MONTHLY MARCH 2025 ISSN 2309-6578

ENERGY UPDATE

DECISION TO BUILD SIX NEW CANALS
SPARKS HISTORIC CONTROVERSY

POWERING PAKISTAN'S
EV REVOLUTION

GST ON IMPORTED GROSS SOLAR UNITS:
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FROM THE

Editor's desk...

Gas crisis worsens amid Ramazan

The government has deepened the gas crisis in Karachi which generates about 70 percent of revenue for the country. This step shows a worst kind of apathy and injustice with the megalopolis. Due to worsening situation of gas supply, Sindh Governor Kamran Khan Tessori, Karachi Mayor Barrister Murtaza Wahab, civil society and industrial sector have shown concern in this regard and appealed to the government to resolve the issue amicably. Yet, the authorities remain indifferent, showing no urgency in addressing the crisis.

Despite the sacred month of Ramazan, the gas crisis has reached alarming levels, leaving households, businesses, and industries in disarray. The gas crisis has hit Karachi at the worst possible time of fasting month Ramazan, when families rely heavily on gas for cooking meals for Sehri and Iftari. The constant gas load shedding has made it nearly impossible for households to prepare meals, forcing many to resort to expensive alternatives like LPG cylinders and electric stoves.

Industries, which are the backbone of Karachi's economy, are also bearing the brunt of this crisis. With gas-dependent industries shutting down or operating at reduced capacity, thousands of daily wage earners are at risk of losing their jobs.

Pakistan possesses vast reserves of natural gas, yet poor planning and misallocation of resources have led to gas shortages in urban centers like Karachi. The unjust allocation of resources leaves Karachi residents struggling while other regions enjoy uninterrupted supply. Over the years, the demand for gas in Karachi has skyrocketed due to population growth and industrial expansion, but the government has failed to plan ahead, resulting in a massive supply-demand gap.

To resolve the gas crisis in Karachi, immediate and long-term measures must be taken. The federal government must ensure Sindh receives its fair share. Karachi's gas supply should be prioritized based on its contribution to the national economy. Strict action should be taken against corrupt officials and mismanagement in gas distribution. It is high time the government stops ignoring Karachi's needs and takes immediate action to resolve the gas crisis. If this issue is not addressed, the consequences will be dire—not just for Karachi but for the entire country.

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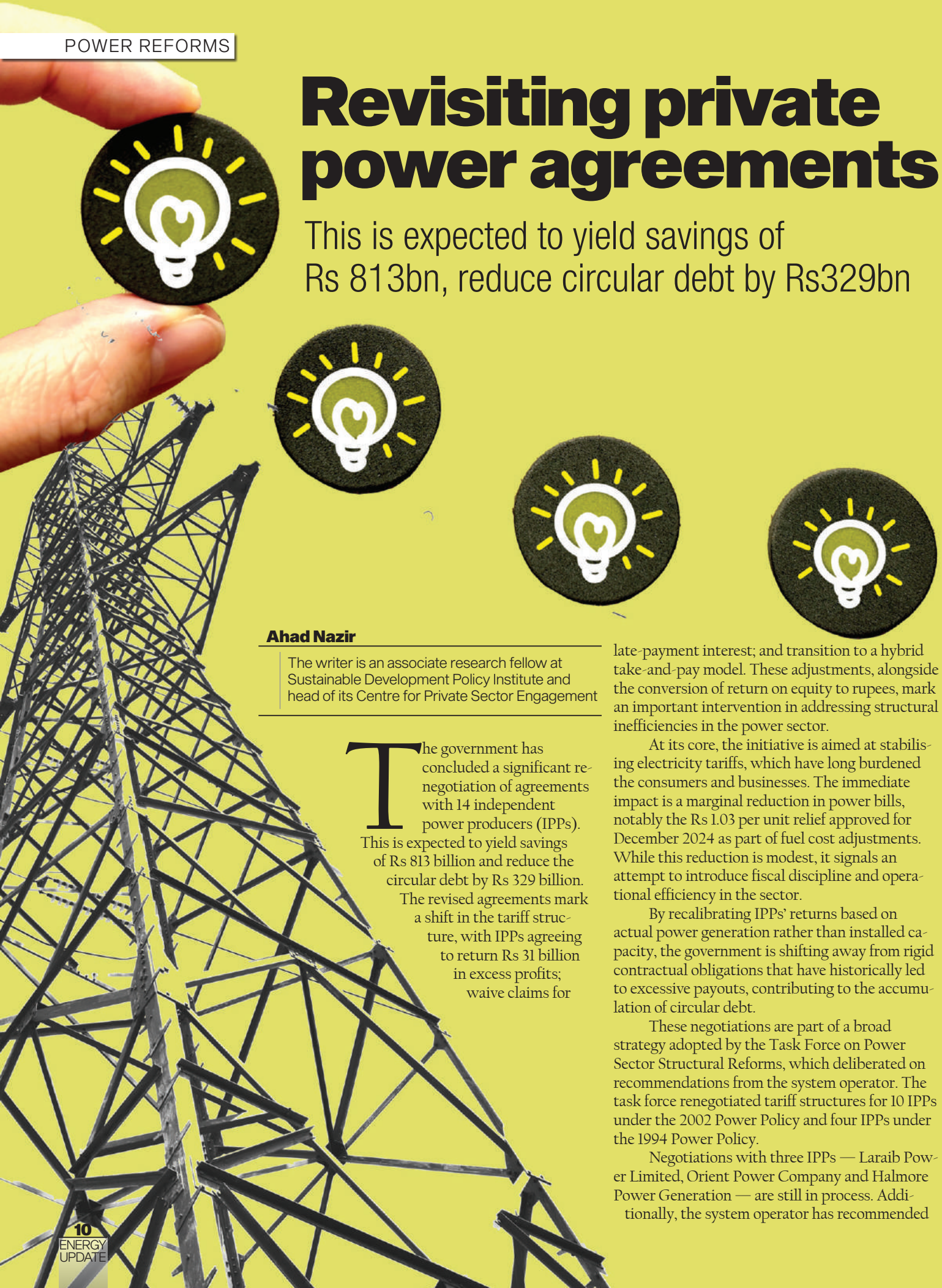
Revisiting private power agreements

This is expected to yield savings of Rs 813bn, reduce circular debt by Rs329bn



Ahad Nazir

The writer is an associate research fellow at Sustainable Development Policy Institute and head of its Centre for Private Sector Engagement

The government has concluded a significant re-negotiation of agreements with 14 independent power producers (IPPs). This is expected to yield savings of Rs 813 billion and reduce the circular debt by Rs 329 billion.

The revised agreements mark a shift in the tariff structure, with IPPs agreeing to return Rs 31 billion in excess profits; waive claims for late-payment interest; and transition to a hybrid take-and-pay model. These adjustments, alongside the conversion of return on equity to rupees, mark an important intervention in addressing structural inefficiencies in the power sector.

At its core, the initiative is aimed at stabilising electricity tariffs, which have long burdened the consumers and businesses. The immediate impact is a marginal reduction in power bills, notably the Rs 1.03 per unit relief approved for December 2024 as part of fuel cost adjustments. While this reduction is modest, it signals an attempt to introduce fiscal discipline and operational efficiency in the sector.

By recalibrating IPPs' returns based on actual power generation rather than installed capacity, the government is shifting away from rigid contractual obligations that have historically led to excessive payouts, contributing to the accumulation of circular debt.

These negotiations are part of a broad strategy adopted by the Task Force on Power Sector Structural Reforms, which deliberated on recommendations from the system operator. The task force renegotiated tariff structures for 10 IPPs under the 2002 Power Policy and four IPPs under the 1994 Power Policy.

