

ENERGY UPDATE

IRANIAN OIL OPTION
RETURNS FOR PAKISTAN

RS18.77 TRILLION FEDERAL BUDGET:
**BUDGET: CLIMATE CRISIS IGNORED
AS DEBT, DEFENCE PRIORITIZED**

WATER TURNS MOST MISUSED
NATURAL ASSET IN PAKISTAN

PAKISTAN CANNOT TAX ITS FUTURE
TO PAY FOR ITS ENERGY PAST

GROWATT

All Your Needs for Solar and Energy Storage



Whole system
solution



Enhanced safety
with LFP



Smart O&M



Growatt New Energy

Shenzhen Growatt New Energy Co., Ltd.

en.growatt.com info@growatt.com

+92-300-404-5884

ONE SYSTEM TOTAL POWER CONTROL

INV-MS-GS215-2H3

Multi
Fusion



Reliable



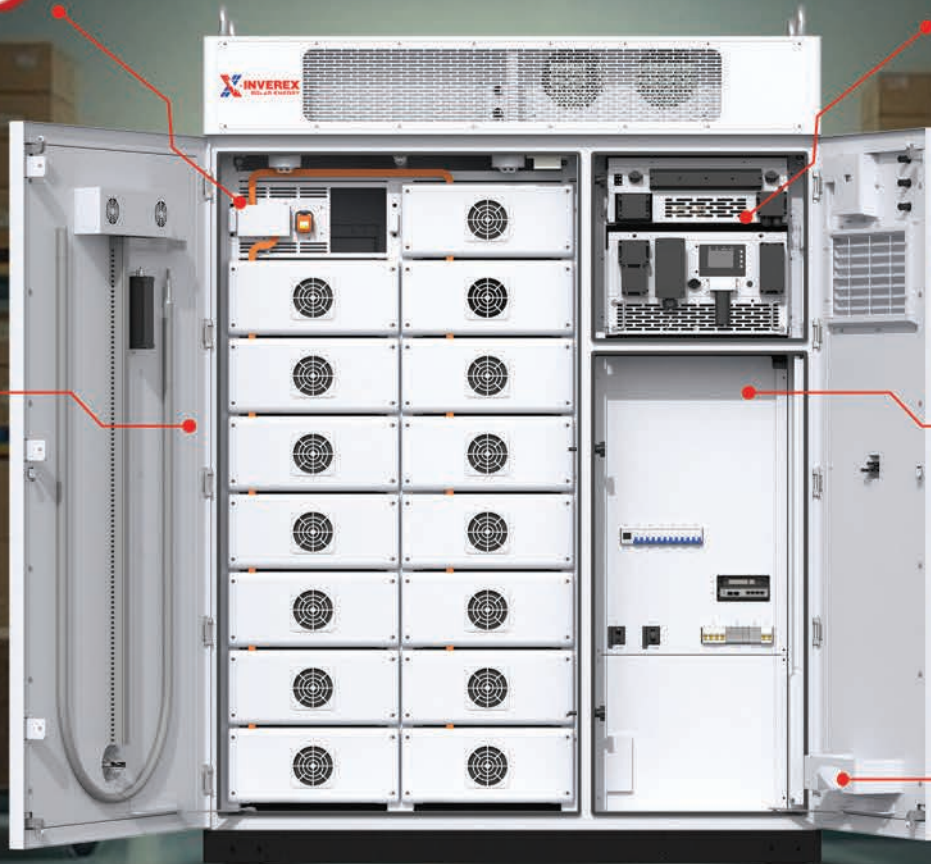
Intelligent
Temperature
Control



Scalable



Safer





Building Your Trust in Solar

TIGER Neo 3.0

POWERED BY

**ADVANCED QUAD-CUT
CELL TECHNOLOGY!**

**MORE POWER
STARTS EARLIER.
GENERATES LONGER.**

Higher Output | Greater Reliability
Lower LCOE | Maximum Value



High Power Output
Upto 670W
Maximum Efficiency



Lower Degradation
1% First Year
0.35% Annual Degradation



Better Low-Light
Performance
More Power | More Savings
Sunrise to Sunset.



Enhanced Reliability
Extreme Weather
Resilience & Durability



Linear Power
Output Warranty

JinkoSolar - The World's Trusted Solar Brand

400 GW+ global shipments • Over 15 GW powering Pakistan
• 1 in every 7 solar panels installed worldwide is from JinkoSolar



@Jinkosolar



www.jinkosolar.com

Local Support, Global Quality. Trusted by Pakistan



NEW ARRIVAL

Z-BOX 30KW + Z-BOX 7KW

Two New Lithium Power Solutions



**YEARS
WARRANTY**

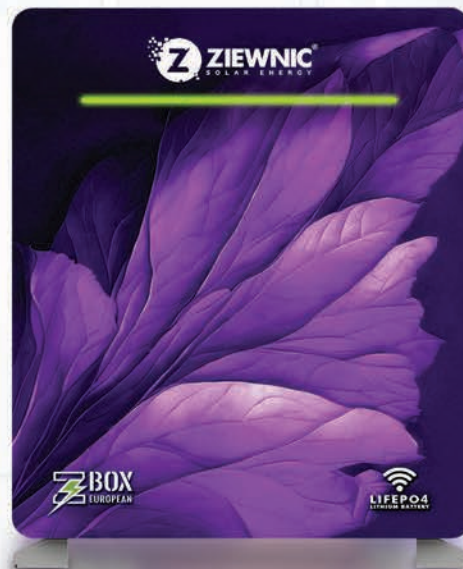


**LIFE UPTO
20 YEARS**



Z-BOX MAX EUROPEAN
30KW | 51.2V | 600AH

- 8000+ CYCLES
- BYD CELLS
- 200A CHARGE/DISCHARGE



Z-BOX EUROPEAN
7.168KWH | 25.6V | 280AH

- EUROPEAN DESIGN
- SMART BMS
- BLUETOOTH + WI-FI



UAN 021 111 000 666
www.ziewnic.com



10



14



18



22



24



26



34



36

10 How Much Solar Power Is Actually Installed in Pakistan?

14 Climate Change Melody: Pakistan Burns While Political Leaders Look Away

18 Alaska Batteries Lights Up Pakistan With Widespread Market Expansion , **Musa Bin Haroon**, CEO, Alaska Batteries

22 Refinery upgradation trapped in bureaucratic limbo

JinkoSolar is one of the world's leading solar technology companies: **Tahir M Hashim**, JinkoSolar's Country Head for Pakistan, Afghanistan, and Sri Lanka

24 Fuel Crisis Drives Pakistan Toward Electric Vehicles Amid Industry Divide

26 Solar panel retirement is becoming a worldwide challenge, **Amir Ul Ebad Khan**, Presents AI-Driven Vision for Better Circular Energy Solutions

34 Reko Diq saga continues to haunt the nation



High Efficiency, Smart Performance Reliable Energy Solutions

SUN2000-330KTL-H1 | SUN2000-150K-MG0
SUN2000-115KTL-M2 | SUN2000-50KTL-M3



0301 6765749
Karachi

0300 8290375
Lahore

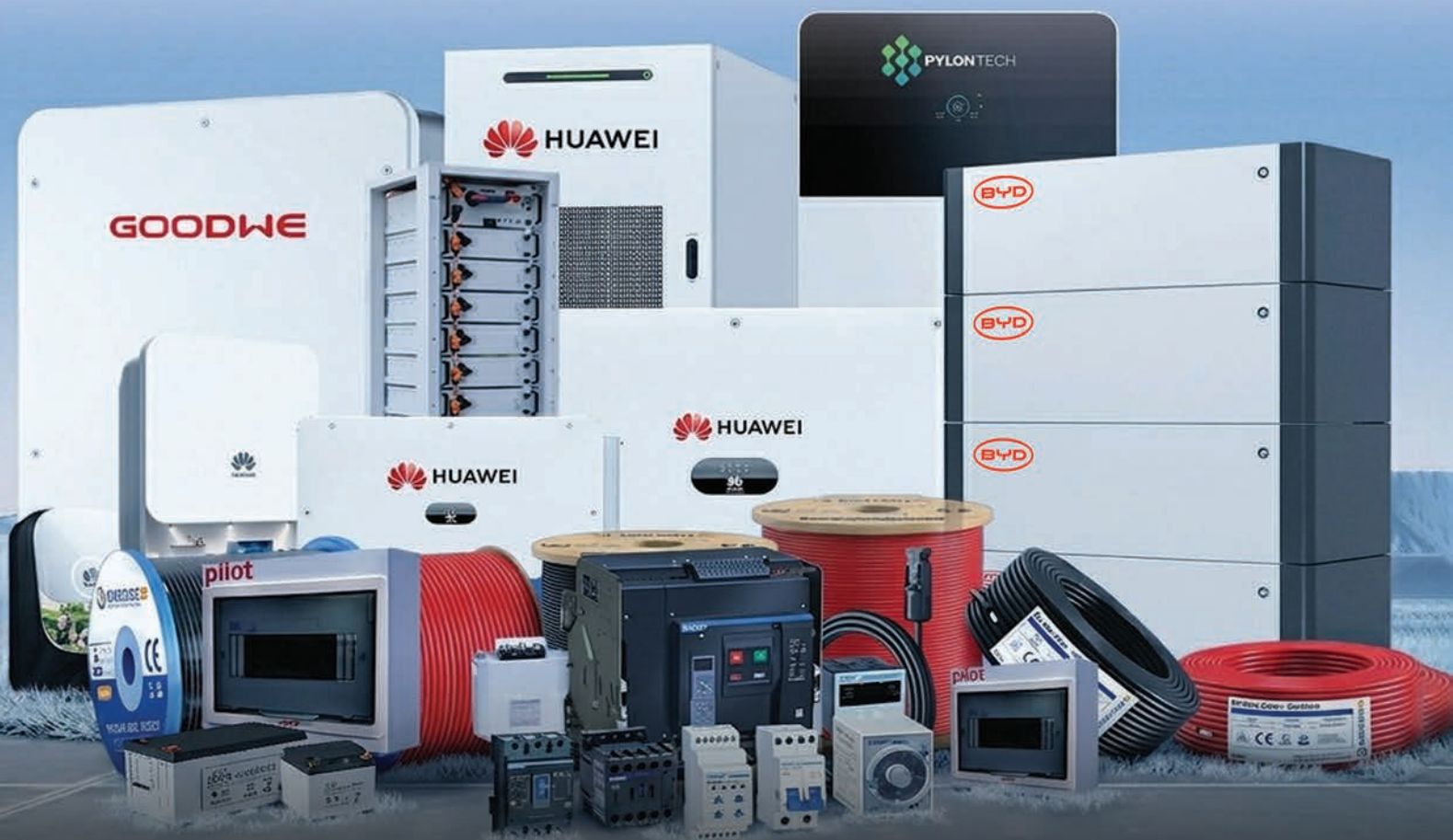
0332 3318888
Peshawar

0301-5717629
Islamabad

0300-0222129
Quetta



Authorized Distributor of Global Brands



Office # 1018, 10th Floor, Al-Najeebi Electronic Market, Abdullah Haroon Rd, Saddar Karachi

0300 0222981
Karachi

0300 8290375
Lahore

0332 3318888
Peshawar

0301-5717629
Islamabad

0300-0222129
Quetta



Next-Generation **Lithium** Power

**SOGO Quantum Battery Pack Designed for Long Life,
Fast Charging & Superior Performance**



**LONG POWER
BACKUP**



**LONG BATTERY
10+ YEARS DESIGN LIFE**



**VERY LOW
MAINTENANCE**



**CELL SWITCH
6000+ CYCLES**



FROM THE Editor's desk...

Dark Side of Petroleum Dealers

While a low number of petroleum dealers conduct their business somehow honestly in Pakistan, the majority of them are busy looting consumers with hidden cheats as cases of under-filling, fuel adulteration, dispenser tampering, and other violations remain a persistent concern. This is happening due to inaction demonstrated by the Oil and Gas Regulatory Authority (OGRA). It seems that they have no responsibility to protect customers from such cheats. Authorities have repeatedly conducted surprise inspections, but there is no progress yet.

One of the most common complaints against dishonest petroleum dealers is the practice of dispensing less fuel than the quantity for which customers have paid. Through illegal manipulation of electronic fuel dispensers, some operators install concealed digital devices or remotely controlled systems that reduce the amount of fuel delivered while the display shows the correct quantity. Such fraud is almost impossible for an ordinary customer to detect during a routine purchase. Even if a dealer steals only a small quantity from each customer, the cumulative profit earned through this deception can amount to millions of rupees every year. OGRA inspections have uncovered filling stations using remote-controlled devices capable of reducing fuel delivery substantially, leading to criminal cases, arrests, and the sealing of pumps.

Another widespread malpractice involves the adulteration of petrol and diesel by mixing them with cheaper solvents or other unauthorized substances to increase profit margins. Such contaminated fuel reduces engine performance, lowers fuel efficiency, damages injectors and fuel pumps, increases harmful emissions, and may even create serious safety hazards. Consumers often discover the problem only after spending large amounts on vehicle repairs. Industry bodies have also warned the government about illegal blending of solvent oil into petrol and diesel.

Dishonest dealers also employ deceptive tactics while serving customers. Fuel attendants may deliberately distract motorists by engaging them in unnecessary conversation, requesting payment before fueling is complete, or attending to multiple vehicles simultaneously so that customers fail to notice irregularities in the meter reading. In other cases, attendants may not reset the dispenser to zero before starting a new transaction, leading unsuspecting customers to pay for fuel they never received.

The situation is often more difficult for consumers living in rural areas and villages. Unlike urban residents, villagers usually have very few filling stations within a reasonable travelling distance. In many areas, a single petrol pump serves dozens of surrounding villages, leaving consumers with little or no alternative. This lack of competition creates opportunities for dishonest dealers to exploit local communities by supplying less fuel, selling poor-quality petroleum products, or taking advantage of customers who are unfamiliar with their legal rights. Farmers are among the worst affected because they rely heavily on diesel to operate tractors, tube wells, harvesters, and irrigation equipment. The consequences of these dishonest practices extend far beyond individual consumers.



ENERGY UPDATE

Managing Editor
M. Naeem Qureshi
info@energyupdate.com.pk
energyupdate@gmail.com

Editor
Shujauddin Qureshi

Chief Financial Officer
Ruqiya Naeem
ruqiya.nfeh@gmail.com

Chief Marketing Officer
Engr. Nadeem Ashraf
marketing@energyupdate.com.pk
nadeem.event@gmail.com

Deputy Editor and Marketing Manager
Mustafa Tahir
mtmustafa92@gmail.com
mustafa@energyupdate.com.pk

Marketing Consultant
Khalid Iqbal
hikhaid@live.com

Coordinator Lahore
Mohammad Asif

Art Director
Rizwan Ahmad
rizwanahmed55@gmail.com

Advisors
Zafar Sobani
Kalim. A. Saddiqui
Sohail Butt
Anwar Shahid Khan
Raziuddin Razi
Engr. Irfan Ahmed

Circulation & Subscription
Zahid Ali
Alizahid210@gmail.com
Shakeel Qureshi

Overseas Correspondents
Arif Afzal – USA
Hamza Naeem – Canada
Waqar Khan – Abu Dhabi

Legal Advisors
M. Nadeem Sheikh Advocate

Monthly Energy Update

#309, Al-Sehat Centre, Hotel Regent Plaza,
Shahrah-e-Faisal, Karachi-Pakistan.
Tel: 021-3565 3676, 3521 3853, 35674570
Email: info@energyupdate.com.pk
Web: www.energyupdate.com.pk

REGISTRATION # DCO/DDO/LAW/CDGK-41/2006
Published by M. Naeem Qureshi for Energy Update
& Printed at Print Vision, Karachi Cell: 0333-2244586

How Much Solar Power Is Actually Installed in Pakistan?

Out of roughly 53 GW of solar panels imported into the country, only about 20 GW has actually been installed, suggesting a significant portion remains unused or unaccounted

Syed Faizan Ali Shah

Writer is the Advisor to the Minister of Energy (Power Division)

Pakistan's true installed solar capacity remains a subject of debate, with different estimates circulating among industry experts and analysts. Some experts argue that out of roughly 53 GW of solar panels imported into the country, only about 20 GW has actually been installed, suggesting a significant portion remains unused or unaccounted. In contrast, other analysts believe the real installed capacity is much higher, closer to 33–35 GW.

Based on long-standing observations of the solar market, many industry stakeholders question the lower estimates. The solar sector typically does not operate in a way that allows large volumes of equipment to remain idle in storage for long periods. While speculative stocking can occur ahead of policy announcements or regulatory changes, such inventory is usually quickly absorbed into the market once clarity emerges.

Limitations of Net Metering Data

There is also a growing consensus that net metering data alone does not reflect Pakistan's true solar penetration. A significant portion of solar installations exists outside the formal net metering framework, including:

- Self-consumption (behind-the-meter) systems
- Commercial and industrial installations
- Off-grid solar systems
- Informal or unregistered setups

This means official records likely underestimate the scale of solar adoption in the country.

Key Findings from Recent Research

A recent study by HeraldX and Renewables First provides important evidence supporting this gap. Using AI tools, satellite imagery, and geospatial analysis, researchers examined a highly solar-dense distribution area under LESCO in Lahore.

The findings were striking:

Actual installed solar capacity: 177 MW

Officially registered capacity: 95 MW

This indicates that the real installed capacity was approximately 1.86 times higher than what was recorded in official databases—nearly double.

Implications for Pakistan's Power Sector

These findings carry significant implications for energy planning

and grid management:

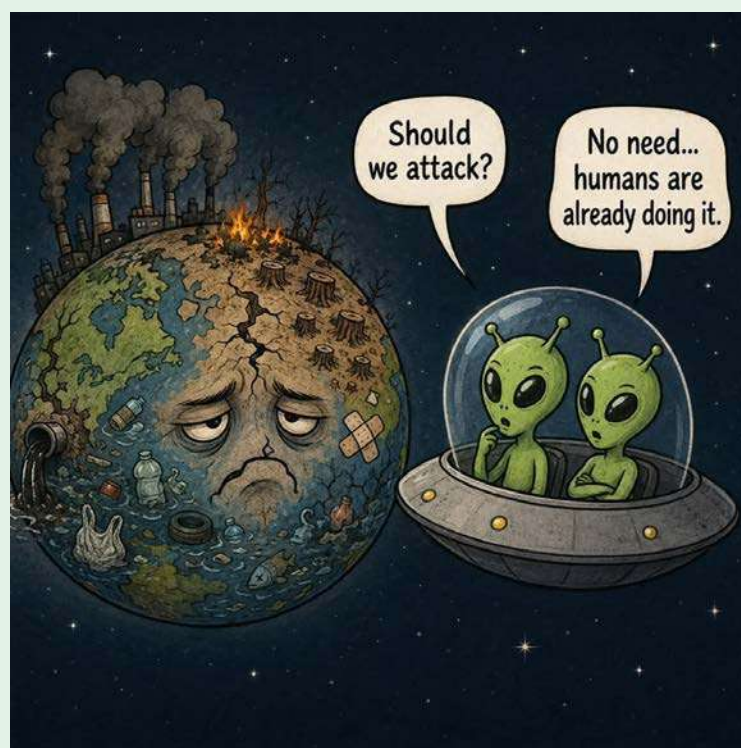
A large portion of solar generation remains invisible to planners and system operators. Net metering records alone cannot accurately capture distributed solar penetration. Grid planning, transformer sizing, load forecasting, voltage regulation, and investment decisions may be based on incomplete data. Some consumers may have installed systems exceeding their approved distributed generation limits. Even with recent policy restrictions on export capacity, these systems continue to operate, primarily for self-consumption

The Need for Better Visibility

Pakistan's power sector is undergoing a rapid transition, and accurate data on distributed solar generation is becoming essential rather than optional. Understanding the true level of solar integration within distribution networks is critical for:

- Reliable grid planning
- System stability and performance
- Accurate demand forecasting
- Effective energy policy formulation

The HeraldX–Renewables First study highlights how emerging technologies such as AI and geospatial analytics can help bridge this “visibility gap” in Pakistan's energy landscape. Ultimately, improving transparency and measurement of distributed solar capacity will be key to building a more resilient and well-planned power system in the country. ■



C&I SOLUTIONS

POWER UP YOUR BUSINESS



HIGH-PERFORMANCE
INVERTERS

ALL-IN-ONE
(AIO) SYSTEMS.

