transformation with the establishment of an electric vehicle (EV) manufacturing plant in Karachi, backed by the world's largest EV company. Speaking at the Sindh Assembly, Memon revealed that the provincial government had signed multiple MoUs during an official visit to China, aiming to expand the footprint of green energy and electric transport across Sindh. He emphasized that the new EV plant in Karachi would drastically reduce vehicle costs, increase employment, and promote environmental sustainability.

"These vehicles will be available at just 25% of the price of imported electric cars," Memon said, underscoring the affordability and accessibility benefits of local manufacturing. ■

Women to get 1,000 e-scooters soon

EU Report

A high-level meeting was held in Karachi to review progress on major transport initiatives, including electric vehicle (EV) taxis and scooters. The meeting was chaired by Sindh Senior Minister and Minister for Information, Transport, and Mass Transit, Sharjeel Inam Memon.

Memon said EV taxis and scooters are not only employment opportunities for the youth but also vital for enhancing women's mobility and improving the environment. He added that the government is working to launch the EV taxi service alongside the scooter distribution by June 2025. The project director of the Yellow Line BRT informed the meeting that a major component of the project, the Jam Sadiq Bridge, is expected to be completed by June 2025, three months ahead of the original deadline of September 2025. He also reported that work on Depot 1 and Depot 2 is progressing rapidly, with both expected to be completed ahead of schedule. ■

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