Negotiations with three IPPs — Laraib Power Limited, Orient Power Company and Halmore Power Generation — are still in process. Additionally, the system operator has recommended

terminating one IPP under the 1994 policy and incorporating KAPCO into the national grid.

One of the most consequential aspects of the new framework is the adoption of the hybrid take-and-pay model, which links IPP payments to actual energy generation rather than guaranteed capacity payments. This shift ensures that fixed operations and maintenance costs are reimbursed based on actual expenditures rather than assumptions. In practical terms, consumers will no longer bear the financial burden of idle capacity.

The dispute over excess savings by IPPs has also been addressed through a structured arbitration process, leading to the recovery of Rs 31.65 billion by the power purchaser. Simultaneously NAB and NEPRA investigations into abnormal profits have been closed.

While these measures mark a necessary course correction, they do not represent a comprehensive solution to the sector's underlying challenges. The circular debt crisis remains a pressing concern. Without deeper structural reforms, any fiscal relief achieved through renegotiation could prove temporary.

The government must now ensure that these agreements translate into long-term sectoral stability by enforcing payment discipline, improving transmission infrastructure and addressing inefficiencies within distribution companies. The exclusion of lifeline consumers and K-Electric customers from the recent fuel cost adjustment relief raises concerns about equitable tariff reductions, an issue that needs to be rectified in future adjustments.

By recalibrating the IPPs' returns based on actual power generation rather than installed capacity, the government is shifting away from rigid contractual obligations that have historically led to excessive payouts and contributed to the circular debt.

The underutilisation of hydro and nuclear energy also presents an opportunity for cost-effective power generation. Nuclear energy accounted for 26.48 percent of the energy mix in December 2024. Further investment in this sector could provide a stable and low-cost alternative to fossil fuel-based power. The non-functioning Neelum-Jhelum hydropower project highlights the risks associated with over-reliance on specific energy sources, reinforcing the need for diversified energy investments.

Beyond renegotiating IPP contracts, the focus should be on attracting industrial consumers back to the grid by offering service-level agreements that ensure reliability. The recent initiative directing distribution companies to sign SLAs with captive power producers is a step in the right direction, as it mandates penalties for supply disruptions and sets clear service quality benchmarks. Enforcement remains key.

Distribution companies must be held accountable for maintaining voltage and frequency stability, ensuring planned outages remain within prescribed limits and investing in infrastructure upgrades to improve system reliability. Without these commitments, industrial consumers will continue to seek alternative energy solutions, exacerbating the strain on the formal power sector.

The task ahead is not just about immediate financial restructuring but also about ensuring the sustainability of Pakistan's power sector. The government must institutionalise transparent contract enforcement mechanisms to maintain investor confidence while keeping consumer interests at the forefront.

The focus should shift toward long-term energy security by prioritising low-cost, indigenous energy sources and reducing dependence on expensive imported fuels. Simultaneously, public discourse around tariff adjustments needs to be better managed to prevent misinformation from undermining consumer trust in these policy measures.

What happens next will determine whether these reforms lead to lasting improvements or remain a stopgap measure. If successfully implemented, the renegotiation with IPPs could set a precedent for more rational agreements in the future, ensuring that energy affordability, fiscal responsibility and investment viability are aligned.

A failure to address governance challenges in distribution and transmission could undo much of the progress made. The path forward requires unwavering commitment to financial discipline, transparency and a sector-wide transformation that prioritises efficiency over short-term political considerations. ■

RELIEF TO KARACHIITES

Sindh Cabinet approves pink bikes, EV buses, double-deckers for Karachi

EU Report

Sindh Chief Minister Syed Murad Ali Shah, while presiding over a cabinet meeting, made several significant decisions, including the procurement of 1,000 pink electric motorcycles for women, the acquisition of double-decker buses and electric vehicles (EVs) for the city, and the immediate improvement of Keejhar Lake and the KB Feeder to provide water for the K-IV project, additionally, he allowed Dow to establish a company to manufacture anti-snake and anti-rabies vaccines.

The meeting, held at CM House, was attended by provincial ministers, advisors, special assistants, the Chief Secretary, and relevant secretaries.

The cabinet was informed that the Transport and Sindh Mass Transit Authority (T&MTD) plans to launch a program to enhance female mobility through sustainable transportation.

This initiative will introduce approximately 1,000 electric motorcycles for women, which will be allocated through an open and transparent balloting process. The initiative requires Rs 300 million to be obtained outside the budget.

The cabinet decided that the Sindh Mass Transit Authority (SMTA) would procure the EV motorcycles through competitive bidding from one or more manufacturers, contingent on price and maintenance factors. Distribution will occur via a transparent open balloting process in the presence of media, subject to the qualification criteria, including the applicant must be a permanent resident of Sindh. The applicant must be a student or a working female. The applicant cannot sell the electric motorcycle for seven years.

The cabinet was informed that the Sindh Mass Transit Authority (SMTA) plans to procure 50 public transport buses for Karachi, including 15 double-decker buses and 35 electric buses. The transport department intends to operate 15 double-decker buses on Shahrah-e-Faisal and approved the proposal, allocating Rs 3 billion for the project. The buses would be operated on different routes in the city.

The cabinet was told that the Sindh government, in collaboration with the Government of Pakistan, has launched the "Greater Karachi Bulk Supply Scheme K-IV" to increase the water supply by 1,200 cusecs, totaling 2,400 cusecs for the K-IV scheme. ■

Decision to build six new canals sparks historic controversy

Almost all parties in Sindh oppose the project; the major focus of criticism is on President Zardari; the project is termed a bid to make the lands of Sindh barren; people of Sindh see this move as a historical injustice, want the immediate scrapping of the project

Special Report by Mansoor

The recent decision to build six new canals in Punjab has sparked one of the worst inter-provincial water disputes with Sindh. Almost all political parties, including Jamaat-e-Islami, Sindh Taraqi Pasand Party, Jamiat Ulema-e-Islam, Jeay Sindh Mahaz, PPP-Shaheed Bhutto, Pakistan Tehreek-e-Insaf, PML-Functional, have strongly opposed the project and have vowed to resist it. The people of Sindh and social as well as religious parties have also rejected this project and have called for closing it down with immediate effect for the integrity of the country and national harmony.

They all are of the view that Sindh already faces water scarcity, so building more canals in Punjab will, what they feared, extract water from the Indus River, and reduce Sindh's water share. They say irrigating the Cholistan desert by making fertile lands of Sindh is an unwise decision and a bid to trigger conflict between the Sindh and Punjab provinces.

A major focus of the criticism has been on President Asif Ali Zardari, who approved the bill allowing the construction of the new canals in Punjab's Cholistan desert. Sindh Chief Minister Syed Murad Ali Shah has reportedly told media that Sindh would not allow taking even a 'single drop' of water from its due share from the Indus River for the new canals. He also said: "Like Kalabagh dam, we are also against the new canals."

Many segments of society, including Sindh-based politicians, accuse President Zardari of betraying his home province for the lust of power. Nationalist parties have accused Zardari of prioritizing Punjab's interests over Sindh's survival.

After Pakistan's independence in 1947, multiple agreements and accords were signed to ensure fair distribution of water among provinces, including the 1960 Indus Waters Treaty and the 1991 Water Accord. Sindh argues that Punjab already diverts excessive water from the Idus water system, reducing Sindh's share of irrigation water. As a result, farmers and growers across Sindh are suffering heavy losses due to reduced water flow.

The Indus Delta, which relies on Kotri downstream water, faces drought due to no water availability, which has caused seawater intrusion and loss of fertile land in the Delta. Thousands of people from the Indus Delta region have migrated to urban areas due to no water flow from the Indus River. The green environment of the region has been destroyed.

The 1991 Water Accord was intended to settle disputes, but Sindh often alleges its violation. The Indus River System Authority (IRSA) is responsible for justified water distribution, but its decisions are frequently contested. Political efforts and discussions have been ongoing, but

the issue remains unresolved due to deep-rooted mistrust between the two provinces.