SCALABLE RACK-MOUNTED
BATTERIES.

THE DYQUE
125KW/241KWHES
CABINET.

How Budget puts energy, green growth and industry at heart of economic revival



From power sector reforms and electric vehicles to renewable energy, digital transformation and climate resilience, Pakistan's latest budget signals an ambitious attempt to reshape the country's economic future.

EU Report

For years, Pakistan's economy has been held hostage by a crippling energy crisis, circular debt, soaring import bills, environmental degradation and sluggish industrial growth. Every government has promised reform. Few have been able to demonstrate measurable progress. The Federal Budget 2026-27 seeks to change that narrative.

While much public attention has focused on tax relief for salaried individuals and adjustments in revenue measures, a deeper examination of the budget reveals a far more significant story: the government's determination to transform Pakistan's energy landscape, accelerate green mobility, encourage renewable energy adoption, modernise industry and place climate resilience at the centre of national development.

Whether these ambitions ultimately succeed will depend on implementation, but the direction of travel is unmistakable. The budget presents a vision of Pakistan that is less dependent on imported fuel, more reliant on technology and clean energy, and increasingly driven by efficiency, sustainability and private-sector investment.

The biggest shake-up in Pakistan's power sector

The most striking feature of the budget is the scale of re-

forms underway in the electricity sector. Finance Minister Senator Muhammad Aurangzeb described the current restructuring effort as the most comprehensive reform process in Pakistan's power sector history. According to the government, these reforms have already yielded more than Rs143 billion in subsidy savings during the outgoing fiscal year without imposing additional burdens on deserving consumers.

A major victory against circular debt

For years, circular debt has been one of Pakistan's most persistent economic nightmares. The budget highlights what the government describes as a major breakthrough: achieving net-zero accumulation of circular debt during the outgoing fiscal year.

This may appear technical, but its significance cannot be overstated. Circular debt has repeatedly undermined investment, weakened power companies and burdened taxpayers. If Pakistan can maintain this trend while simultaneously improving efficiency and reducing losses, it could represent one of the most important structural achievements in recent economic history.

Electric vehicles move into the mainstream

Another standout feature of the budget is the continued support for electric mobility. For the first time, government policy appears to be moving beyond mere

announcements and towards creating a practical ecosystem for electric transportation. The budget extends tax incentives and exemptions for electric vehicles and CKD kits until June 2027, ensuring that manufacturers and investors continue receiving policy support.

The government has also announced continued relief for motorcycles, rickshaws, buses and vehicles while reducing duties on imported electric trucks. More importantly, the nationwide PAVE Programme aims to provide subsidised financing for electric bikes and electric rickshaws.

Renewable energy and the green transition

Although the budget does not contain a single headline-grabbing solar package, renewable energy remains embedded throughout the government's broader economic strategy. Pakistan's long-term energy security increasingly depends on reducing reliance on imported fossil fuels and expanding indigenous renewable resources.

Solar energy, in particular, continues to enjoy strong momentum across Pakistan. While households and businesses have independently driven much of the solar boom, the budget's emphasis on energy reform, market competition and efficiency creates an environment that is likely to encourage further solar adoption.

The government's broader objective of reducing subsidy dependence and encouraging efficient energy consumption also aligns naturally with increased investment in solar and other renewable technologies.

Climate change finally gets centre stage

One of the most encouraging aspects of the federal budget is the recognition that climate change is no longer merely an environmental issue—it is an economic issue. Pakistan remains among the countries most vulnerable to climate-related disasters despite contributing only a tiny fraction of global emissions.

Moreover, major allocations for water resources, infrastructure and strategic development projects indicate that climate adaptation is increasingly becoming part of mainstream economic planning rather than remaining a separate policy discussion.

Industry gets a competitiveness boost

A strong economy requires a strong industrial base. The budget includes a range of measures designed to improve competitiveness, reduce costs and stimulate investment. Perhaps the most important among these is the government's tariff rationalisation programme, which reduces tariffs across approximately 7,500 tariff lines and is expected to provide benefits exceeding Rs 120 billion to businesses.

Lower tariffs can reduce production costs, improve export competitiveness and encourage industrial expansion. The budget also introduces further digital monitoring, production tracking and automation systems aimed at improving compliance while increasing transparency across industrial sectors.

Digitalisation: The hidden engine of growth

Energy and industry are not the only sectors transforming. The budget places extraordinary emphasis on digi-

talisation. Pakistan's IT exports are growing at more than 20 per cent annually and are expected to reach approximately \$4.5 billion.

Oil, gas and energy security

While renewable energy dominates future discussions, Pakistan cannot ignore its immediate energy needs. The government has therefore continued efforts to strengthen domestic oil and gas production. For the first time in two decades, Pakistan has awarded 24 offshore exploration blocks, a move expected to attract over \$1 billion in investment. ■

PPL Launches Barite, Lead & Zinc Project



EU Report

Pakistan Petroleum Limited (PPL) has officially commenced the execution phase of its Barite, Lead & Zinc (BLZ) Project by signing a Project Management Consultancy (PMC) contract with Germany-based engineering and consulting firm DMT Germany, marking a major milestone in the development of Pakistan's mineral resources.

The BLZ Project is a joint venture between PPL, the project operator, and the Government of Balochistan. The agreement was signed on June 23 at PPL's head office in Karachi. The contract was signed by PPL Managing Director and CEO Mohammad Khalid Rehman and Head of DMT Germany Florian Beier in the presence of senior officials from both organizations, including Head of PPL Minerals Zeeshan Asghar. The collaboration with DMT Germany reflects PPL's commitment to adopting international best practices, ensuring technical excellence and delivering the project through effective execution and world-class project management.

The BLZ Project is one of Pakistan's largest planned open-pit mining ventures and is expected to play a pivotal role in unlocking the country's mineral wealth. Once operational, the project is anticipated to significantly boost mineral exports, stimulate economic growth in Balochistan, generate employment opportunities and contribute to the sustainable development of Pakistan's mining sector. ■

2025 Ranked 2nd Warmest Year in Past 65 Years in Pakistan

Climate Change Melady: Pakistan Burns While Political Leaders Look Away

Glaciers Melting,
Rivers Shrinking,
Warnings Ignored;
Sindh and Balochistan
Dry Up as Water Crisis
Worsens; Burning
Fields, Empty Canals:
Climate Change
Devastates Agriculture;
Warning Signs Ignored
as Nation Pays the
Price; Country Comes
Under Siege by
Climate Change and
Official Inaction

Special Report by M Nawaz Khuhro

In Pakistan, climate change, also called global warming, is causing decline in water & agriculture production, affecting human health, raising oceans height, melting glaciers fast, killing animals-birds, forcing migration of riverine areas people to urban areas, putting burden on socio-economic conditions of cities, besides causing economic loss. The year 2025 recorded a national annual mean temperature of 23.9 °C in Pakistan, which was 1.09 °C above the long-term average and ranked as the 2nd warmest year on record during past sixty-five years.

Concerning forestry, Pakistan's average annual deforestation rate is estimated at around 11,000 hectares, reflecting persistent pressures on forest resources, according to recent Economic Survey released in June 2026. Total forest area is estimated at approximately 4.1 million hectares, representing about 4.7 percent of the national land area. The average annual deforestation rate is estimated at around 11,000 hectares, reflecting persistent pressures on forest resources.

Pakistan is facing severe water shortage due to climate change. Presently, Sindh province is suffering from a 50 per cent water shortage. Furthermore, Sindh and Balochistan are facing drought-like situation, where crops are being affected. The Guddu, Sukkur and Kotri barrages are not receiving their fair share of water.

According to the Economic Survey of Pakistan June 2026, the year 2025 recorded

a national annual mean temperature of 23.9 °C in Pakistan, which was 1.09 °C above the long-term average and ranked as the 2nd warmest year on record during past sixty-five years.

The State of the Global Climate 2025 report by World Meteorological Organization (WMO) confirms that 2015-2025 are the hottest eleven years on record, with 2025 ranking as the second or third warmest year in the 176-year observational record, at about 1.43 °C above the 1850-1900 average.

In contrast, rainfall during the year was near average with a slight decline of 3 percent below the average. Additionally, significant climate events in 2025 reflect notable variations in temperature, rainfall patterns and incidence of wind extremes across Pakistan.

According to State of Pakistan Climate Report 2025, during the year, temperature extremes were particularly pronounced in southern regions, where Sibbi (Balochistan) been hottest place recorded the highest average period maximum temperature of 37.8 °C. In contrast, colder conditions prevailed in the northern areas, where Skardu (GB) been coldest place recorded the lowest average period minimum temperature of 7.0 °C. Rainfall distribution also exhibited significant regional disparities. The highest rainfall was recorded in Malam Jabba (Khyber Pakhtunkhwa) at 1461.0 mm, whereas Sialkot (Punjab) experienced the wettest day with 363.3 mm on 27th August 2025.

World Meteorological Organization's State of the Climate in Asia 2025 reports that ocean heat, which has increased since the 1990s, reached a new record. Marine heatwaves affected almost the entire ocean area of Asia, with over 10 million km² impacted during July–September – more than the size of People's Republic of China or the United States of America. Continued ocean warming and acidification pose increasing risks to marine ecosystems and coastal communities.

All 23 monitored glaciers in High-mountain Asia lost mass, driven by above-average temperatures and below-average winter snow. This threatens long-term water security in the world's most heavily populated region and leads to an upsurge in hazards – with multiple glacial lake outburst floods and glacier collapses being recorded in 2025, adds World Meteorological Organization.

Asia has warmed faster than the global average in recent decades, with the warming trend during 1991–2025 approximately twice that observed during 1961–1990. The year 2025 was between the second and fourth warmest year on record depending on the dataset used.

Although Pakistan is a minor contributor to global emissions at less than 1 percent and historic emissions at 0.4 percent⁶, the country bears a disproportionately high

burden of global climate change. Coupled with this, the country's vulnerability is also linked to its geography, spans from the world's second-highest peaks in the north to low-lying coastal areas in the south.

The Hindu Kush, Himalaya and Karakoram ranges contain the largest non-polar glacial reserves, while the Arabian Sea coastline further amplifies the country's sensitivity to climatic shifts, resulting in wide-ranging and spatially uneven effects of climate change. In the last 50 years, the annual mean temperature in Pakistan has increased by approximately 0.5 °C⁷, with projections indicating a further rise by 3 °C to 5 °C by the end of this century. In particular, for the year 2025, northern regions have warmed more intensively, temperature anomalies reached +1.24 °C in Gilgit-Baltistan (GB), +1.29

°C in Khyber Pakhtunkhwa and +1.56 °C in Azad Jammu & Kashmir (AJK), all ranked 1st highest during the past 65 years⁸. These rising temperature records are therefore accelerating glacial melt, increasing the risk of glacier lake outburst floods while intensifying atmospheric moisture, resulting in intensified rainfall variability in the country.

Climate change has become a defining global challenge, with far-reaching implications for human well-being, economic stability and sustainable development. Widespread and rapid changes have already been experienced in the atmosphere, oceans, cryosphere and biosphere. According to the Intergovernmental Panel on Climate Change Sixth Assessment Report (IPCC AR6)¹, human-induced climate change is intensifying weather and climate extremes in every region of the world.

This has caused widespread losses and damages to both natural and human systems. As per the report, approximately 3.3 to 3.6 billion people currently live in highly climate-vulnerable environments, where structural development constraints further amplify exposure and reduce adaptive capacity. Although vulnerable populations contribute the least to global emissions, they are affected the most by climate change.

The trend of natural disaster occurrence in Pakistan during 1980-2026 reflects a clear long-term rise in the frequency of disaster events, highlighting the country's increasing exposure and vulnerability to natural hazards. During the 1980s, the number of recorded disasters remained relatively low, generally fluctuating between 0 and 4 events annually (Figure 1). However, from the early 1990s onward, disaster occurrence began to increase gradually, with more frequent fluctuations in recurring years.

A more pronounced escalation in the occurrence of the disaster is visible after 2000, when

annual disaster events repeatedly crossed the range of 6 to 11 incidents. Several peak years were recorded during the mid-2000s and, most notably, after 2015, indicating a growing pattern of recurrent natural disasters, including floods, storms, heatwaves, droughts, landslides and other extreme climatic events. The year 2023 proved to be the most disaster-prone year in 43 years with 13 natural events recorded, demonstrating the intensified incidence of the disaster risks in the country. The upward-sloping trend line further depicts that natural disasters are becoming more frequent over time rather than isolated or cyclical events thereby highlighting the urgency of strengthened climate resilience, disaster preparedness and integrated risk management.

Several peak years were recorded during the mid-2000s and, most notably, after 2015, indicating a growing pattern of recurrent natural disasters, including floods, storms, heatwaves, droughts, landslides and other extreme climatic events. The year 2023 proved to be the most disaster-prone year in 43 years with 13 natural events recorded, demonstrating the intensified incidence of the disaster risks in the country. The upward-sloping trend line further depicts that natural disasters are becoming more frequent over time rather than isolated or cyclical events thereby highlighting the urgency of strengthened climate resilience, disaster preparedness and integrated risk management.

the past nine years. Although 2025 is marked by the shift towards La Niña conditions that temporarily cool the planet, around 90 percent of the ocean surface experienced at least one marine heatwave in 2025. Further, the indicator of global mean sea level, in 2025 remained near the record highs observed in 2024 thereby continued to damage coastal ecosystems and contribute to groundwater salinization and flooding. At the same time, glacier mass loss and declining sea-ice continue to signal rapid cryosphere changes.

In fulfillment of commitments under the United Nations Framework Convention on Climate Change and the Paris Agreement, Pakistan submitted its third Nationally Determined Contribution (NDC 3.0) on 24th September 2025. This submission articulates an integrated and forward-looking framework that embeds both mitigation and adaptation priorities within national development planning. It outlines cross-sectoral interventions spanning energy, industry, agriculture, forestry, waste, water, health, education, housing and social protection systems, with the objective of advancing climate resilience, sustainability and inclusive development. Pakistan remains committed to reduce projected greenhouse gas emissions

by up to 50 percent relative to a business-as-usual trajectory. Under NDC 3.0, this target is extended to 2035, with 17 percent to be achieved unconditionally through domestic policy measures and resource mobilization and an additional 33 percent contingent upon the provision of adequate (primarily grant-based or concessional) international climate finance, alongside technology transfer and capacity-building support.

Climate Change Sixth Assessment Report, human-induced climate change is intensifying weather and climate extremes in every region of the world. This has caused widespread losses and damages to both natural and human systems. As per the report, approximately 3.3 to 3.6 billion people currently live in highly climate-vulnerable environments, where structural development constraints further amplify exposure and reduce adaptive capacity. Although vulnerable populations contribute the least to global emissions, they are affected the most by climate change. Between 2010 and 2020, mortality caused by floods, droughts and storms is estimated to be fifteen times higher in highly vulnerable regions compared to

Wafi Energy Posts 148% Profit Surge, Reappoints Chairperson, CEO

EU Report

Wafi Energy Pakistan Limited (WEPL), formerly known as Shell Pakistan Limited, has reported a sharp rise in profitability, posting a 148 percent increase in profit after tax for the latest financial period, alongside key leadership reappointments.

The company announced that Ghassan Al Almoudi has been reappointed as Chairperson for another three-year term with effect from June 16, 2026. In addition, the board has approved the reappointment of Zubair Shaikh as Chief Executive Officer for the same tenure, ensuring continuity in strategic leadership and corporate governance. WEPL reported a profit after tax of Rs2.16 billion, compared with Rs873 million in the corresponding period last year, reflecting strong operational performance and improved business conditions.

The company also expanded its board, appointing *Waheed A Shaikh* and Habib Haider as directors. Both appointees bring extensive experience in Pakistan's downstream petroleum sector, with expertise in fuel retail operations, energy management, corporate affairs, and business transformation. Wafi Energy Pakistan is a listed company majority-owned by Wafi Energy Holding Limited, based in Abu Dhabi, United Arab Emirates, and continues to operate across Pakistan's downstream oil marketing and retail fuel sector.



Our KIOSK substation & Solar Solutions including LV, MV, Transformer provides economical solution to meet the large scale commercial and industrial solar project requirements.

ADVANTAGES

- LV SIDE : FROM 400VAC UPTO 1150 VAC
- MV SIDE: 6.6 KV UPTO 33 KV
- REDUCED PROJECT COST AND TIME
- REDUCED EQUIPMENT AND CABLE SIZES
- ABB- TIER-1 EUROPE BRAND BREAKERS
- ABB TOUCH SCREEN DISPLAY



FOR QUICK DELIVERY, CONTACT US AT
info@tariqelectric.com

ABB 800-1150VAC
CIRCUIT BREAKERS



ALASKA BATTERIES LIGHTS UP PAKISTAN WITH WIDESPREAD MARKET EXPANSION

Musa Bin Haroon,
CEO, Alaska Batteries

Musa Bin Haroon says our growth is driven by several factors, including continuous investment in technology, customer-centric product development, a highly skilled workforce, and an unwavering commitment to quality; tells we see ourselves not merely as a battery manufacturer but as an energy solutions partner contributing to Pakistan's industrial growth, energy security, and sustainable development

Engr. Nadeem Ashraf

Energy Update conducted an interview with Musa Bin Haroon, CEO, Alaska Batteries, about the progress of his company in Pakistan's energy devices market. The details of the interview are given below:

Q1. Alaska Batteries has established itself as a leading player in Pakistan's battery manufacturing industry. Could you share an overview of the company's current scale of operations, market presence, and the key factors driving its business growth today?

Musa Bin Haroon: Alaska Batteries has evolved into one of Pakistan's most trusted and recognized battery manufacturers, serving the automotive, industrial, energy storage, and commercial sectors nationwide. With a strong distribution network, modern manufacturing facilities, and a reputation built on quality and reliability, we have successfully established a significant presence across all major markets in Pakistan.

Our growth is driven by several factors, including continuous investment in technology, customer-centric product development, a highly skilled workforce, and an unwavering commitment to quality. The increasing demand for reliable energy storage solutions, particularly

in the automotive and renewable energy sectors, has also created substantial growth opportunities. Above all, our customers' trust remains the foundation of our success.

Q2. With Pakistan's energy landscape undergoing rapid transformation, what are Alaska Batteries' plans for future expansion, capacity enhancement, product innovation, and investment in new technologies over the next five to ten years?

Musa Bin Haroon: The next decade presents tremendous opportunities for the energy storage industry. Alaska Batteries has developed a long-term strategy focused on capacity expansion, technological advancement, and diversification of product offerings.

We are actively investing in advanced battery technologies, including lithium-ion energy storage solutions, while continuing to enhance our conventional battery portfolio. Our roadmap includes modernization of manufacturing facilities, increased automation, expansion into emerging energy storage markets, and development of products tailored for renewable energy applications. We believe the future belongs to smart, efficient, and sustainable energy storage systems, and Alaska Batteries is committed to remaining at the forefront of that transformation.

Q3. Sustainability has become a critical priority for manufacturers worldwide.

What environmental and sustainability practices has Alaska Batteries adopted in its manufacturing processes, particularly in areas such as energy efficiency, emissions reduction, recycling, and responsible disposal of used batteries?

Musa Bin Haroon: Sustainability is no longer optional; it is a business imperative. At Alaska Batteries, environmental responsibility is integrated into our operational philosophy. We have implemented energy-efficient manufacturing processes, environmental monitoring systems, and strict compliance mechanisms to minimize emissions and environmental impact. Battery recycling remains one of the most important pillars of our sustainability strategy. Through responsible collection and recycling practices, we ensure that valuable materials are recovered and reused while minimizing waste.

Additionally, we continuously explore opportunities to reduce our carbon footprint through process optimization, resource conservation, and adoption of cleaner technologies. Our objective is to contribute to a circular economy while supporting Pakistan's environmental goals.

Q4. Quality and reliability are essential for batteries used in automotive, industrial, and energy-storage applications. What quality assurance measures and international standards does Alaska Batteries follow to ensure that its products meet the evolving expectations of customers and industry stakeholders?

Musa Bin Haroon: Quality has always been the cornerstone of Alaska Batteries' success. We follow stringent quality management systems and rigorous testing procedures throughout the manufacturing process, from raw material inspection to final product validation. Our products undergo extensive performance, durability, and safety testing to ensure they meet demanding operating conditions. We continuously benchmark our processes against internationally recognized standards and invest in advanced laboratory and testing facilities. Our objective is simple: every battery carrying the Alaska name must deliver dependable performance, long service life, and exceptional value to our customers. This commitment to quality has helped us build lasting relationships with consumers, businesses, and institutional clients across Pakistan.