Though federal minister Ahsan Iqbal has stated that the new canals will not take Sindh's water share, the people of Sindh fear that these canals are expected to take a significant volume of water from the Indus River, further reducing flows to Sindh, which already suffering from water scarcity and ecological degradation.

For the first time in recent years, major political parties across Sindh have united against the canals' project, calling it an injustice to Sindh and a violation of the 1991 Water Accord. The announcement has triggered a massive public outcry across Sindh. Farmers, activists, intellectuals, and citizens have taken to the streets.

Sindh's agricultural sector relies heavily on Indus water, so reduced water supply could lead to severe droughts in the province. Farmers fear loss of crops, economic hardships, and increased poverty. Activists warn that the further diversion of Indus water will accelerate land degradation, push more people into water insecurity, and lead to the destruction of the Indus Delta. Protests have erupted in major cities like Karachi, Hyderabad, Sukkur, Larkana, and many others with slogans demanding the withdrawal of the canals' project.

The general public in Sindh sees this move as a continuation of historical injustices regarding water distribution. Opponents of the project argue that the new canals project violates the 1991 Water Accord, which governs water distribution among provinces.

IRSA, responsible for overseeing water distribution, has faced criticism for allegedly favoring Punjab. As a result, legal experts suggest that the matter may be taken to the Supreme Court of Pakistan to halt the project.

Experts call for a transparent review of the 1991 Water Accord with input from all provinces and if any province opposes the water diversion, its dissent must be accepted. It is also mandatory to see the project as per the Technical and Environmental Assessment. There is also a need for meaningful engagement between Sindh and Punjab to address grievances and find mutually beneficial solutions. The federal government must ensure that water distribution remains justified and equitable to all provinces as per the existing water-sharing agreement. ■

Experts seek sustainable water management in OIC member states

A two-day meeting of the Networking of Water Centers of Excellence in OIC Member States commenced at the COMSTECH Secretariat, Islamabad recently, which was jointly organized by OIC-COMSTECH and the OIC General Secretariat in collaboration with the Hisaar Foundation, SESRIC (Statistical, Economic and Social Research and Training Centre for Islamic Countries), and INWADARM (COMSTECH Inter-Islamic Network on Water Resources Development and Management).

The meeting was a significant step toward strengthening research, knowledge sharing, and coordinated action on water security. The initiative followed Resolution No. 1/4-ICWM/2018, adopted at the 4th Islamic Conference of Ministers Responsible for Water in Cairo, Egypt, in October 2018, and the recommendations of the 2nd OIC Water Council meeting in 2019.

In the inaugural session, Ms Romina Khurshid Alam, Coordinator to the Prime Minister on Climate Change, emphasized the urgency of addressing water challenges, particularly in the face of climate change. She highlighted the central role of COMSTECH and stronger policy frameworks, regional cooperation, and investment in research and development to ensure sustainable water management. She also commended COMSTECH for its leadership in spearheading this crucial initiative.

Ambassador Aftab Ahmad Khokar, Assistant Secretary-General of OIC for Science and Technology, underscored the OIC's commitment to tackling water-related challenges through collaborative research and policy initiatives. He stated, "The OIC is dedicated to strengthening regional cooperation in water security and management. This initiative will serve as a platform to harness scientific expertise and innovative solutions for the benefit of all member states." He further elaborated on the significance of technology-driven solutions and the mobilization of resources to support sustainable water policies. Ambassador Aftab also commended COMSTECH for its leadership in spearheading this initiative and its continued efforts in advancing scientific cooperation.

In his welcome address, Prof Dr M Iqbal Choudhary, Coordinator General of COMSTECH, outlined major initiatives that COMSTECH is undertaking to enhance capacity building in water research and technology. "COMSTECH is planning to launch a major initiative to facilitate the mobility of experts, researchers, and students among water research institutions in member states. Additionally, we will organize two major training workshops, one in Bangladesh and the other in Uganda, focusing on the One Water Concept and the use of modern technologies in water management," he announced.

He further elaborated on COMSTECH's ongoing efforts, which include one of the largest scholarship programs, support initiatives for women scientists, the Health Africa program, technician training, fellowships for refugee scientists, and the COMSTECH Expert Service.

Other notable speakers included Dr. Zehra Zumrut, Director General of SESRIC, who emphasized the role of data-driven policies and capacity-building programs, and Dr Marwan Alraggad, Executive Director of INWADARM, who highlighted the importance of integrated water resource management strategies.

Afia Salam, Advisor, Hisaar Foundation Foundation also contributed insights into innovative water conservation techniques and sustainable solutions.

The meeting brought together policymakers, experts, and representatives from water centers of excellence across OIC member states, including Saudi Arabia, Algeria, Bangladesh, Benin, Burkina Faso, Cameroon, Egypt, Ivory Coast, Jordan, Kazakhstan, Kuwait, Malaysia, Mauritania, Morocco, Niger, Oman, Pakistan, Palestine, Qatar, Senegal, Somalia, Togo, Turkiye, Uzbekistan, and Yemen. ■

Pakistan's Green Taxonomy 2025 Draft

The framework expected to mobilise $348bn for climate response

Ali Tauqeer Sheikh

The writer is an Islamabad-based climate change and sustainable development expert

The State Bank of Pakistan (SBP) has released the draft Pakistan Green Taxonomy 2025, soliciting stakeholder comments. It is an important building block for shaping the nation's financial architecture to address the climate crisis. It will facilitate transformative investments while recognising the complexities faced by our investment-hungry economy. By balancing environmental standards and domestic development priorities, the Taxonomy is expected to offer practical guidance for directing capital towards climate-resilient growth.

This framework will help mobilise an estimated $348 billion needed by 2030 for climate response, while providing guidance for sustainable investments across key economic sectors. The Taxonomy establishes seven environmental objectives: climate mitigation, adaptation, sustainable water use, ecosystem protection, pollution prevention, circular economy promotion, and sustainable land management. The initial focus will, however, be on climate mitigation and adaptation.

The draft provides varying levels of detail across economic sectors. Energy and manufacturing feature comprehensive technical screening criteria, with emission thresholds and renewable energy priorities. The chemicals, cement, steel, and textiles industries are addressed. Transportation emphasises zero-emission vehicles and sustainable infrastructure, while construction incorporates energy-efficiency needs.

A three-tier system: The proposed Taxonomy has adopted a traffic light system: green for activities that substantially contribute to environmental aims, amber for transition activities that do not fully meet green criteria, and red for activities causing significant harm. The 'Taxonomy' will help mobilise the estimated $348bn needed for climate response.

This system differs from major international taxonomies to offer greater manoeuvrability. Similar taxonomies of the EU, South Africa, and China have opted for a binary approach where activities are either taxonomy 'aligned' or 'not aligned' — they focus on creating explicit thresholds to avoid grey areas that can invite controversy. Our framework is guided by the 'do-no-significant-harm' principle, which ensures that activities benefiting one objective don't damage others, and social safeguards requiring minimum social standards compliance.

Strategic positioning: A hybrid approach draws elements from both the EU and Chinese taxonomies while adapting to local conditions. It provides varying levels of detail across sectors, with comprehensive coverage in energy and manufacturing, while others have to await further development. This model has left the door open to suit our developmental stage and immediate financial imperatives. Pakistan's framework positions itself between these approaches, incorporating environmental considerations, where feasible, while maintaining Chinese-inspired flexibility for development needs. International standards: The Taxonomy has incorporated IFC Performance Standards, providing for environmental and social safeguards. However, the framework could benefit from stronger alignment with broader international sustainable finance frameworks, including explicit references to IMF's climate risk assessment guidelines and the World Bank's sustainable finance principles, harmonised with ADB and other MDBs. Likewise, cross-referencing is desirable with ILO and other standards.

Alignment with climate policies: The Taxonomy requires stronger integration with our climate policy landscape. While it references the Paris Agreement, it needs to acknowledge integration and subservience through explicit linkages with our NDC targets, the National Climate Change Policy, the National Adaptation Plan, and the National Climate Finance Strategy. This hierarchy is essential for effective implementation. Both the national and provincial climate change funds need well-defined roles, while the Planning Commission's Development Manual and project planning templates should incorporate taxonomy needs. Institutional responsibilities: The implementation structure, led by SBP, has involved multiple government agencies and technical working groups. However, institutional responsibilities, monitoring mechanisms, and provincial coordination protocols should be clearly delineated.

Trade implications: The approach to international alignment requires careful consideration as exporters here face sustainability requirements. The commerce ministry and the Trade Development Authority of Pakistan need to help navigate the EU's Carbon Border Adjustment Mechanism, particularly for textiles, cement, and chemicals. The FPCCI has stressed stronger alignment with EU sustainability criteria for maintaining our GSP-Plus status. A deeper alignment with EU criteria would better secure Pakistan's preferential trade position.

Governance structure: Post-18th Amendment, the framework would have benefited from formal provincial endorsements and coordination protocols. Despite wide-ranging engagement with provincial representatives, it is unclear if the Taxonomy enjoys uninhibited support by industries, sectors, and all provinces. Hence, formal approval through forums like the CCI or the Pakistan Climate Change Council is essential for nationwide implementation.

Stakeholder engagement requires a boost. While some industry participation exists, the framework would benefit from broader representation, particularly of the directly affected sectors. Industry associations could provide practical insights, helping bridge the gap between policy design and real-world application. Their experience would be invaluable for refining sector-specific criteria and developing practical monitoring mechanisms.

Way forward: Success requires addressing several challenges. SBP's Sustainable Finance Department needs expanded capacity for comprehensive oversight, while banks will require detailed guidance for assessing Taxonomy-aligned investments. The SECP will need to develop specific reporting requirements for listed

companies and provincial environmental protection agencies to strengthen their monitoring capabilities.

Several strategic enhancements emerge as priorities. First, SBP should establish a dedicated 'Sustainable Finance Implementation Unit' with clear authority and oversight capabilities. This should be complemented by the climate change ministry developing detailed guidelines that link Taxonomy criteria to national climate targets. Provincial planning and development departments need formal mechanisms for incorporating requirements into development projects.

The Taxonomy's evolution requires sustained stakeholder engagement and regular updates to reflect technological advances and market developments. Financial institutions need capacity-building support, while industry associations require implementation toolkits. Through all this, the Taxonomy can hopefully help mobilise the estimated $348bn, while maintaining our international trade competitiveness and supporting sustainable economic growth. ■

MUET 7th International Conference on Energy, Environment and Sustainable Development

Shafqat Hussain Memon

A two-day 7th International Conference on Energy, Environment, and Sustainable Development (EESD 2025), hosted by Mehran University of Engineering and Technology (MUET) Jamshoro, gathered global experts advocating for Pakistan's clean energy transition.

The conference emphasized the urgency of expanding domestic renewable energy (RE) production, modernizing the grid, and enacting regulatory reforms for a climate-resilient future.

This year's event featured over 10 keynote talks from national and international experts, a high-level panel discussion on solar mini-grids in collaboration with CSSP, and 50+ published abstracts from 120+ submissions, reflecting the depth of research presented.

In his inaugural address, MUET Vice Chancellor Prof Dr Taha Hussain Ali underscored the need for actionable solutions, urging stakeholders to translate recommendations into policy, advocacy, and industry-academic collaboration.

Prof. Dr. Peng Wang from the Chinese Academy of Sciences highlighted China-Pakistan cooperation in RE technology transfer, reaffirming China's commitment to supporting Pakistan in local manufacturing of photovoltaic panels, wind turbines, inverters, and battery storage systems. Energy consultant Engr. Irfan Ahmed stressed a "Make in Pakistan" approach to reducing reliance on imported energy equipment, advocating for performance-linked incentives (PLI), increased R&D funding, and a national strategy mandating 50% local value addition in RE projects.

Discussions also explored integrating nuclear and renewable energy for grid stability. Engr. Aijaz Mangi from the Pakistan Nuclear Regulatory Authority outlined the technical and regulatory framework for hybrid nuclear-renewable grids, proposing a stable baseload supply combining nuclear with wind and solar energy.

Saquib Saeed highlighted AI-driven predictive maintenance and smart forecasting to minimize wind farm failures and energy losses, particularly in the Jhimpir and Gharo wind corridors.

Prof Emeritus Dr Bhawani Shankar Chowdhry of MUET discussed ICT applications in energy informatics, emphasizing big data, artificial intelligence, and IoT-based energy management systems for optimized power distribution. He also promoted blockchain-based peer-to-peer energy trading to reduce costs and enhance market efficiency. Prof Dr Shafique Odhano from Newcastle University emphasized the need for indigenous EV technology development in Pakistan. He highlighted key research areas in EVs, stressing that local EV and battery production could reduce oil imports and urban air pollution. Dr. Hassan Khan of LUMS showcased an IoT-enabled solar mini-grid model but cautioned that mini-grids must align with the socio-economic realities of the communities they serve.

Shafqat Hussain Memon from MUET highlighted the transformative potential of renewable DC microgrids for off-grid communities. He noted that with declining solar and battery costs, DC micro- and nano-grids offer a viable alternative for energy access. Engr. Mehfooz Ahmed Qazi from the Sindh Energy Department outlined key green energy initiatives, highlighting the Solar Home System (SHS) project and the government's commitment to public-private partnerships for renewable expansion.

Noor Mohammad Bajeer, CEO of CSSP Pakistan, proposed establishing an Energy Transition Centre at MUET to foster collaboration among researchers, industry leaders, and policymakers.

Prof. Emeritus Dr. Mohammad Aslam Uqaili (former Vice Chancellor, MUET) remarked, "The power sector is in a mess. Instead of lamenting what cannot be done, we must focus on what can be done." He stressed that Pakistan has the solutions to its energy challenges, but strong political will and policy commitment are essential for implementation.

Prof. Dr. Khanji Harijan, Dean of the Faculty of Mechanical, Process & Earth Engineering, in his closing remarks, expressed gratitude to the Energy and Environment Research Group (EERG), university departments, organizing committee, partners, and sponsors for their invaluable contributions. ■

From Roadshow to Expo

GROWATT champions sustainable energy innovation

Growatt, a global leader in distributed energy solutions, recently strengthened its commitment to Pakistan's sustainable energy transition through two pivotal events in Lahore: a strategic roadshow on February 20 and an impactful exhibition at Solar Pakistan 2025 (February 21–23). These engagements highlighted the company's innovative technologies, local partnerships, and dedication to addressing Pakistan's evolving energy needs.

The roadshow on February 20 convened over 120 industry leaders, partners, and installers to outline Growatt's vision for Pakistan's energy future. Senior Regional Director Jimmy opened the event by emphasizing the company's expansion plans and gratitude for clients' and partners' continuous support.

Following his remarks, Tahir Basharat Cheema, former Managing Director of Pakistan Electric Power Company (PEPCO), emphasized the critical role of energy storage in stabilizing the national grid and commended Growatt's efforts in

advancing energy storage technologies.

Building on this industry insight, Mian Fahad, Growatt's Country Director in Pakistan, unveiled the company's newly launched SPE, SPM, and WIT series energy storage solutions. Designed with scalability and reliability at their core, these advanced systems deliver tailored energy solutions for both residential and commercial users.