Q5. Pakistan is witnessing unprecedented growth in solar energy adoption, with battery storage emerging as a key component of energy security and system reliability. How do you see the role of advanced battery technologies in supporting the country's expanding solar sector, and how is Alaska Batteries positioning itself to serve this rapidly growing market?

Musa Bin Haroon: Battery storage is the missing link that unlocks the full potential of renewable energy. As solar adoption accelerates across Pakistan, energy storage solutions will become increasingly important for ensuring reliability, stability, and uninterrupted power availability. Advanced battery technologies enable consumers and businesses to maximize solar utilization, reduce dependence on the grid, and improve energy resilience. Alaska

Batteries recognizes this shift and is actively expanding its portfolio of energy storage solutions designed specifically for solar and hybrid energy systems.

We see enormous potential in this sector and are committed to providing innovative, efficient, and locally manufactured storage solutions that support Pakistan's renewable energy transition.

Q6. The global transition towards electric mobility is gathering momentum. What is your assessment of the future of electric vehicles (EVs) in Pakistan, and how important is the development of a robust EV charging infrastructure in accelerating the country's shift towards cleaner transportation?

Musa Bin Haroon: Electric mobility represents one of the most significant transformations in the transportation sector. While Pakistan is still in the early stages of EV adoption, the long-term potential is substantial. The success of electric mobility depends not only on vehicle availability but also on the development of a reliable and accessible charging infrastructure. Consumers must have confidence that charging facilities are readily available, efficient, and affordable. As battery technology continues to improve and charging networks expand, we expect EV adoption to accelerate significantly. Alaska Batteries is closely monitoring these developments and investing in capabilities that will enable us to participate meaningfully in Pakistan's evolving electric mobility ecosystem.

Q7. As Pakistan seeks greater energy security and reduced dependence on imported fuels, what role can local battery manufacturing play in supporting the country's transition to renewable energy and achieving greater self-reliance in the energy sector? How does Alaska Batteries envision contributing to this national objective?

Musa Bin Haroon: Energy storage is a strategic enabler of energy security. A strong local battery manufacturing industry can significantly reduce dependence on imported energy solutions, create skilled employment opportunities, strengthen industrial capabilities, and support the integration of renewable energy into the national energy mix.

Pakistan possesses the talent, entrepreneurial spirit, and industrial foundation necessary to develop a world-class energy storage sector. Alaska Batteries is proud to be part of this journey. Our vision is to contribute towards a more energy-secure, sustainable, and self-reliant Pakistan by investing in advanced manufacturing, technological innovation, workforce development, and localized energy storage solutions. We believe that locally manufactured batteries will play a critical role in powering Pakistan's economic growth and supporting its clean energy future.

Closing Statement

At Alaska Batteries, we see ourselves not merely as a battery manufacturer but as an energy solutions partner contributing to Pakistan's industrial growth, energy security, and sustainable development. As the country's energy landscape continues to evolve, we remain committed to innovation, quality, environmental responsibility, and delivering world-class energy storage solutions that empower businesses, communities, and future generations. ■

Pakistan's solar boom—or the world's dumping ground for defective Panels?

EU Report

Pakistan's solar revolution is being celebrated as one of the country's greatest clean energy success stories. Millions of households and businesses are rapidly embracing solar power in a bid to escape soaring electricity costs, reduce dependence on the national grid and secure a more sustainable future. Yet behind this remarkable transformation lies a troubling question that policymakers can no longer afford to ignore: is Pakistan becoming a dumping ground for substandard and defective solar panels rejected by more regulated markets?

The unprecedented surge in demand has been fuelled largely by a dramatic fall in solar panel prices. Over the past year alone, prices have plunged by an extraordinary 60 to 70 per cent, transforming what was once an expensive investment into an affordable option for millions of Pakistanis. During the same period, the country imported an estimated 17 GW of solar panels, making Pakistan the world's third-largest market for Chinese solar panels.

But beneath this remarkable clean energy success story lies a disturbing reality.

Energy experts warn that Pakistan's booming solar market has become an easy destination for rejected, substandard and defective panels produced by manufacturers struggling with global oversupply. Instead of benefiting solely from cheaper technology, Pakistani consumers may unknowingly be purchasing inferior products that fail to meet international quality standards and would struggle to find buyers in more tightly regulated markets.

The problem is not the affordability of solar technology—it is the near absence of effective regulation. Pakistan

lacks mandatory quality certification, technical inspection and robust standardisation mechanisms for imported solar equipment. Panels are routinely sold through ordinary hardware stores and retailers that possess neither the technical expertise nor the testing facilities to verify product quality. The average consumer has virtually no means of detecting hidden defects before making a purchase.

This regulatory vacuum creates fertile ground for consumer exploitation while threatening the long-term credibility of Pakistan's rapidly expanding renewable energy sector. Poor-quality panels can generate significantly less electricity than promised, suffer premature failures and leave households and businesses facing costly replacements after investing their hard-earned savings in clean energy.

The consequences extend well beyond individual consumers. A flood of substandard solar equipment could undermine public confidence in renewable energy, generate thousands of tonnes of electronic waste and weaken Pakistan's transition towards a cleaner and more resilient energy future. Pakistan deserves affordable solar power, but not at the cost of becoming the world's dumping ground for defective equipment. The government must act without delay by introducing rigorous import inspections, enforcing internationally recognised quality standards and making independent certification mandatory before solar panels are allowed to enter the domestic market. Without strong regulatory oversight, today's solar boom could become tomorrow's consumer protection, environmental and financial crisis. Pakistan's clean energy future depends not only on making solar power cheaper, but also on ensuring that every panel installed on the nation's rooftops is safe, reliable and capable of delivering the performance that consumers have every right to expect. ■

Work on several hydropower projects enters final stages

EU Report

Chief Executive Officer (CEO) Provincial Energy Development Organization (PEDO) Engineer Anwar-ul-Haq has said that construction work on several hydropower projects has entered the final stages of completion. The completion of these projects is expected to generate an additional receipt of more than 10 billion rupees to the province.

He was addressing the oath-taking ceremony of the newly elected cabinet of the PEDO Officers Association (Registered), consisting of officers of the Pakhtunkhwa Energy Development Organization (PEDO), a subsidiary of Energy and Power Department KP. Provincial Minister for Energy and Power, Nazir Ahmad Abbasi was chief guest on the occasion. He said that

PEDO is a profitable institution of the province that generating annual income of more than 6 billion rupees.

At this juncture, the newly elected president Engineer Muqem uddin presented a charter of demand, which included health insurance facility, provision of residential colony on Wapda lines for the employees and solar system on easy installments, implementation of time scale promotion for departmental promotion of employees, transport facilities on equal basis for all senior and junior officers of PEDO, a policy of running O&M of PEDO's completed power plants at the government level, employee allowances, etc. The association has included these in the upcoming agenda.

Speaking at the occasion, KP Minister Energy and Power Nazir Ahmad Abbasi has said that the energy sector has a fundamental position in the country's economy because the development and prosperity of all sectors including agriculture, industry, transport, irrigation, and municipalities are linked to this important sector. Moreover, natural water resources of cheap hydropower generation found in Khyber Pakhtunkhwa, along with oil and gas reserves, are valuable assets of this province, which can be used to stabilize the livelihood of the workers and bring about a revolution. ■

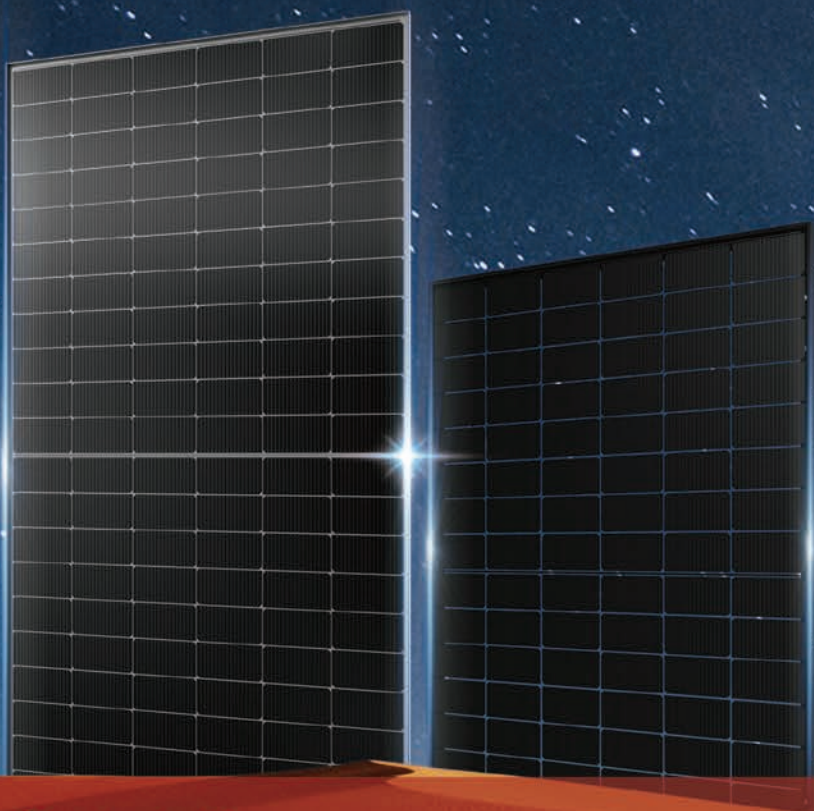


Namic

Nano Armor Metal Inter-contact

Next Generation Solar Cell Technology

- ① Good vertical conductivity
- ② Extremely low lateral conductivity
- ③ Prevents aluminum diffusion into silicon
- ④ High transmittance with low optical loss
- ⑤ Aerospace-grade material resistant to UV and high-energy particles
- ⑥ High-temperature resistance good compatibility with conventional cells



Contact Us

✉ info@jolywood.cn

🌐 www.jolywood.com

in f @Jolywood Solar

Pakistan losing US\$1–2 billion every year

Refinery upgradation trapped in bureaucratic limbo

EU Report

Six years after Pakistan embarked on an ambitious plan to modernise its ageing oil refineries, the country continues to pay a staggering economic price for bureaucratic delays, policy uncertainty and regulatory indecision.

According to estimates repeatedly highlighted by senior executives of the country's refining industry, the national exchequer has been suffering losses of approximately US\$1–2 billion every year because the brownfield refinery upgradation programme remains unimplemented.

The prolonged delay has prevented domestic production of cleaner Euro-V fuels, forced continued manufacture of low-value furnace oil, increased dependence on imported petroleum products and deprived Pakistan of billions of dollars in economic value that could otherwise have strengthened national energy security and reduced the import bill.

Pakistan's oil refining industry stands today at one of the most critical crossroads in its history. While countries across Asia and the Middle East have spent the past two decades modernising their refining infrastructure to produce cleaner fuels and maximise refinery margins, Pakistan's five ageing refineries continue to operate largely on obsolete configurations designed decades ago.

The irony is striking. Pakistan recognised the urgency of refinery modernisation nearly six years ago and introduced an ambitious Brownfield Refinery Policy to facilitate investments worth billions of dollars. Yet despite prolonged deliberations, repeated assurances, multiple policy revisions and lucrative fiscal incentives announced by successive governments, not a single refinery upgradation project has entered full-scale implementation.

The consequences of this prolonged indecision extend far beyond the refining sector itself. Industry leaders estimate that Pakistan has been forfeiting approximately US\$1–2 billion every year in economic value owing to delayed brownfield refinery modernisation. These losses arise from lower refinery yields, continued production of surplus furnace oil, increased imports of premium petroleum products, reduced value addition and the inability to produce Euro-V compliant fuels domestically.

An industry left behind

Pakistan currently has five operating refineries—Attock Refinery Limited (ARL), Pakistan Refinery Limited (PRL), National Refinery Limited (NRL), Pak-Arab Refinery Company (PARCO), and Cnergyco. Most of these refineries were established several decades ago when furnace oil was the principal fuel used by Pakistan's thermal power stations.

The country's energy landscape has since under-



gone a profound transformation. Power generation has shifted increasingly towards LNG, hydropower, coal and renewable energy sources. Consequently, furnace oil has become one of the least desirable petroleum products in Pakistan's energy mix.

Yet domestic refineries continue producing substantial volumes of furnace oil because their ageing process units are incapable of converting heavy petroleum fractions into higher-value products such as petrol and diesel. As a consequence, Pakistan exports surplus furnace oil—often at discounted international prices—while simultaneously importing expensive refined petroleum products that modernised refineries could otherwise produce domestically.

Recognising this structural weakness, the government introduced a comprehensive refinery upgradation policy aimed at transforming Pakistan's refining landscape.

Its principal objectives included:

- * Upgrading all existing refineries to produce Euro-V compliant fuels.
- * Reducing furnace oil production substantially.
- * Increasing production of petrol and high-speed diesel.
- * Encouraging investments estimated at nearly US\$5–6 billion.
- * Improving environmental standards through production of cleaner fuels.

To encourage these investments, the government announced generous incentives, including deemed-duty protection, customs duty exemptions on imported equipment, fiscal concessions and escrow account mechanisms intended to finance refinery upgrades. Years of negotiations have revolved around implementation agreements, taxation disputes, sales tax adjustments, escrow account treatment, arbitration clauses, force majeure provisions, fiscal guarantees and repeated changes in policy interpretation. These unresolved issues have delayed financial close for projects worth billions of dollars.

The resulting uncertainty has inevitably discouraged both domestic and international investors. Perhaps the most telling evidence of Pakistan's deteriorating investment climate is that despite years of policy announcements and attractive fiscal incentives, no major foreign investor has committed to establishing a green-field refinery in Pakistan. This reflects broader concerns regarding policy consistency, regulatory certainty and ease of doing business.

A modern refining industry would also place Pakistan in a stronger position to process a wider range of crude oil grades, including potentially Iranian crude, should international sanctions ever be lifted in the future. Similarly, if geopolitical circumstances were to permit completion of the Iran–Pakistan gas pipeline, Pakistan's dependence on costly imported LNG cargoes could decline significantly, fundamentally reshaping the country's energy economics. Until bureaucratic inertia gives way to timely implementation, Pakistan's refinery upgradation programme will remain one of the country's most expensive unfinished economic reforms—costing the national exchequer US\$1–2 billion every year while denying Pakistan cleaner fuels, stronger energy security and a more competitive industrial future. ■

Pakistan, Türkiye to Strengthen Energy Sector Cooperation



EU Report

Pakistan and Türkiye have signed three Memoranda of Understanding (MoUs) aimed at expanding bilateral cooperation in the energy sector, marking a significant step towards enhancing technical collaboration and institutional partnerships between the two countries. The agreements were signed during high-level energy consultations held in Istanbul on June 25, 2026, reflecting the shared commitment of both nations to promote knowledge exchange, strengthen institutional capacity, and modernize Pakistan's power sector.

The MoUs were signed between the Independent System and Market Operator (İSMO) and Energy Exchange Istanbul (EPIAS), İSMO and the Turkish Electricity Transmission Corporation (TEİAŞ), and the Power Planning and Monitoring Company (PPMC) and the Turkish Electricity Distribution Corporation (TEDAS). The agreements establish formal frameworks for cooperation in key areas, including electricity market development, post-privatisation governance, ancillary services regulations, power system operations, transmission planning, distribution management, digitalisation, capacity building, institutional strengthening, and the exchange of technical expertise.

Federal Minister for Energy (Power Division), Sardar Awais Ahmad Khan Leghari, welcomed the signing of the agreements, describing them as an important milestone in strengthening Pakistan's energy institutions through collaboration with leading Turkish organisations. He said Pakistan is keen to benefit from Türkiye's experience in electricity market reforms, transmission system development, distribution sector modernisation, and the integration of advanced technologies into power sector operations. He also highlighted the importance of learning from Türkiye's successful post-privatisation governance model and its experience in managing a privatised electricity sector. ■

JINKOSOLAR IS ONE OF THE WORLD'S LEADING SOLAR TECHNOLOGY COMPANIES

Tahir M Hashim

JinkoSolar's Country Head for Pakistan, Afghanistan, and Sri Lanka



We offer a complete portfolio of high-efficiency solar modules for residential, commercial, industrial, and utility-scale applications, says Tahir M Hashim, JinkoSolar's Country Head for Pakistan, Afghanistan, and Sri Lanka; tells in Pakistan, JinkoSolar has been the No. 1 solar brand since 2024 and has captured over 35% market share among Tier-1 manufacturers over the past 2.5 years; states Establishing a competitive manufacturing facility for high-efficiency modules requires significant investment, large-scale production, and strong export demand to achieve economies of scale

Mustafa Tahir

Energy Updated conducted an interview with Tahir M Hashim, JinkoSolar's Country Head for Pakistan, Afghanistan, and Sri Lanka

Q1. Please introduce yourself to our readers and share a brief overview of your role, responsibilities, and journey with JinkoSolar in Pakistan.

Ans: Tahir M Hashim is the Country Head for Pakistan, Afghanistan, and Sri Lanka, with over 16 years of experience in the solar photovoltaic (PV) industry. Throughout his career, he has played a key role in driving business growth, developing strategic partnerships, and expanding renewable energy adoption across South Asia.

Since joining JinkoSolar in May 2022, Tahir has successfully led the company's commercial operations across his region. Under his leadership, JinkoSolar increased its market share in Pakistan by approximately 30% over the past four years, strengthening the company's position as one of the country's leading solar module suppliers.

With extensive expertise in sales leadership, market expansion, channel development, utility-scale and commercial & industrial (C&I) solar projects, Tahir is recognized for building high-performing teams, delivering sustainable business growth, and fostering long-term relationships with customers, EPC contractors, distributors, and key industry stakeholders

Q2. JinkoSolar is recognized as one of the world's leading solar module manufacturers. How would you evaluate Jinko's performance and growth in Pakistan over the past few years, and what have been the key drivers behind this success?

Ans: JinkoSolar, established in 2006, is one of the world's leading solar technology companies, serving customers in 200+ countries and regions with a fully integrated portfolio of silicon wafers, solar cells, modules, and energy storage solutions. The company has shipped more than 400 GW of solar modules globally and has been the world's No. 1 solar module supplier seven times based on annual shipments. JinkoSolar is consistently recognized as a BloombergNEF Tier 1 manufacturer and is highly rated by KIWA PVEL, RETC, and PV Tech for product reliability, performance, and bankability. It has also set 33 world records in solar cell efficiency and module power, with its latest N-type TOPCon Perovskite Tandem Cell achieving a 34.82% certified conversion efficiency.

In Pakistan, JinkoSolar has been the No. 1 solar brand since 2024 and has captured over 35% market share among Tier-1 manufacturers over the past 2.5 years. This leadership has been driven by its proven product reliability, advanced N-Type TOPCon technology, consistent product availability, and strong local sales and technical support, making JinkoSolar the preferred choice for residential, commercial, industrial, and utility-scale solar projects.

Q3. Jinko continues to introduce innovative solar technologies and high-efficiency

modules. Could you highlight your latest products and explain how they benefit residential, commercial, and industrial customers in Pakistan?

Ans: JinkoSolar offers a complete portfolio of high-efficiency solar modules for residential, commercial, industrial, and utility-scale applications. Our latest innovation is the Tiger Neo 3.0 with Advanced Quad Cut Cell Technology, available in power ratings from 645W to 670W with module efficiency of up to 24.8%.

Compared to conventional modules, Tiger Neo 3.0 delivers higher energy generation from sunrise to sunset through excellent low-light performance, advanced anti-shading capability for improved output under partial shading, and a bifaciality factor of up to 90%, enabling significantly higher rear-side energy generation. The innovative Quad Cut Cell design with double-sided busbars also makes the module lighter in weight while providing greater mechanical strength and reliability, reducing installation costs and ensuring superior long-term performance. These features make it an ideal solution for residential rooftops, commercial buildings, industrial facilities, and large-scale utility projects across Pakistan.

Q4. Pakistan has experienced remarkable growth in solar energy adoption. What is your outlook for the country's solar market over the next five years, and what role do you see Jinko playing in this transformation?

Ans: Pakistan's solar market has tremendous long-term potential. Over the next five years, I expect the market to grow at an average annual rate of 25–30%, driven by rising electricity demand, increasing grid tariffs, rapid electrification of transportation through EVs, industrial expansion, and continuous improvements in living standards. As the country moves towards a cleaner and more sustainable energy mix, solar power will play a critical role in meeting future energy requirements.