In addition to the insightful speeches, the event also awarded local installers for their key role in deploying renewable energy systems nationwide, reinforcing Growatt's collaborative approach to grassroots impact.

Solar Pakistan 2025: Showcasing Innovation on a Global Stage

At the Solar Pakistan 2025 exhibition, Growatt attracted significant attention at Booth B-2-01 by demonstrating its cutting-edge product portfolio. The SPM/SPH 8000-10000TL-HU single-phase residential hybrid inverters, praised for their IP65-rated durability and seamless integration with generators and grid, drew interest for their resilience in harsh environments.

The SPE Series, featuring dual MPPT, dual output, and grid-tied functionality, showcased Growatt's focus on optimizing solar energy generation, consumption and grid stability. Meanwhile, the WIT Series highlighted scalability, offering solutions ranging from 4kW for homes to 100kW for industrial applications, with broad compatibility across battery systems.

Energy professionals, policymakers, and industry leaders engaged with Growatt's team to explore how these innovations align with Pakistan's renewable energy targets. Discussions emphasized the importance of adaptable, high-performance solutions in bridging the nation's energy gaps.

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Climate and cryosphere

Indus stands out as a river most at risk from global warming

Aisha Khan

The writer is chief executive of the Civil Society Coalition for Climate Change

Water remains the fundamental building block for strengthening the resilience of communities and ecosystems. Climate and the cryosphere are the two pillars responsible for maintaining planetary balance and stability. The rapid changes in the hydrological flows of meltwater and sudden changes in patterns of precipitation are posing a grave risk to human and national security.

The level of preparedness and degree of threat perception to combat climate change are directly impacted by geographical location, regional relationship dynamics and indigenous capacity for coping. The location of Pakistan and its topography place it in an arc of vulnerability that extends from the cryosphere to the coast compounded by its dependence on a transboundary source of water and its position as a lower riparian.

The Indus stands out as a river most at risk from global warming, with glaciers and snowmelt contributing 50 to 100 per cent of the river's dry season flows. It sustains 200 million-plus people, who rely on glacial-fed rivers for drinking water, irrigated agriculture, and hydropower. By 2050, the Indus glaciers may reach peak melt, after which flows will decline, worsening water shortage.

As a part of South Asia, Pakistan shares a vast cryospheric space that constitutes the Third Pole. The glaciers of the Third Pole cover 100,000 square kilometres containing 30,000-47,000 cubic kilometres of ice. Any drastic change in the cryospheric behaviour will have a domino effect, cascading all the way from the mountains to the coast, destabilising the lives of the two billion people who inhabit this landmass.

The cryosphere is the best and most sensitive barometer of climate change.

The socioeconomic impact of water scarcity will worsen food security, particularly in countries like Pakistan, India and Bangladesh, where agriculture is heavily dependent on river systems. The loss of water could also disrupt livelihoods, cause economic losses in agriculture-dependent sectors, reduce the efficiency of hydroelectric power plants that rely on steady water flows, and trigger displacement and migration, stressing already overburdened urban centres.

The Third Pole, therefore, assumes paramount importance in maintaining the balance and stability of all life forms and functions in the South Asian Region (SAR), with the Himalaya, Karakoram and the Hindukush (HKHK) mountains serving as the water towers of South Asia.

The cryosphere is the best and most sensitive barometer of climate change. In a stable climate, the amount of water that melts is replenished by an equal amount of snow to maintain mass and balance. In a rapidly warming world, glaciers will melt faster, there will be less snow for adequate replenishment, frozen reservoirs will get depleted, sea levels will rise, inundating coastal areas, and the ability of glaciers to sustain dry-season flows will collapse.

The HKHK mountains are a common source of water for regional countries. This makes the cryosphere a shared resource that needs to be managed through collective ownership as a global common, with respect for the rights of people, nature, biodiversity, and the epistemology of rivers. Climate-triggered disruption in the cyclic flow of river waters can result in disaster — with too much resulting in floods and too little causing drought. The year 2024 could well be the turning point in climate change, with record high temperatures and record low snowfall in the HKHK region threatening water supply across South Asia.

The regional dynamics of water are too multidimensional to be managed only through formal agreements that were made at a time when climate change was not a determining factor in water flows. The new emerging threats related to accelerated melting and diminishing flows can only be addressed by recognising the geopolit-

ical relevance of water as a fundamental resource, making water functions a vital economic enabler that can trigger volatility in commodity markets, drive inflation, and disrupt global supply chains. The availability of water is no longer only an environmental concern but a force capable of fundamentally reshaping economic power and geopolitical dynamics, making it a critical piece in the climate puzzle.

SAR will soon be in a state of flux as a result of climate-related reasons hitherto not factored into the social and economic dynamics of country-specific development plans. The future of SAR is linked to its cryosphere and in ensuring that its frozen assets remain intact. As every country in the region is an upper or lower riparian state, it is important to initiate a dialogue on hydro solidarity using climate diplomacy as a tool for strengthening collaboration. The magnitude of the threat and its implications on human security make it imperative to shift from a distributive to an integrative approach in negotiations where everyone is a winner and water issues are addressed through cooperative governance.

The cryosphere provides a perfect entry point for investments in water conversations, cross-border dialogues and engagement through collaborative data sharing, coordinated research, and exchange of best practices to strengthen coping mechanisms.

The future resilience of Pakistan pivots around water. Both surface and groundwater are under acute stress and require investments to ensure availability and improve efficiency.

Climate change and the designation of 2025 as the International Year of Glaciers' Preservation offer South Asia an opportunity to embark on a new relationship trajectory that revives the spirit of the South Asian Regional Cooperation and helps SAR optimise its full potential. The benefits of regional cooperation and de-escalation outweigh the cost of confrontation. The best way to address South Asia's water security challenges is through solidarity, cooperation, and diplomacy. ■