JinkoSolar is committed to leading this transformation by introducing the latest high-efficiency technologies, ensuring consistent product availability, and supporting customers with reliable, bankable solutions. With continuous innovation and strong local support, we aim to remain Pakistan's preferred solar partner and contribute significantly to the country's clean energy transition.

Q5. Solar panel prices have witnessed significant changes in recent years. What factors are currently influencing panel pricing, and how do you expect prices and market demand to evolve in Pakistan?

Ans: Solar module prices are primarily influenced by global supply-demand dynamics, raw material costs, manufacturing capacity, logistics, and government policies. During early 2024, intense competition among global manufacturers and excess production capacity pushed module prices to historic lows. However, prolonged losses across the industry forced several manufacturers to reduce production or exit the market.

More recently, the Chinese government's measures to stabilize the industry, including the removal of export tax rebates on renewable energy products and improved production discipline, have contributed to a gradual recovery in module prices. Despite this, Pakistan's solar

market is expected to remain strong due to rising electricity tariffs and increasing demand for energy independence. While module prices may stabilize at sustainable levels rather than return to previous lows, overall market demand is expected to continue growing over the coming years.

Q6. The Government of Pakistan is encouraging local manufacturing of renewable energy equipment. Is JinkoSolar considering establishing a manufacturing or assembly facility in Pakistan, or entering into local partnerships for technology transfer and production?

Ans: Pakistan's initiative to promote local manufacturing is a positive step for the renewable energy sector. However, the solar industry is evolving rapidly, with new high-efficiency technologies being introduced every 1–2 years. Most local manufacturing facilities currently focus on lower-power or older-generation modules, while the global market has already shifted towards advanced N-Type TOPCon and other next-generation technologies.

Establishing a competitive manufacturing facility for high-efficiency modules requires significant investment, large-scale production, and strong export demand to achieve economies of scale. Therefore, local manufacturing of advanced modules will become more feasible once Pakistan develops a larger export-oriented ecosystem and sufficient production volumes. JinkoSolar remains open to exploring future partnerships and investment opportunities when the market and policy environment support long-term sustainable manufacturing.

Q7. What are your views on government policies, taxation, import duties, and net-metering regulations? What policy measures would you recommend to support the sustainable growth of Pakistan's solar industry?

Ans: Government policy directly impacts the growth and stability of Pakistan's solar industry. Stable taxation, predictable import duties, and consistent net-metering regulations are essential to maintain investor confidence and customer trust. Frequent policy changes or sudden increases in duties can slow down adoption, increase project costs, and create uncertainty for EPC companies, distributors, and end users.

In my view, Pakistan should adopt a balanced policy framework that supports both solar adoption and grid stability. Net metering should continue with a fair and transparent mechanism, while taxation and import duties should remain predictable and reasonable until Pakistan develops internationally competitive local manufacturing facilities capable of producing the latest high-efficiency solar technologies at commercial scale. Premature protectionist policies could increase costs for consumers and slow the country's clean energy transition.

The government should also enforce strict quality standards, discourage counterfeit and low-quality products, facilitate financing for residential, commercial, agricultural, and industrial sectors, and encourage technology transfer and investment in advanced local manufacturing. These measures will support sustainable growth, strengthen energy security, and accelerate Pakistan's transition towards clean and affordable energy. ■

Fuel Crisis Drives Pakistan Toward Electric Vehicles Amid Industry Divide

Consumers forced to consider shifting to electrified vehicles due to skyrocketing oil prices; absence of a widespread charging network is widely cited as a constraint on EV uptake

Aamir Shafaat Khan

Aamir Shafaat Khan is a Karachi-based reporter for Dawn with over 25 years of experience

The Middle East war has reshaped conditions in Pakistan's automotive market. With petrol and diesel both at over Rs400 per litre — up from Rs 258.17 and Rs 275.70 before the conflict — consumers have been forced to consider shifting to electrified vehicles.

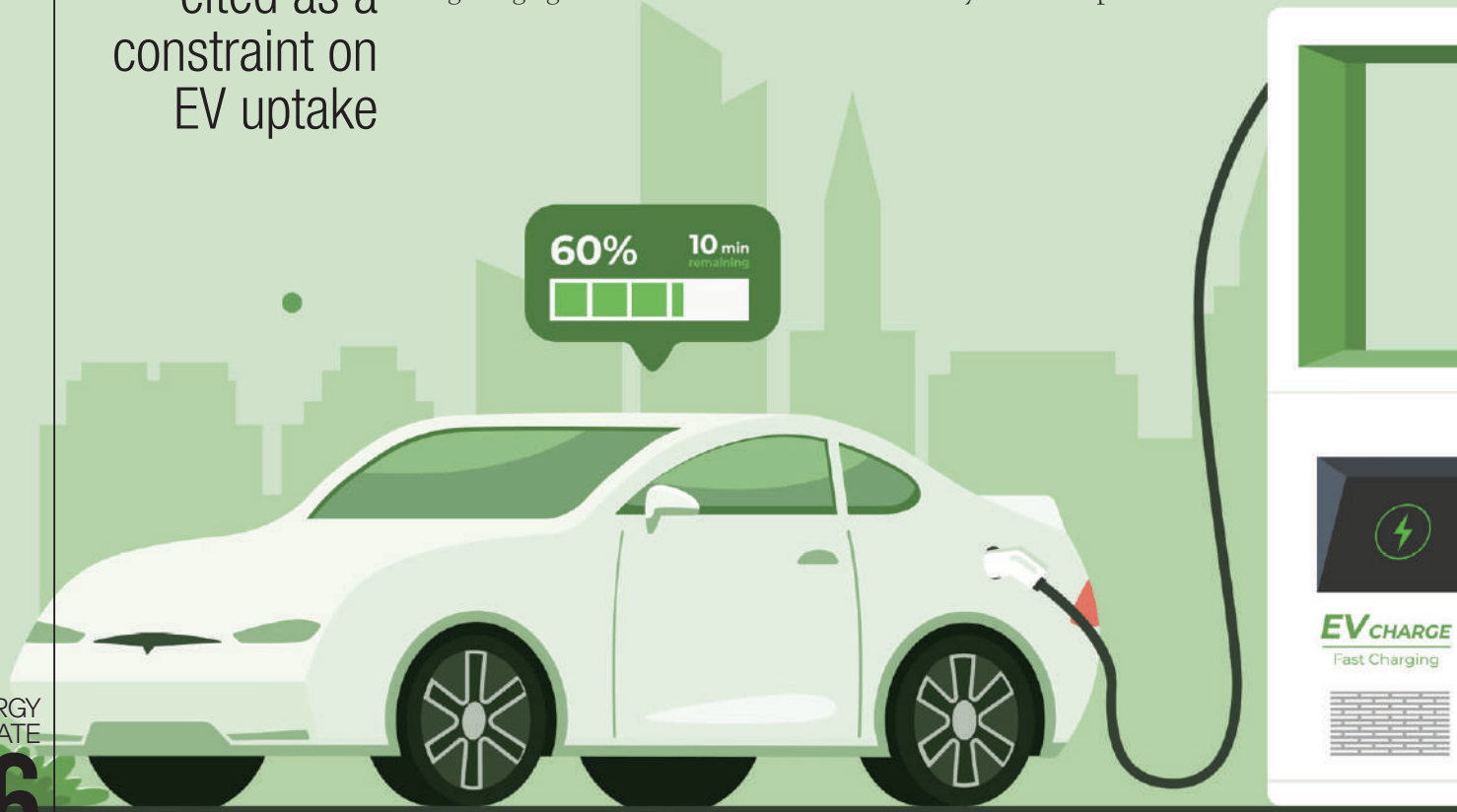
Prime Minister Shehbaz Sharif has called for a 30 per cent shift to electric vehicles within five years, a target his government says would reduce the fuel import bill by \$4.5 billion annually. But questions about how that target is to be achieved, and at whose expense, are still to be answered in their entirety.

Stakeholders across the automotive and energy sectors hold differing views on which technologies to prioritise, how to protect the domestic industry, and what role the state should play in building charging infrastructure. For electric

vehicle manufacturers already operating in Pakistan, the most frequently cited concern is not physical infrastructure but policy continuity. From battery-only cars to petrol-assisted hybrids, a debate over technology, tax policy and local manufacturing is complicating the country's push toward electrification.

Danish Khaliq, Vice President of Sales and Strategy at BYD Pakistan-Mega Motor Company, says the government's EV ambitions require a stable, long-term regulatory environment to translate into investment.

"Consumer interest in modern vehicles, particularly NEVs, is clearly growing, which is encouraging and aligns well with the government's direction. However, unlocking this vision at scale requires a stable and predictable policy environment," he says. The current AIDEP 2021–2026 policy, nearing completion, enabled companies including BYD Pakistan to commit to local manufacturing facilities. Khaliq cautions that changes without a clear transition framework could force investors to revisit financial assumptions. Lucky Motor Corporation's Director of



STEP INTO THE FUTURE

OFFICIAL PRODUCT LAUNCH

Always Reliable



**TRUSTED
PERFORMANCE**
Engineered for
excellence



**INNOVATION
DRIVEN**
Advanced technology
for a smarter future



**GLOBAL
RELIABILITY**
Supporting industries
worldwide



SOLAR INVERTERS



ENERGY STORAGE



EV CHARGERS



POWER SOLUTIONS



**BUILT FOR TODAY.
READY FOR TOMORROW.**

TBEA continues its legacy of delivering reliable, efficient, and sustainable solutions for a better tomorrow.

Business Planning and Regulatory Affairs Babar Saleem Khan agrees that the transition must remain "practical, market-driven, and technology-neutral."

BEV, HEV, or PHEV?

Which vehicle technology should lead the transition is the sharpest point of disagreement. Babar Saleem Khan argues that hybrid electric vehicles (HEVs) are the most viable near-term option: they offer up to 50 per cent fuel savings, need no charging infrastructure, and carry a price premium of around 15 per cent over conventional vehicles, with models available from Rs 6.6 million.

Plug-in hybrids (PHEVs) and range-extended EVs (REEVs) start around Rs 10 million with premiums up to 35 per cent, while pure battery electric vehicles (BEVs) face consumer hesitancy over charging access, battery costs, and resale value.

Aamir Allawala, former Chairman of Pakistan Association of Automotive Parts and Accessories Manufacturers (PAAPAM), counters that only BEVs deliver genuine zero-emission outcomes. PHEVs and REEVs, he says, still carry petrol engines and exhaust systems and should not receive the same tax treatment as clean vehicles.

MrAllawala warns that extending concessions to them would allow near-zero-localisation assembly to undercut HEV and ICE manufacturers, which are built with 50 to 70 per cent locally made components and sustain a vendor industry employing 300,000 people directly.

Asif Ahmed, Director of Marketing at Chery Master Motor, takes a different view. "ICE manufacturers will not be able to hold back technological shifts this time. Pakistan has not witnessed any transfer of technology in the past 30 years. Localisation has benefitted the industry, not the consumer," he says. He proposes cutting import duties on EVs with sub-50kWh batteries to between 5 and 10 per cent, saying that infrastructure will follow as EV numbers grow.

Charging network

The absence of a widespread charging network is widely cited as a constraint on EV uptake, particularly for pure battery vehicles. A combination of public mandates, private investment, and cross-border partnerships is now directing resources toward the problem, though the pace and scale remain subjects of debate.

BYD Pakistan's Danish Khaliq says the company is developing what it describes as Pakistan's first interconnected EV charging corridor along the Karachi-Peshawar motorway network, with stations planned every 200 to 250 kilometres. The initiative, he says, is intended to address range anxiety and make long-distance EV travel viable.

The Sindh government has approved a public-private partnership involving China's ADM Group and the Malik Group to build a provincial EV charging network. Under the arrangement, the Sindh government will provide Rs 750 million for 300 charging stations in the first phase,

while ADM Group is investing \$90 million toward 3,000 stations across Pakistan.

On the regulatory side, the federal government has reduced the power tariff for EV charging stations to Rs 39 per unit from Rs 71. Oil marketing companies have been directed to ensure that at least 10 per cent of their fuel dispensing outlets carry Level-3 EV charging capability, and the Explosive Department will not issue new licences to investors who do not include a plan for EV charging. The Punjab government has separately announced that future vehicle purchases for provincial government use will be electric.

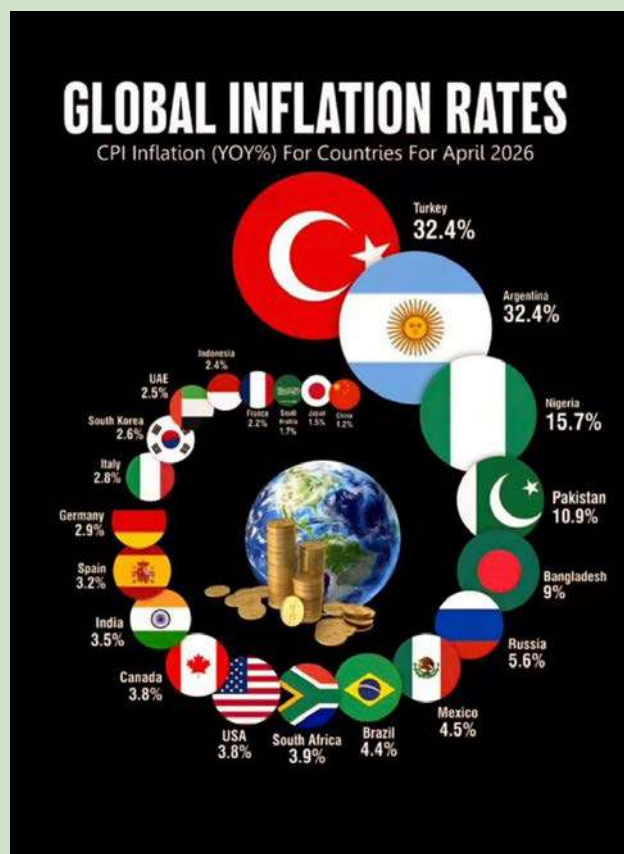
Localisation stakes

How the EV transition intersects with Pakistan's domestic manufacturing base is also a point of contention. Positions vary on whether new investment represents an extension of local industry or a risk to it.

Mega Motor Company (MMC), BYD's official partner in Pakistan, is investing \$150 million in a purpose-built NEV manufacturing facility. With an annual production capacity of 25,000 units, the plant is targeted for completion in Q4 2026, with the first locally assembled BYD vehicles expected to reach the market before year-end.

The project is projected to create over 1,100 jobs and, according to the company, avoid an estimated 165,000 tonnes of CO2 emissions by 2034.

Aamir Allawala of PAAPAM argues that manufacturing investment alone is insufficient without binding localisation targets — a standard he says markets like Thailand and Indonesia have applied — to ensure that assembly operations translate into meaningful domestic industrial development. ■



Environmental Protection Pushed to the Bottom Rs18.77 Trillion Federal Budget: Climate Crisis Ignored as Debt, Defence Prioritized

Pakistan recognizes climate change in speeches but not in spending; there is a dire need to increase climate allocation to at least Rs50 billion instead of Rs4.96 billion; 7pc raise in salaries and pensions of govt employees widely criticized; Pakistan does not suffer from a shortage of warnings. It suffers from a shortage of political will.

Special Report by M Nawaz Khuhro

The federal government recently presented the federal budget for FY2026-27 with a total outlay of around Rs18.77 trillion, showing a moderate increase from Rs17.6 trillion in last year's budget, pushing the environment to the bottom, ignoring the vital climate change sector.

The budget has also ignored the energy crisis, education decline, unemployment, and poverty alleviation. While the country faces deadly heatwaves, catastrophic floods, water scarcity, glacial melt, droughts, and worsening air pollution, environmental protection and climate resilience continue to receive only a tiny fraction of federal spending.

The budget allocates approximately Rs4.96 billion to the Ministry of Climate Change and Environmental Coordination, including both development and operational expenditures. Out of this amount, only around Rs2.48 billion has been earmarked for development projects under the Public Sector Development Programme (PSDP). The allocation represents less than one-quarter of one percent of the federal PSDP despite Pakistan being among the world's most climate-vulnerable countries.

The government has set a target of Rs50 billion in rev-

PAKISTAN FEDERAL BUDGET OVERVIEW FY-26-27		
Total Budget: Rs 18.8 Trillion		
SR.	PARTICULARS	ALLOCATION
1.	Defence	Over Rs 3 Trillion
2.	Debt Servicing	Rs 8.045 Trillion
3.	Public Sector Development Programme (PSDP)	Rs 1 Trillion
4.	Power Division	Rs 88 Billion
5.	Health Sector	Rs 25.1 Billion
6.	Higher Education Commission (HEC)	Rs 46 Billion
7.	Pakistan Railways	Rs 40.6 Billion
8.	Climate Change Development Projects	Rs 2.48 Billion
9.	Climate Ministry Total Allocation	Rs 4.96 Billion
10.	PM's Apna Ghar Scheme	Rs 71 Billion
11.	Benazir Income Support Programme (BISP) Budget	Rs 838 Billion
12.	Increase in Salaries & Pensions	7pc Raise
13.	Proposed Increase in Minimum Wage	10% Increase
14.	Electricity Subsidies	Rs 1,091 Billion
15.	Sustainable Energy	Rs 116.2 Billion

enue through the newly introduced Climate Support Levy for the 2026-27 fiscal year. The levy is charged at Rs2.50 per liter on petroleum products, including petrol, high-speed diesel, and furnace oil, with proposals to eventually increase this to Rs 5 per liter, but ironically it has allocated less than Rs5 billion to the ministry responsible for combating climate change.

These figures demonstrate that environmental protection remains near the bottom of the national priority list. Perhaps the most alarming feature of the budget is that debt servicing continues to consume the largest share of national resources. More than Rs8 trillion will be spent on interest payments alone. This means that a substantial portion of taxpayers' money is being used not for schools, hospitals, water projects, forests, renewable energy, or climate adaptation, but simply to service past borrowing. ([Tax Calculator Pakistan][4])

The result is predictable: development spending shrinks while social and environmental sectors compete for limited resources. There is a need to increase climate allocation to at least Rs50 billion, as the country facing annual climate disasters cannot seriously address environmental challenges with less than Rs5 billion allocation the federal budget. A minimum allocation of Rs50 billion would allow meaningful investments in flood protection, drought management, and climate adaptation.

Revenue generated through the Climate Support Levy should be ring-fenced and spent exclusively on environmental projects rather than disappearing into general government expenditure. Major cities such as Karachi, Lahore, and Peshawar face worsening heatwaves and flooding. Dedicated funding should support urban forests, rainwater harvesting, heat-resilient infrastructure, and sustainable drainage systems

Pakistan's water crisis is becoming increasingly severe. Greater investments are needed in water conservation, groundwater recharge, efficient irrigation systems, and watershed management. Instead of relying heavily on imported fuels, Pakistan should accelerate the generation of solar energy, wind energy, and green hydrogen, besides using carbon credits' facilities. Air quality monitoring, pollution control, biodiversity conservation, and ecosystem restoration require significant institutional support that remains absent from the current budget.

The budget reflects a harsh reality: Pakistan recognizes climate change in speeches but not in spending. While billions are allocated elsewhere, environmental protection receives only a token share despite the country facing existential climate threats. The government's decision to raise tens of billions through a Climate Support Levy while allocating only a fraction of that amount to climate action highlights a troubling disconnect between policy rhetoric and fiscal commitment.

Pakistan does not suffer from a shortage of warnings. It suffers from a shortage of political will. Unless future budgets place climate resilience at the centre of national planning, the country risks paying a far higher price through floods, droughts, heatwaves, food insecurity, and environmental degradation than it would ever spend on prevention.

While Pakistan continues to debate politics, power struggles, and economic crises, one of the gravest threats to the country's future remains largely ignored: environmental degradation and climate change. Despite being among the countries most vulnerable to climate disasters, Pakistan's environmental sector receives little attention and insufficient funding, exposing millions of people to increasing risks.

The devastating floods of 2022, which affected more than 33 million people and caused billions of dollars in losses, should have served as a wake-up call. Instead, environmental protection remains a low priority in national planning. Successive governments have repeatedly pledged action on climate resilience, renewable energy, and environmental conservation, yet practical implementation remains weak and inconsistent.