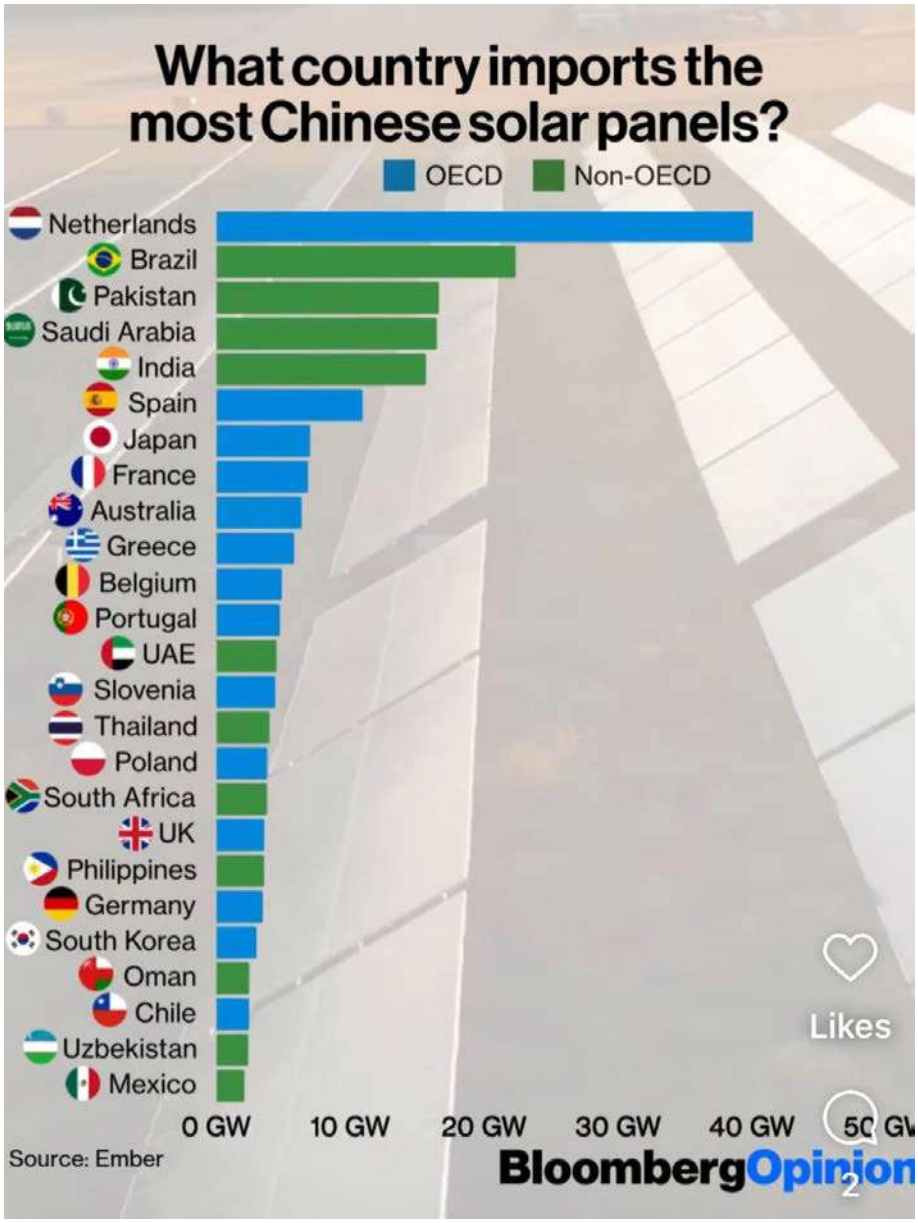
OGDCL begins gas output from new well

EU Report

Oil & Gas Development Company Limited (OGDCL) has started production of gas from its Uch-36 development well located in Dera Bugti district of Balochistan.

The E&P shared this development in its notice to the Pakistan Stock Exchange (PSX). "OGDCL is pleased to announce the successful production commencement from Uch-36 development well," read the notice. A development well is a well drilled in a known oil or gas reservoir, i.e. a previously identified productive area, to extract hydrocarbons for production,

In its notice, the E&P shared that utilizing its in-house expertise, the company drilled the exploratory well to a depth of 1,275 meters, targeting the Sui Main Limestone (SML) formation. ODGCL informed that Uch-36 is producing 7.3 million standard cubic feet per day (MMSCFD) of gas.



Powering Pakistan's EV revolution

Pakistan targets 30% EV penetration by 2030, potentially saving over $800m annually

Adnan Pasha Siddiqui

Transitioning to climate-friendly electric vehicles (EVs) is crucial for Pakistan to reduce greenhouse gas emissions and achieve sustainability. With a projected population of over 400 million and 70 per cent urbanisation in the next 25 years, the shift from internal combustion engine (ICE) vehicles to EVs is critical to mitigating environmental and socio-economic risks.

EV adoption is vital for economic and environmental sustainability, aligning with global decarbonisation efforts and the Paris Agreement. Pakistan targets 30 per cent EV penetration by 2030, potentially saving over $800 million annually and significantly reducing emissions by transitioning public transport from polluting ICE vehicles to EVs.

A structured approach addressing financial, regulatory, and infrastructure challenges is essential. The New Energy Vehicles Policy (2025-2030), currently under development, requires a coordinated multi-stakeholder effort, as demonstrated in a recent Sustainable Development Policy Institute (SDPI) forum, where policymakers, banks, academia, and industry experts discussed solutions.

One of the main hurdles to EV adoption is the high upfront cost, with batteries constituting 40-50 per cent of an EV's total price. Despite lithium prices declining by 60 per cent in 2023, affordability remains a challenge. The lack of infrastructure is another major barrier, as Pakistan's charging network remains sparse. Public-private partnerships could provide a viable solution to accelerate expansion. Limited battery warranties and shorter lifespans also pose a risk for consumers, which can be mitigated through warranty-backed financing solutions.

Another significant concern is the uncertainty surrounding EV resale value due to the absence of historical data, making it difficult for lenders to assess risk. Establishing a robust secondary market for EVs could address this issue. The outdated national grid also poses challenges, necessitating urgent upgrades by the National Transmission and Despatch Company to support EV integration effectively.

The unreliable electricity supply exacerbates range anxiety among potential EV users, emphasising the need for integrating renewable energy sources into EV charging stations. High interest rates make financing difficult, necessitating greater

subsidies to facilitate the transition from ICE-powered vehicles. Concessional financing from multilateral and domestic development banks is crucial to support EV infrastructure on a public-private partnership basis. The lack of government incentives, policies and subsidies remains a major barrier, requiring comprehensive measures to encourage adoption.

Several developing countries offer valuable lessons on EV financing. Kenya has focused on electric motorcycles to meet rural mobility needs, providing affordable financing options to users. Vietnam has successfully leveraged public-private partnerships to expand EV infrastructure while balancing risks between the government and private investors. These examples highlight scalable, innovative approaches that Pakistan can adapt to its unique context.

China serves as a significant case study in EV ecosystem development. The Chinese government has invested $230 billion from 2009 to 2023 through rebates, sales tax exemptions and infrastructure investments, fostering rapid EV adoption. Pakistan can implement a similar phased and time-bound approach to incentivize the private sector. China's technological leadership, particularly in lithium battery production, has been a key factor in making EVs more affordable.

With Western markets imposing high tariffs on Chinese manufacturers, companies such as BYD and Geely Farizon are increasingly targeting smaller, trade-friendly nations. This presents an opportunity for Pakistan to capitalise on its free trade agreements with China. Both BYD and Geely Farizon have already partnered with large Pakistani corporations to introduce four-wheel and commercial-use EVs in 2025, with plans for localisation to encourage the development of the vendor sector over the next few years. Collaboration with Chinese manufacturers could help Pakistan gain technical expertise, promote entrepreneurship in allied sectors and create domestic jobs.

India's journey toward EV adoption provides another regional model. In addition to direct government incentives, Indian financial institutions and regulators have played a critical role in accelerating the transition. The National Electric Mobility Mission Plan 2020 was launched to improve fuel security and transition the country toward EVs, setting a goal of 30 per cent of new road mobility to be EV-based by 2030. The Faster Adoption and Manufacturing of Hybrid and Electric Vehicles (FAME) initiative has been instrumental in ensuring collaboration between public and private sector banks, which have worked alongside the government to direct funds to intended beneficiaries.

The Indian Energy Efficiency Services Limited (EESL), a government entity like Pakistan's National Energy Efficiency & Conservation Agency (NEECA), secured funding from the World Bank and the Asian Development Bank to install public charging stations across urban areas, highlighting the effectiveness of public-private partnership models.

To further support EV adoption, Indian banks have introduced tailored financing solutions to make EV ownership more affordable. The State Bank of India (SBI) launched the Green Car Loan scheme, offering lower interest rates and longer repayment periods for EV buyers. Private sector commercial banks such as ICICI Bank and Axis Bank provide easy financing for both individual EV owners and fleet operators, offering flexible payment terms aligned with EV lifecycle costs.