The neglect is visible across the country. Forests continue to disappear due to illegal logging and unchecked urban expansion. Rivers and canals are increasingly polluted by industrial waste and untreated sewage. Air quality in major cities frequently reaches hazardous levels, exposing millions to respiratory diseases and other health complications. Meanwhile, groundwater resources are being depleted at alarming rates without effective regulation.

One of the most troubling aspects is the lack of adequate budgetary allocations for environmental protection. While billions of rupees are routinely allocated to infrastructure, subsidies, and administrative expenditures, environmental departments often receive only a fraction of the resources needed to address growing challenges. Climate adaptation projects, disaster preparedness programs, and ecosystem restoration initiatives remain severely underfunded.

The consequences of this negligence are becoming increasingly severe. Rising temperatures are intensifying heatwaves across Pakistan, particularly in Sindh and southern Punjab. Farmers are facing unpredictable rainfall patterns, threatening food security and rural livelihoods. Coastal communities are witnessing sea intrusion and erosion, while urban residents suffer from worsening air pollution and inadequate waste management systems.

The irony is that Pakistan contributes less than one percent of global greenhouse gas emissions, yet it bears a disproportionate share of climate-related losses. This reality makes adaptation and resilience-building even more critical. However, policymakers often treat environmental concerns as secondary issues rather than recognizing them as economic, social, and national security priorities.

Ignoring climate change today will impose far greater costs tomorrow. Every flood, drought, heatwave, and environmental disaster drains public resources, damages infrastructure, disrupts livelihoods, and slows economic growth. Investing in environmental protection is not a luxury; it is an economic necessity. Pakistan urgently needs a comprehensive environmental strategy backed by meaningful financial commitments. Greater investment in renewable energy, afforestation, water conservation, climate-resilient agriculture, and urban sustainability is essential. Environmental impact assessments must be enforced rigorously, and polluters should face strict penalties. ■

META PV14000

PV INVERTER



HIGH EFFICIENCY
97% MAX

HIGH RUNNING CAPACITY
FOR **MOTOR**

بہر دیے اجالا زندگی میں
Fronus
SOLAR ENERGY

SINGLE PHASE
10kW



Call
UAN 042 111 111 140

Website
www.fronus.com



Lithium-ion Battery LD51

6000

Life Cycles

WiFi

Built-in

LED

Touch Screen



5.12kWh - 51.2V - 100A



Call
UAN 042 111 111 140

Website
www.fronus.com



Iran-Pakistan Gas Pipeline

Time to Replace Politics with Pragmatism

EU Report

Petroleum Minister says Iranian pipeline gas may cost almost the same as imported LNG, but the project's real value lies in Pakistan's long-term energy security and regional economic integration.

The long-delayed Iran-Pakistan (IP) Gas Pipeline has once again returned to the national spotlight after Federal Petroleum Minister Ali Pervaiz Malik reaffirmed that the project remains firmly on the government's agenda. In a recent television interview, however, he offered a sobering economic assessment: once transportation infrastructure and associated costs are factored in, the price of Iranian natural gas delivered through the proposed pipeline would be "almost equal" to the cost of imported liquefied natural gas (LNG).

At first glance, the statement appears to weaken the commercial case for a project that has remained stalled for well over a decade. But that conclusion would be overly simplistic. The real significance of the Iran-Pakistan pipeline has never rested solely on the price of gas. It lies in Pakistan's quest for long-term energy security, diversification of supply, regional connectivity and strategic economic resilience.

The Petroleum Minister confirmed that the dispute over the project is currently before an international arbi-

tration tribunal in Paris, where Iran has sought damages following Pakistan's prolonged failure to fulfil its contractual obligations. Instead of prolonging litigation, Islamabad is pursuing an amicable out-of-court settlement, recognising the importance of preserving its brotherly ties with Tehran while safeguarding Pakistan's economic interests.

That is undoubtedly the correct approach.

The proposed pipeline was conceived under the 2009 Gas Sales Purchase Agreement. Iran fulfilled its commitment years ago by constructing approximately 1,150 kilometres of pipeline from Assaluyeh to the Pakistan border. Pakistan, however, has yet to build its 781-kilometre section from Taftan to Nawabshah, primarily because successive governments remained constrained by United States sanctions against Iran.

Those delays have proved enormously costly.

Iran has now initiated arbitration proceedings, reportedly seeking damages of nearly US\$18 billion, an amount that Pakistan can scarcely afford given its fragile fiscal position. Ironically, the country today risks paying billions of dollars for a pipeline that does not even exist on its territory.



Recent geopolitical developments, however, may have created a narrow window of opportunity.

The reported peace understanding between Washington and Tehran, facilitated in part through Pakistan's diplomatic engagement, has generated cautious optimism regarding a possible easing of sanctions. According to the Petroleum Minister, the recently signed understanding would permit Iran to export certain previously sanctioned energy products, potentially helping moderate international energy prices. Such an outcome could benefit Pakistan not only through access to Iranian gas, but also through imports of Iranian crude oil and liquefied petroleum gas (LPG).

Yet optimism must remain tempered with realism.

Any meaningful revival of the pipeline still depends upon Washington's willingness to provide a durable sanctions waiver. Temporary licences or limited exemptions may facilitate short-term trade, but they cannot justify billions of dollars in infrastructure investment unless investors are assured of long-term legal certainty.

This is where Pakistan's recent diplomatic role could assume strategic significance. If Islamabad successfully leverages its constructive engagement between Tehran and Washington into a formal sanctions exemption for the pipeline, it would transform an otherwise symbolic diplomatic achievement into tangible economic dividends. Without such a waiver, however, the project risks remaining hostage to international politics irrespective of bilateral goodwill between Pakistan and Iran.

The Petroleum Minister also rightly pointed out another important reality that is often ignored in public debate. Unlike LNG imports, Pakistan already possesses functioning LNG terminals, regasification facilities and associated infrastructure. The pipeline, by contrast, would require billions of dollars in fresh investment before a single molecule of gas reaches the country's transmission network.

This raises a legitimate economic question: if Iranian gas ultimately costs roughly the same as LNG, why pursue the project at all?

The answer lies beyond simple price comparisons.

Pipeline gas offers supply diversity and insulation from the volatility of global spot LNG markets. Pakistan has repeatedly experienced severe LNG shortages whenever international prices surged or cargoes were diverted elsewhere. A dedicated cross-border pipeline provides greater predictability and strengthens national energy security by reducing dependence on seaborne imports vulnerable to geopolitical

disruptions.

Moreover, the project carries strategic possibilities extending beyond Pakistan's immediate energy needs.

Ali Pervaiz Malik suggested that, once completed, the pipeline could eventually be extended towards China or even India, transforming Pakistan from a mere consumer into a regional energy transit corridor. Such an outcome would generate transit revenues, deepen regional economic integration and enhance Pakistan's geopolitical relevance within South Asia and beyond.

Of course, such ambitions remain distant. The immediate priorities are far more pressing.

Pakistan must first negotiate an honourable settlement of the Paris arbitration, secure a sustainable sanctions framework from the United States, arrange financing for the pipeline's construction and establish a commercially viable implementation plan. None of these challenges will be easy.

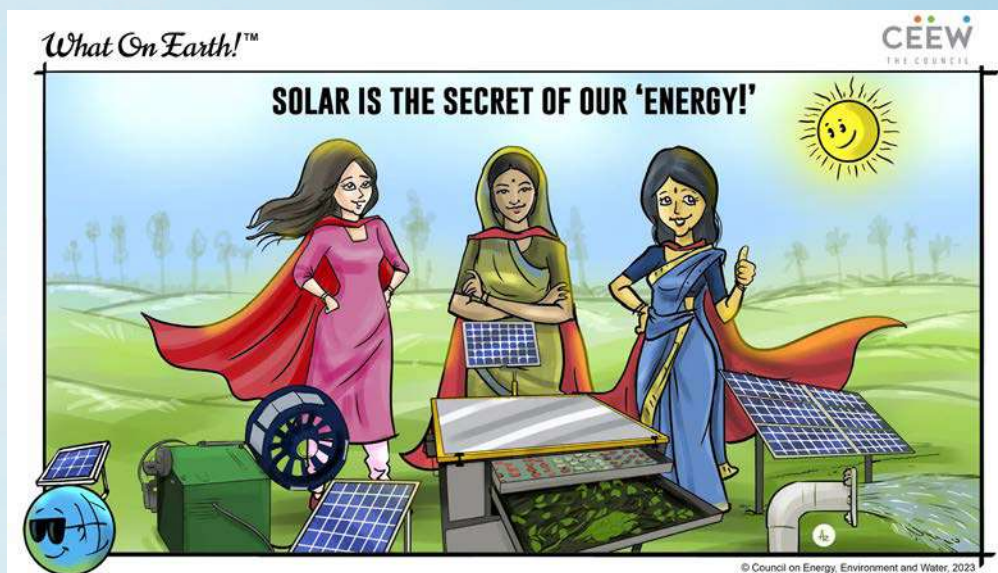
Nevertheless, continued procrastination is arguably the most expensive option of all.

For nearly two decades, Pakistan has oscillated between strategic necessity and geopolitical hesitation, allowing one of its most important energy projects to drift into legal uncertainty. Meanwhile, domestic gas production has continued to decline, imported LNG has become increasingly expensive, and industrial consumers continue to face recurring shortages.

The Iran-Pakistan pipeline is therefore no longer simply an engineering project. It has become a test of Pakistan's ability to reconcile foreign policy with national economic priorities. Whether the price of Iranian gas ultimately matches imported LNG is no longer the defining question.

The real question is whether Pakistan can finally convert changing regional geopolitics into a coherent national energy strategy. If the present diplomatic environment provides even a limited opportunity to resolve arbitration, obtain sanctions relief and complete the pipeline, Islamabad must seize it with prudence, careful diplomacy and economic realism.

History has already demonstrated the cost of delay. Pakistan can ill afford another decade of hesitation. ■



Solar panel retirement is becoming a worldwide challenge

Amir UI Ebad Khan,
Project Leader of Z Synergies presents
AI-Driven Vision for Better Circular Energy Solutions

Leads Canada's Next Renewable Energy Frontier Through Circular Economy Innovation; Says Millions of Panels Across North America, Europe, Asia, and Middle East Will Soon Reach End-of-life

Naeem Qureshi

As Canada accelerates its transition toward a net-zero future, a critical challenge is emerging alongside the rapid growth of renewable energy as managing the growing number of solar panels and photovoltaic (PV) modules is approaching end-of-life. While conventional recycling methods recover materials such as aluminum, copper, and glass, a significant portion of high-value materials—particularly silicon, silver, and other critical resources—often remains underutilized or is lost during traditional processing. This creates both environmental and economic concerns. Solar module recycling is technically complex because these systems are designed for long-term durability, with multiple materials tightly bonded together. This makes separation, recovery, refurbishment, and reuse challenging using conventional recycling methods.

Recognizing this challenge as a major opportunity, Amir UI Ebad Khan, Project Leader of Z Synergies (under RAAS Systems Inc.), Industrial Engineer, Registered Energy Adviser, and Independent Power Producer (IPP) Auditor in Ontario, is leading an innovative AI-driven solar panel refurbishment and extreme recycling initiative designed to maximize material recovery and create a circular economy for solar energy systems. As a Canadian energy professional with more than three decades of experience in engineering, project management, energy efficiency, and sustainability, Amir believes the next major challenge in clean energy is not only generation—but responsible lifecycle management.

In this exclusive interview with Energy Update, Amir UI Ebad Khan shares his professional journey, Canada's energy transition strategy, and his vision for transforming solar waste into sustainable wealth.

Energy Update: Please tell us about your professional background and your current role in Canada's energy sector.

Amir UI Ebad Khan: I am an Industrial Engineer with an MBA in Project Management and more than three decades of professional experience in engineering,



energy management, sustainability, and project leadership.

Over the years, I have worked on energy efficiency, renewable energy, infrastructure development, and sustainability initiatives across both Pakistan and Canada. Currently, I work as a Registered Energy Adviser in Canada, where my role aligns closely with Canada's energy efficiency and sustainability objectives. My work involves validating energy conservation and efficiency projects in residential, commercial, and industrial sectors to ensure compliance with technical, environmental, and regulatory standards.

Energy Update: You have developed an innovative solar panel recycling project that is receiving considerable attention. Could you explain the concept?

Amir UI Ebad Khan: Certainly. This is one of the most significant and meaningful initiatives of my professional career. Ontario saw substantial solar photovoltaic deployment beginning in the mid-2000s. Many of those systems are now approaching end-of-life. Over the coming years, a large number of solar panels across Ontario and North America will require retirement, refurbishment, repurposing, or recycling.

Energy Update: What makes your proposed model different from conventional recycling methods?

Amir UI Ebad Khan: The key difference lies in optimization, intelligence, and value recovery. As an Industrial Engineer, resource optimization has always been central to my work. Conventional recycling methods leave substantial value unrecovered. Our model integrates engineering principles, artificial intelligence, thermal imaging, visual inspection, and decision-based analytics to optimize the entire process. AI plays a critical role in defect detection, panel diagnostics, material classification, refurbishment decision-making, and recovery optimization.

Energy Update: How far has the project progressed, and what are the next milestones?

Amir UI Ebad Khan: We have completed several foundational stages, including feasibility studies, business planning, environmental assessment, and early-stage technical evaluation. Our project is progressing through collaborative research involving industry and academia. The University of Windsor serves as our key academic research platform, and multiple highly qualified engineers and researchers are contributing to the initiative. Currently, we are conducting lifecycle assessment, techno-economic analysis, and AI model development to validate long-term technical and financial viability.

Energy Update: What environmental and economic benefits could emerge from this initiative?

Amir UI Ebad Khan: The benefits are substantial. Environmentally, this initiative can significantly reduce solar waste entering landfills while preventing potential long-term impacts on soil and groundwater. Economically, recovered materials such as silicon, silver, copper, and aluminum can be reintroduced into manufacturing supply chains, reducing dependence on virgin raw materials. Additionally,

refurbished solar panels can support affordable renewable energy access in underserved communities.

Energy Update: How does this initiative align with Canada's Net Zero ambitions?

Amir UI Ebad Khan: It aligns perfectly with Canada's broader sustainability vision. Net Zero is not only about generating clean electricity. It is also about energy efficiency, resource conservation, waste reduction, emissions reduction, and sustainable industrial systems. Renewable energy technologies themselves must remain sustainable throughout their lifecycle. Our initiative addresses this challenge directly by ensuring solar energy infrastructure remains environmentally responsible from installation to end-of-life.

Energy Update: What are the primary sources of electricity generation in Canada today?

Amir UI Ebad Khan: Canada has a highly diversified electricity generation portfolio. Major sources include nuclear, hydroelectric, wind, solar, biomass, and natural gas. This diversity improves grid resilience, energy security, and decarbonization. Canada's renewable energy transition is progressing rapidly through investment, policy support, and technological innovation.

Energy Update: Canada is known for energy-efficient buildings. What lessons can other countries learn?

Amir UI Ebad Khan: Canada's building sector offers valuable lessons in energy efficiency and sustainable design. Modern Canadian buildings emphasize insulation, airtightness, thermal performance, and efficient HVAC systems. These principles significantly reduce energy consumption while improving indoor comfort. Countries seeking to reduce energy demand can greatly benefit from adopting similar construction standards and energy-conscious building practices.

Energy Update: Is the project limited to Ontario, or do you see global applications?

Amir UI Ebad Khan: This project is not limited to Ontario. Ontario serves as our research and deployment starting point, but the model is modular, scalable, and globally relevant. Solar panel retirement is becoming a worldwide challenge. Millions of panels across North America, Europe, Asia, and the Middle East will soon reach end-of-life.

Energy Update: What is your vision for the future of renewable energy and sustainability?

Amir UI Ebad Khan: My vision extends far beyond recycling. I envision a future where renewable energy systems operate within a fully integrated circular economy—where materials are continuously recovered, reused, refurbished, and optimized instead of being discarded. Clean energy should not become tomorrow's waste problem. Through artificial intelligence, advanced engineering, lifecycle thinking, and global collaboration, we can build energy systems that are not only cleaner, but also smarter, more resilient, and truly sustainable. This project is not simply about recycling solar panels. It is about redefining how renewable energy assets are managed from installation to end-of-life, creating long-term environmental, economic, and social value for future generations. ■

Reko Diq saga continues to haunt the nation

Peace dividends could include clarity on the fate of the multibillion-dollar Reko Diq mining project

Afshan Subohi

Peace dividends for Pakistan could include clarity on the fate of the multibillion-dollar Reko Diq mining project in Balochistan, adjacent to Iran's Sistan province, along a roughly 1,000-kilometre border. If stakeholders succeed in securing an Islamabad accord, the outcome the world urgently needs, perhaps Barrick Gold, the project's operator, may conclude its security review sooner and proceed with the planned capital investment in line with the original timeline.

Despite Barrick Gold signalling a slowdown pending the completion of its security review, now to be finalised in 2027, hierarchy in Islamabad remains confident that an end to hostilities and the resumption of normal trade flows will restore investor confidence, keeping the project on track for its planned production start in 2028.

"Give us two weeks. By the end of April, we expect to respond to all your queries in detail. For now, we can say the project remains intact and is progressing at a normal pace. The joint venture, Reko Diq Mining Company [RDMC], operates under defined governance protocols, and its board has not approved any change to the planned timeline. The project is targeting production in 2028," an informed source in Islamabad said, responding to reports that Barrick Gold plans to withhold further investment until next year.

"There are multiple complexities, and it would not be appropriate to comment offhand. Confidentiality must be respected, given the high stakes and the company's accountability to its lending consortium. Officials involved are not authorised to disclose internal matters. That said, some confusion has arisen due to recent hostilities, trade disruptions and shipping constraints in the region, but this is expected to be resolved soon," another senior official said privately while discussing media reports.

Discussing the cost of the project the Barrick presser said: "It is anticipated that there could be significant increases to the previously disclosed total estimated capital budget and timeline for the project. The previously disclosed total estimated capital cost of Phase 1 was between \$5.6 billion and \$6.0bn [100 per cent basis, exclusive of capitalisation of financing costs] and of Phase 2 was between \$3.3bn and \$3.6bn [100pc basis, exclusive of capitalisation of financing costs], with first production targeted by the end of 2028."

Barrick Gold holds a 50pc stake in RDMC, with management rights over the project that could become one of the world's largest gold and copper mines. The Balochistan government owns 25pc, while the rest is split among three state-owned enterprises: Pakistan Petroleum Ltd, Oil and Gas Development Company Ltd, and Govern-

ment Holding Private Ltd.

Pakistani board members of RDMC in Islamabad and Quetta declined to comment on Barrick Gold's decision, citing the sensitivity of the situation and the government's current focus on facilitating peace talks. Executives from other private mining firms, however, expressed disappointment and frustration. "I don't think Barrick is legally entitled to unilaterally announce a delay in planned investment and a slowdown in mine development without prior approval of the RDMC board. They may have acted more cautiously had Pakistani private partners been involved. The government ecosystem is less equipped to handle such situations, which are relatively common in joint ventures," said a senior mining executive anonymously.

"Pakistan's track record in handling business disputes with foreign companies does not inspire confidence. Babus, [bureaucrats] often lack skin in the game and tend to follow processes rather than adopt a pragmatic, outcome-driven approach needed to effectively defend national interests. In contrast, the private sector operates on survival instincts and is typically more proactive in anticipating and countering adverse moves by partners or competitors," another expert said, referring to cases Pakistan has lost in international dispute forums that resulted in heavy penalties. He was not optimistic about any near-term reversal of the mining giant's decision.

Younus Dagha, former federal secretary and Chairman of the Policy Research and Advisory Council at the Karachi Chamber of Commerce and Industry, believes factors beyond security may be at play. "Mining is inherently high-risk, and the security environment was broadly similar when Barrick Gold re-entered Reko Diq in March 2022. The decision to defer investment appears driven less by security and more by a reprioritisation of capital towards projects in Nevada, USA and Zambia. Decisions involving billions of dollars are not typically triggered by short-term regional tensions," he said. It may also be relevant to note the leadership transition at Barrick Gold. Former CEO Mark Bristow was widely seen as more passionate about Reko Diq than the current leadership under Mark Hill.