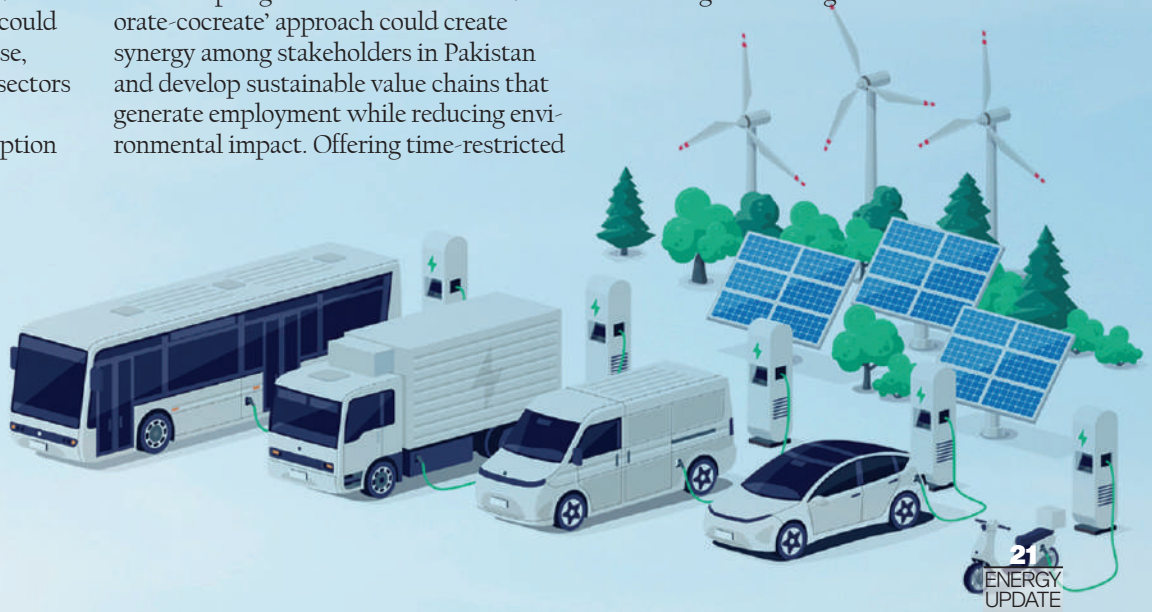
The Reserve Bank of India (RBI) has included EV financing under priority sector lending, introducing SIDBI, a credit guarantee scheme for loans to clean energy startups and EV companies. Once the activity base for EVs expanded, Indian financial markets leveraged the issuance of 'green bonds' to mobilise capital for clean energy projects, including EV manufacturing and infrastructure. YES Bank issued India's first green bond, raising INR 10 billion for sustainable transport initiatives. Such debt instruments have provided low-cost capital for EV manufacturers and infrastructure developers, enabling secondary market trading once credit-rated and listed on exchanges.

Adopting a similar 'consult-collaborate-cocreate' approach could create synergy among stakeholders in Pakistan and develop sustainable value chains that generate employment while reducing environmental impact. Offering time-restricted incentives and setting minimum content requirements linked to tax holidays for manufacturers will encourage participation. However, to ensure sector growth is effectively stewarded, the government must implement clear regulatory measures and penalties.

The development of a climate-friendly mobility ecosystem in Pakistan aligns with several United Nations Sustainable Development Goals (SDGs). Expanding EV charging and swappable battery infrastructure powered by renewable energy sources supports SDG 7 on affordable and clean energy. Promoting innovation in the automotive sector and building robust transportation infrastructure aligns with SDG 9, which focuses on industry, innovation, and infrastructure. Encouraging low-emission transportation solutions contributes to SDG 11, which emphasises sustainable cities and communities. Reducing carbon emissions through cleaner transportation options directly supports SDG 13 on climate action.

Creating employment opportunities through local EV manufacturing and associated industries aligns with SDG 8, which promotes decent work and economic growth. All these aspects can potentially get projects accredited for carbon credits with international registries such as Verra and Gold Standard, and also create buoyancy for Pakistan's carbon markets.

Transitioning Pakistan toward a climate-friendly mobility ecosystem presents both challenges and opportunities. By addressing financing barriers, learning from successful regional models, and implementing targeted policies, Pakistan can lay the groundwork for a sustainable future. With a strategic focus on public-private collaboration, infrastructure development, and incentivised financing, the country can achieve its environmental goals while advancing economic growth. ■



solis shines at Solar Pakistan Expo 2025 with groundbreaking innovations

Lahore, February 24, 2025: Solis Pakistan successfully participated in Solar Pakistan Expo 2025, held from February 21 to 23 at Expo Center Lahore, where its presence stood out prominently. During the event, Solis showcased its latest Solarator Series, featuring game-changing hybrid inverters specifically designed to address Pakistan's ongoing energy crisis.

Solis representatives expressed their gratitude and well wishes, emphasizing that the global excellence of Solis inverters will play a key role in overcoming Pakistan's energy challenges. Equipped with high-quality components and backed by Solis' robust Research & Development, these inverters have the potential to drive a solar revolution in Pakistan, ultimately improving the lives of people affected by the energy crisis.

Throughout the exhibition, Solis management and technical experts actively engaged with visitors at the booth, addressing their queries and exchanging insights on how Solis inverters can bring prosperity and ease to the country. Experts highlighted how Solis' advanced technology and innovative energy solutions are set to contribute significantly to fulfilling Pakistan's energy needs. Solis Pakistan's remarkable efforts were highly appreciated by exhibition attendees and industry experts, who acknowledged that Solis' cutting-edge technology is paving the way for a sustainable energy future in the country.

About Solis

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Shifting industries to grid: solving tariff puzzle

Engr Abubakar Ismail

The writer has expertise in the energy sector

In the wake of the recent IMF agreement, Pakistan has introduced a new policy aimed at transitioning industries from captive generation to grid-based power supply. This shift is being driven by increased gas connection prices for captive power plants and the imposition of additional surcharges.

While the policy is designed to enhance grid utilization and address systemic inefficiencies, it raises critical concerns for industries. The fundamental question remains: why would businesses make substantial upfront investments in high-voltage and medium-voltage grid connections when there are no tangible financial benefits? Without a well-structured incentive framework and a rationalized tariff structure, industrial consumers find little justification for embracing this transition.

By definition, policy serves as a broad and goal-oriented statement, setting standards and expectations to guide actions within public and economic sectors. It represents an outcome-based commitment endorsed by authorities, consisting of interconnected decisions and actions that allocate resources and define values.

Policymaking inherently involves trade-offs, yet these compromises are rarely made on equal terms at the same time. As a result, policy decisions often create winners and losers. The science-policy interface, the critical interaction between scientific research and policymaking, has long been absent in Pakistan's energy policies.

The country has seen a pattern of short-term, reactionary decisions, as demonstrated by the promotion of CNG stations followed by gas shortages, and later the widespread adoption of captive power plants, which are now being phased out in favour of grid

connections. If consumer behavior is to be shifted effectively, the right incentives must be introduced to encourage voluntary adoption rather than forced compliance.

Pakistan's tariff classification system, as outlined in the NEPRA Consumer Service Manual and Consumer End Tariff Notifications, categorizes industrial consumers based on their load and connection voltage. Consumers with loads between 25 kW and 500 kW, connected at 400 volts (low voltage), fall under the B-2 tariff. Those with loads up to 5,000 kW, connected at 11kV (medium voltage), are classified under B-3, which is extendable to 7.5 MW.

Larger industrial consumers, connected at 132kV (high voltage), are categorized under B-4, with no load size limitations. While this classification is intended to align tariffs with infrastructure and capacity needs, a glaring disconnect exists between technical categories and financial incentives.

A fundamental issue is the misalignment of tariffs, where B-3 and B-4 consumers face higher rates than B-2 consumers despite imposing a lower burden on the grid. Large-scale B-4 consumers operate their own grid stations and bear all operation and maintenance (O&M) costs, including those for 132/11kV transformers and associated energy losses, effectively reducing the load on distribution companies (Discos).

Similarly, B-3 consumers manage their own substations, though they do not maintain grid-level infrastructure. In contrast, B-2 consumers rely entirely on DISCOs for O&M, contributing to the highest levels of transmission and distribution (T&D) losses. Despite these operational realities, the current tariff structure disproportionately favors B-2 consumers, dis-incentivizing investment in higher-voltage infrastructure.