Courtesy Dawn

The energy transition paradox

Governments are doubling down on fossil fuels to secure short-term resilience; yet the pathway out of that dependence – renewables, electrification, and storage – relies on supply chains that are proving brittle under geopolitical stress

Hashim Zaman

| The writer is an environmental economist

The conflict in the Persian Gulf is being read through a familiar lens: oil prices, supply shocks and geopolitical risk. But this framing misses the more consequential story. The conflict is exposing a deeper fault line in the global energy transition, one that markets and policymakers have yet to fully price in. In the immediate term, war drives a return to fossil fuels. Over time, it strengthens the case to abandon them. This is the energy transition's central paradox. Faced with immediate uncertainty – threats to supply routes, market volatility, and the risk of cascading energy shortages – countries are reverting to what they know. Fossil fuels are being secured, stockpiled, and, in some cases, expanded. Climate commitments are not being abandoned outright; they are being quietly diluted. Once again, energy security is trumping decarbonisation.

This response is rational. Modern economies remain deeply dependent on fossil fuels, and no government can afford prolonged energy instability. And yet, the same forces that are slowing the transition today may accelerate it tomorrow. For energy-importing economies, the strategic risks of fossil fuel dependence are becoming harder to ignore. Reliance on globally traded hydrocarbons, often sourced from politically volatile markets, creates persistent exposure to disruption. Renewable energy offers a different proposition: decentralised, domestically anchored and less vulnerable to geopolitical chokepoints. The sun and wind do not pass through contested waters.

This is the paradox in its clearest form: war reinforces fossil fuel dependence today, while strengthening the case for abandoning it tomorrow. And implicitly, this reality is constrained by a third, less visible force: the fragility of the supply chains required to scale a low-carbon economy. Decarbonisation is as much a materials story as an energy one. Lithium, cobalt, nickel, copper and rare-earth elements underpin batteries, electric vehicles, wind turbines and power grids. Without them, the transition does not slow but stalls. Governments are doubling down on fossil fuels to secure short-term resilience. Yet the pathway out of that dependence – renewables, electrification, and storage – relies on supply chains that are proving brittle under geopolitical stress. The effects are already visible. Shipping costs are rising, insurance premiums are increasing and transit times are becoming less predictable. Volatility in critical mineral markets is feeding through into higher input costs for clean energy projects and tighter margins for developers. What appears as geopolitical risk is rapidly becoming financial risk through higher capital costs, weaker project bankability and reduced visibility on long-term returns. Resilience, therefore, is no longer a secondary concern. It is a precondition. Diversifying supply chains, investing in alternative materials and scaling circular-economy models will have to be central to the credibility of the transition.

It has become very clear now: an energy transition reliant on exposed global supply chains will continue to remain structurally vulnerable. Yet it is no longer optional; if anything, the current conflict underscores its necessity. The question is no longer whether the world will transition, but whether it can do so under a fractured geopolitical order. ■

Powering Up Pakistan's Industrial Future itelEnergy launches Commercial & Industrial Energy Storage Division



Pakistan's industrial sector has long operated under a silent crisis. Frequent load shedding, soaring diesel costs, and severe voltage fluctuations have historically wiped out up to 15% of the textile industry's annual production capacity; the backbone of Pakistan's export economy.

Driven by its vision to "Power Up Pakistan", itelEnergy officially launched its Commercial & Industrial (C&I) energy storage division at the 32nd Textile Asia 2026 Expo, held July 4th–6th at the Lahore ExpoCenter. At Hall 3 (Booths C29–C54), the three-day event marked a landmark moment, drawing overwhelming interest from industries that need reliable energy the most. "Pakistan's industries have been paying the price of unreliable energy for too long. With our C&I division, we are making a commitment to every factory owner and mill operator that their business deserves energy they can count on." — Arthur Li, General Manager of C&I Business Division, TranESS

Built on Three Promises, Backed by a Complete Energy Shield

itelEnergy's C&I solutions are built on three pillars: Power More, Save More, Grow More — delivering zero downtime for production lines, cutting diesel dependency to slash energy costs, and providing the reliable power your business needs to scale without limits. This promise is delivered through a portfolio spanning four categories, each engineered for Pakistan's harsh operating conditions, forming a full-spectrum energy backbone that keeps your operations running, saving, and growing.

High-Performance On-Grid Inverters (30–350 kW): The flagship IGT-110KT-G1 delivers full power output even at 45°C — a critical advantage during Pakistan's

scorching summers when most systems falter. **Advanced Hybrid Inverters (15–125 kW):** Seamless transitions between solar, battery, and utility power with zero production downtime. Larger models support up to 10 units in parallel for full factory deployment.

Scalable Battery Systems: Engineered to shield automated loom controls from voltage drops and safeguard the precision electronics that modern mills depend on, each unit is built with 100% Grade A LiFePO₄ cells, available in 5kWh or 16kW configurations.

Flagship ESS Cabinet — Dyque 125kW/241kWh: Keeps mid-sized production lines running through 6+ hours of continuous outages. With instant zero-millisecond switching, sensitive loom controls never miss a beat. "This is exactly the kind of solution our industry has been waiting for; something built for Pakistan's conditions, not just adapted from somewhere else." — Kumail Raza, Head of Sales, C&I Division, itelEnergy.

An Overwhelming Response: The booth attracted significant footfall from textile mill owners, engineering leaders, and EPC contractors across Punjab and Sindh — generating over [X] qualified leads and multiple partnership discussions within just three days.

What Comes Next: itelEnergy's C&I division is launching across Lahore, Faisalabad, and Karachi — Pakistan's core manufacturing corridors — with dedicated technical teams and after-sales support operational from day one.

One Promise: Power Up Your Business. About itelEnergy: A leading energy solutions provider with a 33-city service network across Pakistan, delivering reliable power systems for homes and businesses; one home, one factory, one city at a time.



Solving your Energy Needs



Graphite
Lead-Acid
BATTERY

Calcium
Silver

Deep Cycle
BATTERY



7th Floor, B-3 Tower, Opp. F-9 Park, Sector F-9/G-9, Jinnah Avenue,
New Blue Area, Islamabad, Pakistan.



alaskabatteries.com

Affordable Electricity Elusive Despite Excess Power Capacity

Billions Spent Amid Little Relief: Pakistan's Struggles for Affordable Electricity; Excess Generation Capacity Fails to Deliver Cheaper Power to Consumers; Solarisation Reshapes Pakistan's Energy Landscape, Leaving Grid Demand Behind: Pakistan's Energy Planning Under Scrutiny as Demand Forecasts Miss Reality: Hydropower Delays and Idle Assets Add to Electricity Cost Burden

Engineer Hussain Ahmad Siddiqui

The writer is a retired chairman of the State Engineering Corporation

The National Electric Power Regulatory Authority's State of the Industry Report 2025, released in January 2026, has once again exposed the deep structural weaknesses of Pakistan's power sector. The report presents a comprehensive assessment of the industry for the year ending June 30, 2025, highlighting persistent challenges such as inadequate planning, weak governance, underutilisation of assets, lack of reliable and digitised data, shifting demand patterns, and the ever-growing burden of circular debt. Despite decades of reforms and policy interventions, the sector continues to struggle with inefficiencies that undermine economic growth and impose a heavy financial burden on consumers and the government.

Regrettably, many of the concerns identified by the regulator do not appear to have been adequately reflected in long-term planning documents such as the revised Indicative Generation Capacity Expansion Plan (IGCEP) 2025-2035 issued in April 2026. While NEPRA has repeatedly pointed to structural and operational shortcomings, meaningful progress on strategic reforms remains limited. Consequently, the goal of providing affordable, reliable and sustainable electricity remains elusive.

One of the most significant findings of the report is the widening gap between installed generation capacity and actual electricity demand. Pakistan today possesses a generation capacity substantially larger than its current requirements, yet demand growth on the national grid remains sluggish. The rapid spread of rooftop solar systems and other decentralised energy solutions has further altered consumption patterns, reducing dependence on grid electricity.

Another notable observation is the under-utilisation of several efficient generating assets. Although nuclear power plants continue to provide low-cost and reliable electricity, overall system constraints and demand limitations have restricted optimal utilisation of available capacity. Likewise, while renewable energy projects have expanded considerably in recent years, their actual contribution to electricity generation remains below expectations because of intermittency, grid limitations, and lower capacity utilisation factors.

The report also highlights continuing delays in major hydropower projects. Commercial operation dates for several strategically important schemes have been repeatedly revised due to financial constraints, security concerns, implementation challenges and cost overruns. As a result, consumers continue to bear the burden of expensive capacity payments while awaiting the benefits of low-cost indigenous hydropower.

At present, Pakistan's total installed generation capacity, including the K-Electric system, stands at 41,121MW after the retirement and decommissioning of more than 2,800MW of older plants during the year. Dependable capacity is reported at 38,474MW. Despite successive policy commitments to increase private-sector participation, the public sector still accounts for roughly 53 per cent of installed capacity.

The demand profile, however, paints a very different picture. In the national grid system, excluding K-Electric, dependable generation capacity reached 33,281MW during the June 2025 peak-demand period, yet the utilisation factor was only around 74 per cent and only for a limited duration too. Consequently, nearly one-quarter of available dependable capacity remained unutilised even during peak conditions. During the annual low-demand period in March 2025, electricity demand reportedly fell to just 6,106MW, resulting in a capacity utilisation factor of barely 18 per cent.

Studies by energy researchers further underscore the changing nature of electricity consumption in Pakistan. According to Renewables First, a Pakistani think-tank, electricity supplied through the national grid has declined substantially over the past three years despite continued growth in overall electricity consumption. The increasing adoption of distributed solar generation has reduced demand for grid-supplied electricity, with rooftop solar emerging as a major source of power for households and businesses. The revised IGCEP 2025-2035 appears to require further review in the light of changing consumption patterns, rapid solarisation and persistent underutilisation of existing capacity.

Similarly, the US-based Global Energy Monitor estimates that decentralised and off-grid electricity now accounts for a significant share of national electricity consumption. These developments raise important questions regarding future demand projections and generation planning. NEPRA's Report shows that total net electricity generation declined from 154,056 GWh in 2021-22 to 138,539 GWh in 2022-23, further decreasing to 137,078 GWh in 2023-24 and 135,078 GWh in 2024-25. These figures indicate a persistent downward trend in grid-based electricity generation despite substantial additions to installed capacity.

The report also notes that wind, solar and bagasse-based plants continue to account for a relatively modest share of total electricity generation, despite their growing share of installed capacity. This reflects the inherent difference between installed capacity and actual energy output, an issue that must be carefully considered in future expansion planning.

Another alarming aspect of the sector's performance is the loss of low-cost hydropower generation. According to Nepa, hydropower generation losses reached 6,520 GWh owing to the non-availability of several Wapda power stations in 2025. The 969-MW Neelum-Jhelum

Hydropower Project alone accounted for an estimated loss of 5,126 GWh after it remained shut down throughout the year due to structural damage and ongoing investigations. Since its shutdown in May 2024, progress on repair and rehabilitation has remained slow, and reports suggest that the project may not resume operations before 2029. Consumers, meanwhile, continue to bear a substantial financial burden through past project-related surcharges and current replacement power costs.

The revised IGCEP 2025-2035 remains heavily focused on meeting projected peak demand through large additions of renewable and hydropower capacity. The plan envisages the addition of approximately 21,400MW of hydropower, 13,200MW of solar power, and 11,500MW of wind power by 2035. Under these projections, hydropower would account for about 34 per cent of installed capacity, while solar and wind together would contribute around 27 per cent. However, the timely completion of major hydropower projects remains uncertain. Strategic schemes such as the 4,500MW Diamer-Basha Dam, 2,160MW Dasu Dam & Hydropower Project, 1,530MW Tarbela 5th Extension Project and the 800MW Mohmand Dam have all experienced delays and cost escalations. Given Pakistan's historical record in executing mega infrastructure projects, estimations regarding their completion schedules require careful scrutiny.

Against this backdrop, the revised IGCEP projects total installed capacity rising to 62,657MW by 2027 under the low-growth scenario and to 70,720MW by 2035 under the high-growth scenario. Yet projected peak demand under these scenarios remains substantially lower, at around 35,521MW and 43,069MW, respectively. This large gap between installed capacity and projected demand reinforces NEPRA's observation that Pakistan's core challenge is not merely capacity expansion but rather the efficient utilisation of existing assets and the development of realistic demand forecasts. The regulator has repeatedly warned that excessively optimistic demand projections can lead to undue capacity additions, rising capacity payments, and ultimately higher consumer tariffs. The current power sector situation provides ample evidence of these risks.

In conclusion, the revised IGCEP 2025-2035 appears to require further review in the light of changing consumption patterns, rapid solarisation, and persistent underutilisation of existing capacity. Future planning must be based on realistic demand projections, improved system efficiency, better utilisation of available assets and accelerated reforms in governance and distribution. Unless these structural issues are addressed, Pakistan may continue to add generation capacity while affordable and reliable electricity remains out of reach for consumers. Equally important is that policymakers ensure that future expansion plans do not result in even higher electricity tariffs, which already impose a heavy burden on households, agriculture, commerce and industry. ■

Tokenising Pakistan's energy crisis

The so-called circular debt has been maintained above the Rs 2.4 trillion level since early 2025 and the country continues to pay huge fixed capacity charges to the independent power producers

Dr Sardar Mohazzam

The writer is a former managing director of the National Energy Efficiency and Conservation Authority

The power sector in Pakistan remains in a tailspin. The so-called circular debt has been maintained above the Rs 2.4 trillion level since early 2025 and the country continues to pay huge fixed capacity charges to the independent power producers. Home and business solar installations are the new trend. This has led to a shrinking paying customer base and raised the per unit price for the remaining consumers.

In this crisis lies a hidden opportunity. Pakistan has some of the best solar and wind energy resources in Asia, a growing digital economy, one of the world's biggest remittance corridors and a population well versed in crypto-assets and blockchain-based finance. Pakistan is in a unique position therefore to consider asset tokenisation.

Tokenisation is the process of representing the right to an underlying asset in a digital token on a blockchain. In some developed markets, tokenised energy finance is on the verge of becoming a reality. In Italy, the MiCA regulatory framework has been implemented by Enel, the country's largest utility, with electricity blockchain-based fractional ownership schemes.

In Australia, Powerledger has enabled peer-to-peer renewable energy trading based on blockchain technology. In the United States, companies like Plural Energy have developed tokenisation solutions for mid-sized clean energy projects to attract investors.

The case is particularly strong in Pakistan for the following reasons: First, the circular debt crisis has caused a financing and transparency failure. Many elements of the existing system have opaque receivables,

delayed settlements, sovereign guarantees and fiscal bailouts on an ad hoc basis.

The tokenisation of energy linked securities backed by future electricity revenue may add transparency, automated settlement processes and market-based pricing discipline to some parts of the system. Although tokenisation may not cure structural inefficiencies, it can make the industry more transparent.

Second, remittances by overseas Pakistanis are likely to exceed \$38 billion this year. However, most of the overseas Pakistanis lack access to a trustworthy long-term investment platform linked to the domestic infrastructure. A regulated tokenised stake in a solar or hydropower project with periodic returns may be more appealing than traditional paper securities by financially challenged public sector entities.

Third, the regulatory context is changing. The creation of the PVARA & PDAA is yet another sign of the government's acceptance of blockchain-based finance entering the mainstream economy.

Smart contracts can enhance efficiency; coding flaws and governance issues can lead to substantial financial risks.

Pakistan is also one of the best markets for crypto adoption. The demand side already exists; there is need for a credible and regulated system that can direct digital capital to productive sectors of the economy. Fourth, distributed solar power growth in Pakistan has been a quiet revolution. Net-metered rooftop solar capacity is currently approaching 6 GW. Import of solar panels has increased greatly in the last two years.

Pakistan should probably start with strictly controlled pilot projects rather than nationwide projects. The PVARA & PDAA, with the help of the Securities and Exchange Commission of Pakistan, may create a regulatory sandbox that allows for a limited number of renewable-energy tokenisation pilots focused on the Diaspora investors. The risk can be minimised in the beginning by limited tokenisation to existing solar and wind installations. The reform of the electricity market in Pakistan under Competitive Trading Bilateral Contract Market is another opportunity to modernise the financial settlement architecture. ■

How Three Mega Dams Could Transform Pakistan's Future

Dr Farrukh Saleem

Three dams under construction: Diamer-Basha on the Indus. Dasu on the Indus. Mohmand on the Swat. All three under construction simultaneously. This has never happened in Pakistan's 78-year history. All three. Under construction. Right now. As you read this.

Remember: Pakistan's last big dam was Tarbela, completed in 1976. That's a 50-year gap. Here are the numbers: combined installed capacity of 9,620MW. Total cost: Rs2.6 trillion. Dasu alone is 4,320MW. Diamer-Basha 4,500MW. Together, those two dams will double Pakistan's entire existing hydropower capacity. Imagine: doubling the capacity.

Pakistan has been talking about water storage since Ayub Khan. We have been holding seminars, forming committees, issuing white papers and passing resolutions for six decades. And now – finally, actually, physically – three mega-dams are being built at once.

Ground reality: River Indus was successfully diverted at Dasu in February 2023 and at Diamer-Basha in December 2023 – a major construction milestone for both. Construction at Diamer-Basha is ongoing simultaneously across 13 work fronts, and RCC (roller-compacted concrete) work on the main dam body began in early 2026. Mohmand broke ground in 2019.

The official completion targets are Dasu Stage 1 in 2026 and Diamer-Basha in 2028. Mohmand Dam remains on track for completion in 2026-27. This is not a press release. This is concrete. Steel. Tunnels. Diverted rivers. All visible from satellites above. Here's why this matters so much: Pakistan currently faces a severe energy crisis – expensive imported fuel, frequent loadshedding and a circular debt problem in the power sector. These three dams together add roughly 9,620MW of clean, domestic hydropower, which could transform that situation fundamentally.

Cold truth: Pakistan today stores 30 days of water. India stores 220 days. Complete all three dams – Basha, Dasu, Mohmand – and Pakistan reaches 45 days. Better. But still not enough.

Remember: the 2022 floods caused over \$30 billion in damage. Here's the flood control dimension: Regulated water flow from these reservoirs provides a buffer that saves lives and protects crops every monsoon season. Once completed: Cheaper electricity, water security and flood resilience – all from one coordinated programme.

Here are four major challenges to watch. First: funding gaps. The money pipeline is nowhere near consistent enough to match the ambition. The Rs2.6 trillion price tag also needs sustained financing. Second: cost overruns. Diamer-Basha's cost has already ballooned by 119 per cent due to redesigned seismic parameters, security requirements and rupee depreciation. Final bills will almost certainly exceed current estimates.

Third: delays. Mohmand was originally due in 2024-25. These projects have a long history of missed deadlines. Fourth: resettlement of affected communities. Displacing thousands of families in remote, tribal areas like Gilgit-Baltistan and Mohmand district is politically sensitive and logistically complex, with Rs78.5 billion already committed just for resettlement support.

This is genuinely exciting news for Pakistan. Will there be delays? Yes. Cost overruns? Certainly. Political interference? Inevitably. But here is what cannot be argued with: the Indus has been diverted. Three rivers are being tamed. Three dams are rising. The concrete is being poured. The tunnels are being drilled. In Pakistan, that alone is a revolution.

Iranian oil option returns for Pakistan

Pakistan could once again tap Iranian crude oil supplies following a temporary easing of US sanctions on Tehran

Aamir Shafaat Khan

Aamir Shafaat Khan is a Karachi-based reporter for Dawn

Pakistan could once again tap Iranian crude oil supplies following a temporary easing of US sanctions on Tehran, reopening the possibility of sourcing discounted crude and refining it locally to produce higher-value petroleum products.

While industry experts say local refineries are technically capable of processing Iranian crude, commercial and operational challenges remain, particularly due to the high furnace oil yield and the absence of significant domestic demand for the fuel.

Pakistan Refinery Ltd (PRL) had previously imported Iranian crude under a long-term contract with the National Iranian Oil Company, but purchases halted after US sanctions were imposed. Since then, no Iranian oil has been imported into the country.

Commenting on the prospects for refining Iranian crude oil, a former head of a leading refinery in Karachi told Dawn that the scenarios are changing and sanctions are being lifted temporarily. The outcome remains uncertain over the next two months.

Discounts, demand and tech upgrades will decide prospects for refining heavy crude grades

“We can refine Iranian light crude oil, but due to high furnace oil (FO) content, it is not a commercially viable option, particularly when there is no domestic market for

the FO due to its negligible usage in the power sector.

“The most notable aspect is the price of Iranian crude oil and whether it is pegged to an international benchmark, with parity to Arab crude. If there is no discount, refining at the local refinery is not economical,” he said.

When asked whether India is refining Iranian crude, he said Indian refineries are mostly deep-conversion units equipped with hydrocrackers, hydrocokers, residue fluid catalytic cracking units, etc. This gives them the flexibility to process crude ranging from heavy to light grades into value-added products like diesel and petrol.

Currently, local refineries are meeting the 80pc of diesel demand due to change in the crude recipe and modification. Diesel has been facing demand destruction due to high stocks. Refineries are producing diesel at maximum throughput, he said. Pakistan’s diesel sales in May stood at 455,000 tonnes, down 32pc year-on-year and 17pc month-on-month. Diesel production during FY25 stood at 4.958m tonnes while in July-February FY26 it was 3.787m tonnes. Import of diesel during FY25 was 2.037m tonnes while total imports during July-April FY26 were 1.239m tonnes.

He said barring Pak Arab Refinery Ltd, which has a mild cracker unit — other refineries in Pakistan do not have hydrocracker units. Pakistani refineries need cracking units like India. As per the quarterly report ending March 31, Pakistan Refinery Ltd is reportedly working on this as it is engaged with the government for restoration of taxable status of petroleum products and brownfield policy amendments, which remain critical for the company’s sustainable operations as well as successful execution of the Refinery Expansion and Upgrade Project (REUP).

PRL is committed to the REUP, which will double the refinery’s crude processing capacity from 50,000 barrels per day to 100,000 barrels per day, practically eliminating high sulphur furnace oil and producing Euro V refined products.

Sania Irfan of Toplevel Securities said Pakistan also stands to benefit on the import side. The country imported nearly \$17bn worth of petroleum products and fuels in 2025. Historically, Pakistan imported Iranian crude at a discounted realised price compared to imports from Saudi Arabia and the UAE, with discounts on average during 2009-12. Even according to the latest reported prices, Iranian light and heavy crude grades are priced at discounts compared to Saudi Arabia’s prices. Sourcing crude oil from Iran could generate import cost savings of \$170-340 million for Pakistan, assuming it imports 10-20pc of its total petroleum requirement at a discount, including freight savings. ■

PLATINUM SPONSORS



GOLD SPONSORS



SILVER SPONSORS



ORGANIZER



EVENT MANAGER



MEDIA PARTNER

**ENERGY
UPDATE**

15th

IEEEP

**FAIR
2026**



PAKISTAN'S PREMIERE ELECTRICAL & ELECTRONICS INDUSTRIAL EXHIBITION

18TH - 20TH AUGUST 2026

EXPO CENTRE KARACHI

FOR SPONSORSHIP & STALL BOOKING

Badar Expo Solutions
C-175, Block-9, Gulshan-e-Iqbal,
Near Aziz Bhatti Park, Karachi - Pakistan
Tel: +92-21 34821159-60 Fax: +92-21 34821179
Email: info@badarexpo.com

www.ieeepfair.com

Oil Wars, Empty Wallets: How Global Conflict Is Pushing Pakistan Toward Economic Disaster

Every \$10 rise in oil prices adds roughly \$1.5 billion to Pakistan's import bill; since over 80 per cent of our petroleum products are imported, the economy has little room to absorb external shocks; transport accounts for 87pc of Pakistan's oil consumption

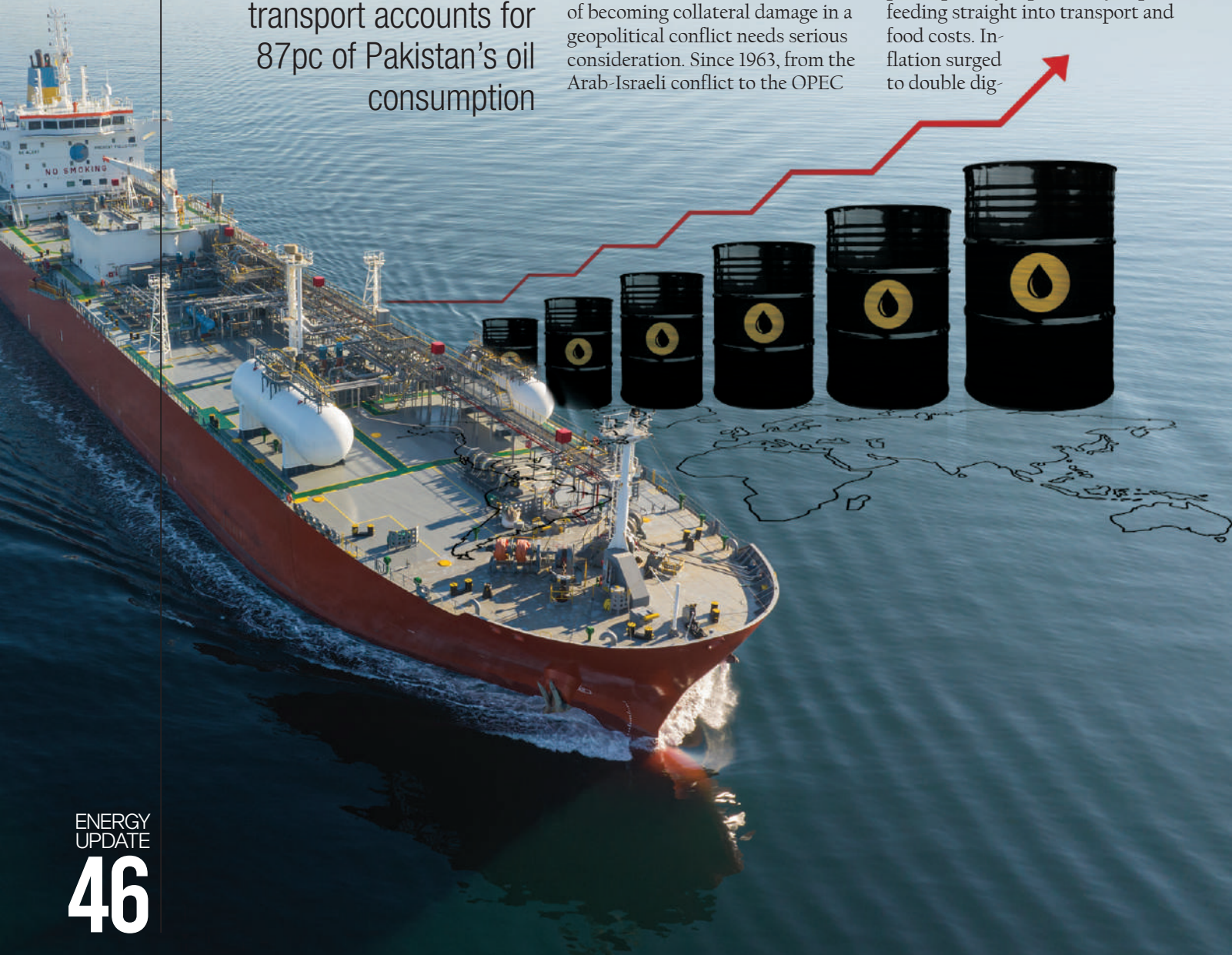
Omais Abdur Rehman

The writer is senior associate, Energy Tech, at Renewables First, and lead, Pakistan Renewable Energy Coalition

Every conflict eventually finds its own narrative of victory. The US-Iran confrontation will follow the same script, with both sides claiming strategic success. Yet, for Pakistan, the risk of becoming collateral damage in a geopolitical conflict needs serious consideration. Since 1963, from the Arab-Israeli conflict to the OPEC

embargo, each disturbance has jolted Pakistan's economy as fuel prices spiked causing import bills to soar.

Every \$10 rise in oil prices adds roughly \$1.5 billion to Pakistan's import bill. Since over 80 per cent of our petroleum products are imported, the economy has little room to absorb external shocks. This phenomenon was evident during the Russia-Ukraine conflict and the recent US-Iran war, when petrol prices jumped nearly 70pc, feeding straight into transport and food costs. Inflation surged to double dig-



its in April 2026 for the first time in 21 months, reaching nearly 11pc.

The damage runs deeper than inflation, as rising energy costs reach the average household from two directions at once. On the supply side, fuel prices seep into every link of the food chain — from irrigation and fertiliser to storage and transport. On the demand side, the squeeze is more direct. The data presented in the Household Integrated Economic Survey, 2024-25, shows that housing and utility expenses climbed sharply from 15pc to 25pc over the past two decades, while spending on food declined from 43pc to 37pc, forcing families to cut spending on food, health and education. This deepens malnourishment and illiteracy, turning energy inflation into a long-term socioeconomic liability.

Pakistan's transport sector, accounting for nearly 37pc of total energy usage, is deeply impacted. Transport accounts for 87pc of Pakistan's oil consumption, making it both the largest consumer of imported fuels and the fastest channel for global price shocks to reach households. Therefore, introducing electrification within this sector has become a macroeconomic necessity. Pakistan can't just import electric vehicles; rather, it needs to establish a domestic ecosystem to locally manufacture EVs and install charging infrastructure, with a clean energy base supported by dedicated financing mechanisms.

National energy security demands investment in clean, indigenous resources. What does clean and indigenous mean? While policymakers lump coal, gas and large hydropower in this category, they can't shape the future given their socioeconomic and environmental impacts. The real momentum lies in solar, wind and storage, as evident from shifting global trends. A recent survey estimated that over 38 gigawatts of distributed capacity have been added since 2018, providing a crucial buffer during the latest geopolitical shock and helping cut fuel imports by an estimated \$12bn.

Rising energy costs reach households from two directions.

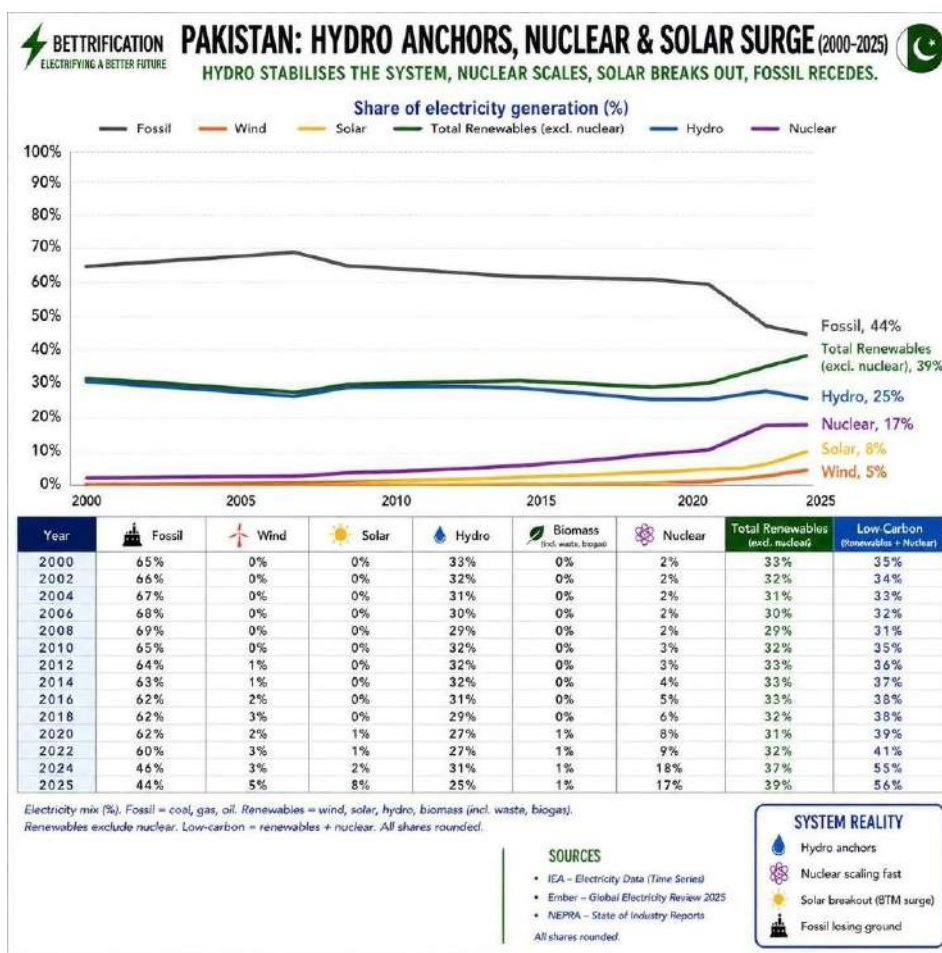
However, the nature of solar is intermittent. This is where a battery energy storage system comes in. An analysis by Transition Zero and Renewables First shows that BESS can replace peaking RLNG generation, saving up to \$2.87bn in RLNG operating costs by 2030.

In FY25, plants running on furnace oil

and imported coal mostly sat idle, with average utilisation rates of just 2pc and 23pc, respectively, while those utilising RLNG ran at 41pc capacity to cover peak electricity demands. Their displacement by rooftop solar in the merit order is proof that they have become obsolete yet continue to place a fiscal burden in the form of capacity payments. The fix is to renegotiate these licences and power purchase agreements rather than dumping the cost onto taxpayers. Repurposing offers another practical path as thermal energy storage, acknowledged in Pakistan's NDC 3.0, can convert coal plants into long-duration storage charged by surplus renewables, turning stranded assets into flexible ones.

Our country's power planning is obsessed with least-cost calculations and completely ignores the true price of environmental damage and import dependence. Two further non-negotiable criteria must be applied to every planning decision: the climate footprint of the technology being installed, and the degree to which it is indigenous as opposed to imported. However, planning criteria are only as good as the political will to apply them.

Will the next external shock push Pakistan into yet another IMF bailout? Will the country keep tying its fate to fossil fuels whose prices are set in foreign capitals? Will the state keep taxing and stifling the most successful energy transition story of the Global South? In the rooms where decisions are made, such questions do not simply go unanswered. They almost always go unasked. ■



K-Solar, China's Mingyang sign MoU to bring advanced wind energy and BESS solutions to Pakistan

K-Solar (Private) Limited, a wholly owned subsidiary of K-Electric's investment arm KE Ventures Company (Pvt) Limited, and Mingyang Smart Energy Group Limited, one of the world's largest wind turbine manufacturer and a major global supplier of utility-scale and industrial Battery Energy Storage Systems (BESS), have signed an agreement to bring Mingyang's solutions to the local industry in Pakistan.

Under the memorandum of understanding (MoU), K-Solar and Mingyang will partner to market, supply and finance wind power projects and BESS for grids and commercial and industrial sectors in Pakistan — while also laying the groundwork for a BESS assembly plant in the country.

The two companies will follow up this MoU with a formal framework agreement in the coming weeks.

Muhammad Aamir Ghaziani, Chairman K-Solar, said: "Wind power has been gaining significant attention in Pakistan's energy transformation, offering a competitive, low levelised tariff that makes it an attractive complement to the country's existing generation mix. As Pakistan moves toward a more diversified and resilient energy system, scope for BESS also re-



Left-right: Hashim Raza (CEO K-Solar), Adeeb Ahmad (CEO KE Ventures), Sameer Chishty (Chairman KE Ventures), Adnan Bashir (Mingyang BD Manager MENA Region), Liu Wei (Mingyang Solutions Manager), Faseeh ud Din (Mingyang BD Manager Pakistan). Seated: Muhammad Aamir Ghaziani (CFO K-Electric), Miao Desheng (GM of Mingyang MEA)

mains immense for supporting grid stability, managing intermittency and unlocking the full value of renewable generation."



Women in diplomacy: Group Photo of Ambassador Germany, Ambassador Denmark, Ambassador Italy and others with Chairperson BISP

Audit Flags Rs25.74 Million Irregular Expenditure in Diamer-Bhasha Dam Project

Audit authorities have identified irregular expenditure amounting to Rs25.744 million in the Diamer-Bhasha Dam Project (DBDP), citing the unauthorized attachment of officers to the Chairman Wapda's office and the payment of their salaries from project funds despite their not performing duties related to the dam project.



A Group photo taken at launching of IEEE Fair 2026 includes Secretary Energy Sindh Shahab Qamar Ansari, Sr. VP FPCCI Saquib Fayyaz Magoon, Managing Editor Energy Update M. Naeem Qureshi, MD Badar Expo Zohair Naseer and others.



Sindh Chief Minister Syed Murad Ali Shah witnesses the signing of a Memorandum of Understanding (MoU) among the Science & Information Technology Department, Sindh Higher Education Commission, and Tech Valley Pakistan. Chairman Sindh Higher Education Commission Prof Tariq Rafi, Secretary Science & Information Technology Zulfikar Ali Nizamani, and Chief Executive Officer Tech Valley Pakistan Umer Farooq are seen signing the MoU.



23RD ANNUAL ENVIRONMENT EXCELLENCE AWARDS

6 August-2026
Movenpick Hotel, Karachi

The prestigious annual awards; designed to

RECOGNIZE | APPRECIATE | PROMOTE

the responsible organisations that protect

**Sustainable Environment
in Pakistan**

PARTNERS

**ENERGY
UPDATE**

CSR
CLUB
PAKISTAN

CSR Update


Publicity Channel

Harnessing our power

Global coal demand hit an all-time high of 8.77 billion tonnes in 2024; That is 278 tonnes burned every single second

Nazifa Butt

The writer is WWF-Pakistan's climate action and sustainability director

The world set a record recently and not one worth celebrating. According to the International Energy Agency, global coal demand hit an all-time high of 8.77 billion tonnes in 2024. That is 278 tonnes burned every single second. Meanwhile, the floods keep coming, the glaciers keep retreating and the smog over our cities keeps thickening. The theme of Earth Day 2026—Our Power, Our Planet—is a reminder of this challenge; for Pakistan, this remains deeply personal.

Pakistan contributes less than 1 percent to the global greenhouse gas emissions. It also ranks among the ten most climate vulnerable countries. The melting glaciers of the Karakoram; the catastrophic floods of 2022 that submerged a third of the country; the floods of 2025; and the scorching summers that push temperatures past 50 degrees Celsius are lived realities.

Transitioning away from fossil fuels is a need for economic survival, energy security and human dignity—all at once.

The transition under way is driven by millions of Pakistanis making cold economic calculations. Solar power's share of Pakistan's electricity generation more than tripled in just three years, climbing from 4 percent in 2021 to 14 percent in 2024—one of the highest growth rates in Asia, according to a Reuters analysis of Ember data. When off-grid systems are included, solar now accounts for roughly 25 percent of Pakistan's total electricity consumption.

What drove this? Not climate policy.

Electricity tariffs rose by 155 percent over three years. Where government subsidies were withdrawn, households, farmers and businesses turned to rooftop solar. Pakistan imported 17 gigawatts of solar panel capacity in 2024 alone, making it the world's largest solar panel importer. The economics have been settled by IRENA data: the cost of utility-scale solar electricity fell 90 percent between 2010 and 2023, from \$0.460 to \$0.044 per kilowatt-hour. Increased solar adoption reduced Pakistan's oil and gas import bill by around 40 percent between 2022 and 2024, generating savings exceeding \$12 billion by early 2026.

For a country perpetually squeezed by foreign exchange shortages, that is keeping Pakistan's economy afloat.

On the solar front, the government's net-metering framework, which once allowed households to sell surplus electricity to the grid, has been significantly weakened. The buyback rate has been cut by more than 60 percent for new users, reducing the financial return for new solar adopters and raising concerns about whether policy is keeping pace with the energy transition it claims to support. But legislation alone cannot carry this transition. The community must continue to play its role. Every household that installs a solar panel is reducing national dependence on imported gas. Every farmer who converts a diesel-powered tube well to solar is cutting both costs and carbon. Every person who chooses an electric bike over a petrol motorcycle is casting a vote for cleaner air and a reduced carbon footprint. The data shows that these individual decisions, aggregated across millions of households, can shift national outcomes.

The transition is no longer confined to rooftops. Pakistan's electric vehicle story is one of the most striking turn-arounds in the region. Electric vehicles rose from just 567 registered units in 2021 to more than 80,000 by June 2025, a transformation driven almost entirely by electric motorcycles and rickshaws, the workhorses of Pakistan's urban mobility. In 2025 alone, EV sales surged by 191 percent year on year, reaching approximately 90,000 units.

The community has been central to this shift.

Delivery riders, students, farmers and small business owners—the people who feel fuel price spikes most immediately—have been among the earliest and most enthusiastic EV adopters. In 2021, Lahore was ranked the most polluted city in the world, with 83 percent of airborne emissions coming from road transport. Every electric motorcycle on the road is a direct reform action. Critically, legislation is beginning to match this grassroots momentum. Pakistan's National Electric Vehicle Policy 2025-2030 sets a target of 30 percent of all new vehicle sales to be electric by 2030, rising to 50 percent by 2040 and a net-zero transport fleet by 2060. The government has introduced subsidies of Rs 50,000 for electric motorcycles and Rs 200,000 for rickshaws, backed by an allocation of Rs 4 billion, alongside plans to establish 3,000 EV charging stations across the country by 2030. This could massively reduce emissions.

Businesses must invest in clean supply chains. Researchers and engineers must continue driving down the cost of storage and transmission. Local governments must embed EV infrastructure into urban planning. The federal government must hold the line on its policy commitments, resist the pull of short-term fossil fuel dependency and ensure the benefits of this transition reach low-income communities who cannot yet afford a solar panel or an electric bike. The renewable energy potential in Pakistan is vast. The community has demonstrated it will lead when the economics make sense. The legislation, for the first time, is beginning to provide a serious framework. If these forces converge—sustained policy, community action and continued investment in clean infrastructure—the path to a sustainable future is not a distant aspiration.

The planet does not grant extensions. But if Pakistan continues on this trajectory, it may yet prove that a developing nation, battered by climate change and constrained by debt, can still make the transition that the planet de-

mands, and in doing so, build a stronger, cleaner and more resilient country for every generation that follows. The power is ours. So is the responsibility ■

Sindh govt, K-Electric move to design targeted subsidy for low-income consumers



EU Report

Sindh Chief Minister Syed Murad Ali Shah has directed the Energy Department and K-Electric to jointly develop a targeted subsidy mechanism aimed at reducing electricity costs for vulnerable consumers in Karachi, while improving supply reliability in low-income areas ahead of the summer season.

The directive came during a meeting held at the Chief Minister's House with K-Electric leadership, including Chairman Shahryar Chishti and CEO Syed Taha, and senior provincial officials such as PSCM Agha Wasif and Energy Secretary Shuhab Ansari. Expressing concern over prolonged and increasing load-shedding in underprivileged localities, the chief minister stressed that the hardship faced by low-income households must be urgently addressed through practical and sustainable solutions.

Separately, the meeting also explored the possibility of structured cooperation between the Sindh government and K-Electric for supplying competitively priced electricity to industrial zones, aimed at supporting productivity and reducing operational costs.

Chairman K-Electric Shahryar Chishti assured full cooperation, stating that sustainable relief for consumers depends on the availability of low-cost power generation and efficient distribution mechanisms. The meeting concluded with a broader review of energy sector collaboration between the Sindh government and K-Electric, focusing on affordability, continuity of supply, and protection of vulnerable consumer segments. ■

Pakistan cannot tax its future to pay for its energy past

Legacy energy liabilities must be separated from current consumption tariffs if the country wants affordable power; Legacy energy liabilities must be separated from current consumption tariffs if Pakistan wants affordable power, industrial competitiveness, and a real market; the stock of circular debt in the power and gas sectors together is already above five trillion rupees on current estimates; on top of that sit annual capacity payments, LNG terminal fixed charges, and repayment streams created to refinance old arrears

Dr Nadeem ul Haque | Shahid Sattar

Pakistan's energy problem is no longer just about supply. It is about the accumulated cost of years of bad policy, weak governance, distorted pricing, and delayed reform. That overhang now sits like a dead weight on the entire system.

The state keeps trying to recover yesterday's mistakes through today's tariffs (without any concrete reform or restructuring of the system) and then acts surprised when industry cannot compete, households cannot pay, demand collapses, and reform goes nowhere.

The numbers are ugly enough on their own. The stock of circular debt in the power and gas sectors together is already above five trillion rupees on current estimates. On top of that sit annual capacity payments, LNG terminal fixed charges, and repayment streams created to refinance old arrears. These costs are real. But loading them onto current consumption is the policy equivalent of making today's economy pay rent on yesterday's incompetence.

Scale of the energy overhang

Surprisingly there is no serious analysis or plan to stop this haemorrhaging of the energy sector. Instead, the strategy seems to be to pass on the losses to the consumers. There seems too little realization on how inefficient this strategy is in terms of possibilities of demand substitution options and the adverse growth and investment options.

Instead of separating legacy liabilities from the price of serving current load, the system bundles past inefficiency, fixed contractual burdens, theft, non-recovery, and political pricing into the tariff facing current users. The result is a tariff structure that has become unaffordable for much of the population and commercially destructive for productive sectors, especially industry and exports.

This is self-defeating policy. When tariffs rise beyond what consumers can bear, recoveries worsen, demand falls, captive generation expands, rooftop solar accelerates, and more users try to defect from the grid.



The remaining paying consumers are then asked to carry an even larger burden. That is how a pricing system enters a death spiral while pretending to be fiscally responsible.

Industry bears the brunt first. Manufacturers cannot absorb tariffs inflated by legacy costs that have little to do with the marginal cost of power today. When electricity prices are pushed up to finance stranded payments and circular debt, Pakistani industry loses competitiveness against regional peers. Exports weaken, investment slows, factories reduce utilization, and the tax base shrinks. In trying to collect more from current users, the state ends up shrinking the very economic activity needed to sustain the system.

The social consequences are just as damaging. For the bulk of the population, especially lower- and middle-income households, electricity, and gas are no longer just utility issues. They are now central inflation issues. High tariffs cascade through transport, food, services, and domestic budgets. When the state uses utility bills as a hidden tax instrument to recover years of energy-sector failure, it does so in one of the most regressive ways possible.

Worse, this approach is now blocking the development of an energy market. You cannot build workable energy markets if every new transaction is forced to carry the baggage of the old system. You cannot create credible privatization if investors know that the wires business is stuffed with non-commercial obligations, political interference, and tariffs inflated by liabilities they did not create. And you certainly cannot expect competitive supply, open access, wheeling, or bilateral contracting to emerge if the price signal itself is contaminated by legacy costs.

That is why the first principle of reform should be straightforward: legacy debt and current energy pricing must be separated.

This does not mean the liabilities disappear. It means they are put where they belong: into a financing and fiscal strategy instead of the marginal tariff.

Circular debt stocks should be refinanced over longer horizons through explicit instruments. Legacy contractual obligations should be renegotiated, reprofiled, bought down, or budgeted transparently where possible.

Revenue from privatization, petroleum levies, carbon-related taxes, and targeted budgetary transfers can all be part of the solution. Above all, deregulation and other structural measures to revive growth should be undertaken to foster a strong demand for energy to finance the legacy debt. The second principle is equally important: stop adding to the pile. Pakistan cannot refinance old liabilities while continuing to recreate them every year. That requires discipline in dispatch, pricing, recovery, and governance. Cheaper power must be dispatched first.

Transmission must be strengthened urgently so that low-cost electricity from where it is generated can actually reach where it is needed. Recoveries must improve. Losses must be reduced. Fuel allocation must stop favouring expensive options merely because the system is rigid or politically convenient.

Third, the distribution business must be made commercial. No tariff rationalization will work if distribution companies continue to leak value through theft, non-recovery, poor maintenance, weak governance, and political interference. Privatization, or at least private management under hard performance contracts, needs to move from slogan to execution. Investors will not come into a system where inefficiency is protected and losses are socialized indefinitely.

Fourth, current reforms toward market opening should continue, but with honesty. Recent changes in the CTBCM (Competitive Trading Bilateral Contract Market) framework allowing hybrid consumption are a welcome step in the right direction. They signal movement toward a more flexible and realistic market structure. But nobody should confuse that with a fully workable market. A functioning energy market will still require open access that is genuinely non-discriminatory, transparent wheeling charges, credible balancing arrangements, enforceable contracts, strong system operation and, above all, a wires business that is not crippled by legacy debt and administrative distortion.

In other words, Pakistan must stop trying to build a market on top of a landfill. If the inherited burden remains embedded in the tariff, then every market reform will stall. Consumers will resist. Industry will bypass. Investors will hesitate. Regulators will resort to ad hoc fixes. And the system will continue to oscillate between crisis management and reform theatre. ■

OGDCL Raises Stake in Qadirpur Gas Field to Nearly 83%



EU Report

Oil and Gas Development Company Limited (OGDCL), Pakistan's largest exploration and production (E&P) company, has successfully increased its working interest in the Qadirpur Development and Production Lease (D&PL) from 75% to 82.99% following the completion of an acquisition agreement with KUFPEC Pakistan B.V. (KPBV). The development was disclosed in a notice submitted to the Pakistan Stock Exchange (PSX) on Friday. According to the company, the acquisition of an additional 7.99% working interest has been finalized after receiving the necessary approval from the Government of Pakistan and executing the Deed of Assignment (DOA). "Regarding OGDCL's acquisition of an additional 7.99% working interest in Qadirpur Development & Production Lease (D&PL) through a farm-in agreement with KUFPEC Pakistan B.V. (KPBV), we are pleased to inform that the acquisition process has been completed," the company stated. With the transfer now effective, OGDCL's stake in one of Pakistan's key gas-producing assets has risen to 82.99%, further strengthening its position in the country's upstream energy sector. OGDCL remains the largest E&P company in Pakistan, with operations spanning exploration, drilling, production, reservoir management, and engineering support services. The company holds the country's most extensive exploration portfolio, covering more than 40% of Pakistan's awarded exploration acreage. ■

PIA Enters a New Era as Arif Habib-Led Consortium Assumes Control; Lt Gen (R) Anwar Ali Hyder Appointed Chairman

Pakistan International Airlines (PIA) has officially entered a new phase in its history following the successful completion of its privatization process, with management control of the national flag carrier formally transferred to PIA Equity Limited, a subsidiary of the Arif Habib Corporation-led consortium, on June 29, 2026.

Marking a significant milestone for Pakistan's aviation sector, the consortium has assumed operational and administrative control of the airline after the successful first financial closing of the privatization transaction.

Alongside the transfer of ownership, Lt Gen (Retd.) Anwar Ali Hyder has been appointed as the first Chairman of Pakistan International Airlines Corporation Limited (PIACL) under private ownership. Hyder, who also serves as the Managing Director of Fauji Foundation, will lead the airline's newly constituted Board of Directors as it embarks on an ambitious transformation and modernization plan supported by fresh private investment.

The newly appointed Board of Directors comprises: Lt Gen (Retd.) Anwar Ali Hyder – Chairman, Jehangir Paracha, Gohar Ejaz, Arif Habib, Aqeel Karim Dhedhi, Fazal Sheikh, Farzana Feroz.

The appointment of the new board signals the begin-



ning of a bold new chapter for Pakistan's national airline, with expectations of improved corporate governance, operational efficiency, financial sustainability, and enhanced passenger services.

Industry observers view the privatization as one of the most significant reforms in Pakistan's aviation sector, aimed at restoring PIA's competitiveness in regional and international markets after years of financial and operational challenges. ■

Pakistan Expected to Have 2.2 Million Electric Vehicles on Roads by 2030

Pakistan is expected to witness significant growth in electric mobility, with the number of electric vehicles (EVs) on its roads projected to reach 2.2 million by 2030, according to a briefing presented to the Senate Standing Committee on Industries and Production. The briefing revealed that more than 12,800 electric vehicles and approximately 160,000 electric motorcycles have already been manufactured in

Pakistan, reflecting the growing momentum of the domestic EV industry. To encourage the transition to clean transportation, the government has allocated Rs9 billion in subsidies for two- and three-wheeled electric vehicles. Eligible buyers of electric motorcycles are being offered a subsidy of Rs80,000 per motorcycle, aimed at making electric mobility more affordable and reducing reliance on fossil fuels. ■



President of the Kyrgyz Chamber of Commerce, Mr. Temir Sariev, presenting the commemorative shield to the President of FPCCI, Mr. Atif Ikram Sheikh, during the Shanghai Cooperation Organisation (SCO) Business Council meeting in Bishkek, Kyrgyz Republic. Vice President FPCCI, Mr. Tariq Khan Jadoon; In-charge Capital Office, Mr. Karim Aziz Malik; Chairman Coordination Capital Office, Mr. Malik Sohail Hussain and other prominent business personalities were also present on the occasion.



Faaz Diwan, Director of Diwan International, visited Jinko Solar Stall and met their team at Inter Solar Europe in Munich, Germany.

ORGANIZED BY

**ENERGY
UPDATE**

PAKISTAN'S PREMIER EVENT

3RD INTERNATIONAL

SOLAR POWER CONCLAVE & SOLAR TECHNOLOGY EXCELLENCE AWARDS

STRATEGIC PARTNER



PRIVATE POWER &
INFRASTRUCTURE BOARD
MINISTRY OF ENERGY (POWER DIVISION)
GOVERNMENT OF PAKISTAN



**SECURING PAKISTAN'S
ENERGY FUTURE VIA
HYBRID SOLUTIONS**

8th SEPTEMBER, 2026

NISHAT HOTEL, LAHORE



www.energyupdate.com.pk

Water Turns Most Misused Natural Asset in Pakistan

Untreated municipal sewage, industrial effluents, textile dyes, chemicals and agricultural runoff contaminate rivers, canals, and ground water; more than 80 per cent of Pakistan's population lacks access to safe drinking water; rivers need environmental flows to sustain deltas, fisheries, and coastal ecosystems

Mansoor Ahmad

Pakistan is one of the most water-stressed nations globally, yet it treats its water as an infinite, disposable resource. We reached this stage due to catastrophic management and a systemic failure to look at water as reusable resource.

Globally, Pakistan is the fourth-largest consumer of water after India, China and the United States, withdrawing an estimated 183 billion cubic meters annually. Yet the country is rapidly approaching absolute water scarcity. According to recent assessments, per capita water availability has fallen below 1,000 cubic meters in recent years, placing Pakistan among the world's water-scarce nations.

The tragedy is not merely that Pakistan uses too much water. The greater problem is that water becomes progressively more polluted as it travels through the system. Untreated municipal sewage, industrial effluents, textile dyes, chemicals and agricultural runoff contaminate rivers, canals and groundwater. Instead of retaining the value of water through repeated use, purification and recycling, we convert a valuable national asset into a polluted stream that is often unfit for future use. The economic and health costs are ultimately borne by society as a whole.

Studies indicate that only 1-2 per cent of wastewater is treated before being discharged into the environment. Major urban centres continue to release untreated sewage into rivers and drainage systems, contaminating freshwater supplies and contributing to the spread of waterborne diseases.

The Asian Development Bank recently warned that more than 80 per cent of Pakistan's population lacks access to safe drinking water. Groundwater depletion, arsenic contamination, aging infrastructure and untreated wastewater are placing severe stress on the Indus Basin system, the country's lifeline.

Pakistan needs to adopt the principles of a circular water economy. Just as industries seek to maximise the life of raw materials and products, water should be reused repeatedly before being discharged. Freshwater, grey water and industrial water should be managed separately wherever possible. Water fit for drinking should never be mixed with toxic industrial chemicals, hormones, dyes or hazardous waste.

Agriculture, which consumes rough-

ly 90-93 per cent of Pakistan's freshwater resources, remains at the heart of the problem. Irrigation efficiency is estimated at only around 40 per cent. On average, around 35 million acre-feet of water reaches the Arabian Sea annually, while the mangrove ecosystem in Sindh requires only about 4-5 million acre-feet for ecological sustainability. Yet the larger issue is not merely the quantity reaching the sea but the enormous losses and pollution occurring before the water completes its natural cycle.

Rivers urgently need environmental flows to sustain deltas, fisheries and coastal ecosystems. The real challenge is improving storage, efficiency and recycling rather than viewing every drop reaching the sea as a loss.

The future of Pakistan's water security depends on one fundamental realisation: water is not a disposable commodity. It is both a consumable resource and a reusable economic asset. Every drop that is purified, recycled and reused reduces pressure on rivers, aquifers and reservoirs.

Singapore's advanced membrane technologies now produce recycled water of extremely high purity. Developed economies increasingly recover energy, nutrients and valuable chemicals from wastewater. Thermal hydrolysis systems generate electricity from sewage sludge, while industrial facilities recover acids, alkalis and other chemicals that would otherwise become pollutants.

Pakistan can benefit from similar innovations. Membrane treatment systems, wastewater recycling plants, industrial water recovery units and decentralised treatment facilities can significantly reduce freshwater demand. Drip irrigation, laser land levelling, irrigation scheduling and water-efficient industrial technologies can dramatically improve productivity per drop of water used.

Water pricing must encourage conservation while protecting poor households through targeted support. Energy subsidies that encourage excessive groundwater pumping should gradually be replaced with smarter incentives for efficient water use. Industries that pollute rivers should face strict enforcement, while businesses investing in recycling technologies should receive incentives.

The country must move from a culture of extraction and disposal to one of conservation, recovery and reuse. Only then can water become part of a true circular economy rather than Pakistan's cheapest and most dangerous waste product. ■

Offshore Awakening: Pakistan Opens 54,600 Sq Km to Oil Exploration

Dr Farrukh Saleem

The writer is a columnist based in Islamabad

Twenty years. That is how long Pakistan went without opening its offshore frontier to new bids. On Wednesday, May 20, the government awarded 23 exploration blocks covering approximately 54,600 square kilometres of the country's maritime waters. Initial investment into phase one: \$82 million. Projected investment into phase two: \$1 billion.

Now consider this. Since its independence, 78 years ago, Pakistan has drilled exactly 18 exploratory wells in its entire offshore territory. Eighteen. In 78 years. In May 2026 alone, it awarded 23 blocks. Plain fact: Pakistan's offshore sits wedged between two proven hydrocarbon giants – Oman and Iran to the west, India's Bombay High to the east. Look eastwards. India's Bombay High – discovered in 1974, just across the Arabian Sea – has produced over two billion barrels of oil. It once accounted for 38 per cent of India's domestic production. It transformed India's energy balance. It still produces today.

The reality: Pakistan sits on the same geological shelf. The same Arabian Sea. The same limestone formations that made Bombay High a giant have also been identified in the offshore Indus basin. Geologists call it an "anomalous gap in a prolific petroliferous belt". Translation: everything around Pakistan has oil. Pakistan alone has not looked hard enough. The signs are there. Along the entire Makran coastline, there are gas seepages, oil seepages and mud volcanoes that bubble methane to the surface. In 2013, an earthquake off Gwadar pushed a new island out of the sea. Methane. Hydrocarbons. The earth trying to tell us something.

Yes, one well drilled in the Indus offshore tested gas at 3.7 million cubic feet per day. Encouraging. Not enough to celebrate. But enough to keep looking. Here is the brutal arithmetic: 18 wells drilled in 78 years works out to one well every four years. Norway, which discovered its offshore oil in 1969, has drilled over 5,000 exploration wells since. The comparison is almost unfair. Almost.

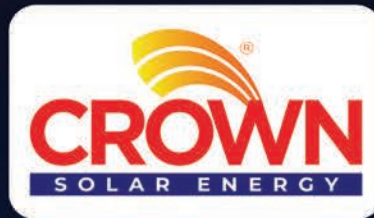
The \$82 million committed in phase one is a start. But let us be honest: \$82 million across 23 blocks is thin. One deepwater well alone can cost \$50-100 million. This is not yet a drilling programme. It is a signal. A declaration of intent.

The intent is welcome. The execution is everything.

Pakistan spends \$20 billion a year on importing energy; it may well be sitting on. Twenty-three blocks have been awarded. The drills have not yet turned. When they do – and they must – the Arabian Sea may yet write a different story for this country. The tide, at last, is turning.

Remember: Norway found oil in 1969. Remember: Norway drilled 5,000 wells. Pakistan found courage in 2026. It awarded 23 blocks. The arithmetic of ambition is simple: you only find what you are willing to look for. The good news is not discovery. The good news is movement. Pakistan has not found offshore oil yet. But Pakistan has reopened the door it kept shut for two decades. For once, policy is moving in the same direction as geology. The tide is turning. ■

24/7
AFTER SALES
SERVICE



POWER YOU CAN TRUST SERVICE YOU CAN COUNT ON

Crown Solar Energy offers premium Hybrid Inverters and Lithium Batteries designed for reliable, efficient, and long-lasting performance. With **24/7 After Sales Service** and an **Easy Replacement Warranty**, we don't just sell products we deliver complete peace of mind.



UAN: 021 111 000 348

www.crownsolarenergy.com | Follow Us:     

Huawei Commercial & Industrial One-Fits-All Solution

Proactive Safety, Premium Quality, Empower Every Industry



Fusionsolar

Explore FusionSolar Solution for Electricity Saving in Modern Agriculture



Scan the QR code to
enter the official website