Industries with continuous processes and large energy demands require a stable and reliable power supply, which is best achieved through high-voltage connections such as 132kV. However, the current tariff framework fails to offer competitive rates that justify the substantial upfront investment required for grid infrastructure. Without a rationalized tariff structure that allows for a feasible return on investment, transitioning from captive generation to grid power remains economically unviable for industrial consumers.

A comprehensive tariff restructuring is imperative to address these issues. Tariffs must be competitive, fair, and reflective of actual cost differentials across voltage levels.

The existing cross-subsidization policies that inflate industrial and bulk tariffs should be revisited to create a more balanced framework.

Additionally, targeted incentives should be introduced to facilitate the shift to grid power. These could include the removal of grid-sharing charges for industries transitioning from captive generation, the establishment of collective grid-sharing options for neighboring industries to distribute infrastructure costs, and the introduction of special Time-of-Use (TOU) tariffs to maximize solar energy utilization during daylight hours.

The transition of captive industrial consumers to the national grid represents a significant opportunity to modernize Pakistan's energy sector, reduce inefficiencies, and promote industrial growth. However, without a well-structured tariff design and meaningful financial incentives, this initiative risks becoming another missed opportunity.

The government must take a decisive action to implement a reformed tariff framework that not only aligns with grid optimization goals but also ensures economic viability for industrial consumers. Sustainable energy policy must be driven by efficiency, economic rationale, and long-term planning, rather than short-term fiscal adjustments dictated by external financial agreements. ■

Landmark Partnership for Sustainable Energy!

Bahaum Associates and Foundation Solar have signed a historic Memorandum of Understanding (MOU) at Expo Centre Lahore, marking a significant milestone in the pursuit of sustainable energy solutions.

The partnership aims to develop a 33MW Solar Project and a 5MWh Battery Energy Storage System (BESS), paving the way for a greener, more sustainable future. This collaboration will enhance energy efficiency, reliability, and drive renewable energy innovation.

The MOU signing ceremony was attended Athar Hayat CEO Bahum Associates & his team and key officials of foundation Solar.

HUAWEI

Fusionsolar Makes a Mark in Pakistan's Solar Industry

Huawei FusionSolar, a leading global provider of solar energy solutions, made a remarkable presence in Pakistan's solar industry through its participation in three high-profile events. The company, along with its partners Diwan International and Bahum Associates, showcased its cutting-edge solar solutions, attracting a large number of visitors and generating significant interest in its products.

At the Sundar Industrial Expo, Huawei FusionSolar and Bahum Associates joined forces to demonstrate the latest solar technologies, highlighting their commitment to promoting sustainable energy solutions in Pakistan. The company's participation in the Solar Pakistan Exhibition 2025, alongside Diwan International and Bahum Associates, further reinforced its position as a major player in the country's solar market. The exhibition provided an ideal platform for Huawei FusionSolar to showcase its innovative products and solutions, drawing a large and enthusiastic crowd.

To further strengthen its partnerships and relationships in Pakistan, Huawei FusionSolar and Diwan International co-hosted a gala dinner in Lahore, bringing together key stakeholders, industry experts, and customers.

Throughout these events, Huawei FusionSolar's products and solutions received an overwhelmingly positive response, with visitors praising the company's commitment to quality, innovation, and sustainability. The remarkable footfall and interest generated at these events demonstrate Huawei FusionSolar's growing presence and influence in Pakistan's solar industry.

NPCC warns of lower hydel generation

EU Report

The National Power Control Centre (NPCC) has warned that hydel generation this summer will be lower than last year due to reduced water and snow availability, leading to increased reliance on expensive RLNG-fired electricity.

This information was shared by an NPCC representative during a public hearing at NEPRA regarding the negative Fuel Charges Adjustment (FCA) request submitted by the Central Power Purchasing Agency-Guaranteed (CPPA-G) for January 2025.

CPPA-G has requested a negative adjustment of Rs 2.003/kWh to be applied in March 2025, replacing the current negative FCA of Rs 1.228/kWh effective in February. As a result, consumers will see a net decrease of Rs 0.74/kWh in their electricity bills for March 2025.

The hearing, presided over by Nepra Chairman Waseem Mukhtar, led to the decision to summon the Water and Power Development Authority (WAPDA) to provide an updated status on water availability for the summer. The expected reduction in hydel generation will also affect the energy mix and reference projections.

An NPCC representative explained that the dead storage level of water is between 2 to 4 feet above the dead level. This low water level will result in a reduction in cheap power generation, as inflows are also expected to fall short of projections.

Chief Executive Officer (CEO) of CPPA-G, Rihan Akhtar, reported that the actual fuel rate for January was Rs 11.0081/kWh, while the reference fuel rate was Rs 13.0100/kWh. Distribution companies (Discos) sold 7.82 billion units in January 2025, which resulted in an impact of Rs 15.65 billion.

Akhtar also noted a 2% reduction in electricity consumption in January 2025 compared to the same month in 2024, with the most significant decreases observed in the industrial and agricultural sectors. The main reason for reduced agricultural consumption was the shift from grid electricity to solar power, while the industrial sector's reduction in consumption had various underlying causes. NPCC further informed the Authority that total consumption in January 2025 had decreased by 4.4% compared to January 2024, with a 2% year-on-year reduction. ■

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17th CSR Summit & Awards Ceremony

125 awards presented to leading companies

A Group Picture of CSR Award winners with chief guest Fed Minister Qaiser Ahmed Shaikh, President NFEH M. Naeem Qureshi, Project Head Engr. Nadeem Ashraf and Secretary General Ruqiya Naeem

EU Report

Federal Minister Qaiser Ahmed Sheikh has underscored the importance of regional trade as saying that now it is a right time to focus on promotion of regional trade for progress and prosperity of the country.

This he said while speaking at the 17th Annual Corporate Social Responsibility (CSR) Summit and Awards 2025 ceremony organized in Islamabad. The maritime minister highlighted the global trend of increasing regional trade. He said that despite conflicts between China and Taiwan, substantial regional trade continues between both the counties.

He stressed the need for Pakistan to enhance trade relations with Bangladesh and India as well.Sheikh reaffirmed the government's commitment to steering the country out of the economic crisis. Under the leadership of Prime Minister Shehbaz Sharif, the government has launched the ambitious "Uraan Pakistan" program, aiming to boost trade volume from $370 billion to $1 trillion within the next decade.

He further stated that all-out efforts are being made to double the country's exports within the next four years. He highlighted key economic improvements.

The minister said the country's currency had also stabilized while foreign reserves were also increasing day by day.

The 17th Annual Corporate Social Responsibility (CSR) Summit and Awards 2025 was organized by the National Forum for Environment and Health (NFEH). The summit provided a key platform for discussions on corporate philanthropy and social responsibility, bringing together industry leaders, experts, and stakeholders to explore ways to enhance CSR initiatives for underprivileged communities across Pakistan.

The summit honored the outstanding contributions of public and private sector organizations in supporting marginalized communities. A total of 125 awards were presented to representatives from 73 leading companies in recognition of their exceptional CSR efforts.

Executive Director of the Securities and Exchange Commission of Pakistan (SECP), Musarat Jabeen, highlighted that Pakistan, with a population exceeding 255 million and an annual growth rate of 2.4%, faces numerous challenges, including environmental concerns, health, education, and energy. Musarat urged companies to enhance transparency and actively engage stakeholders in CSR initiatives.

She emphasized that CSR is closely linked to ethical and religious values and stressed the need for well-organized CSR efforts. She also mentioned that Pakistan has already developed a framework for CSR activities, though many initiatives take time to yield results.

Kamran Rizvi, Co-Founder of Canelian, emphasized that CSR is a crucial tool

A Group Photo was taken with Panelist of Summit on Sustainable Pakistan along with Team NFEH

From R to L Federal Minister Qaiser Ahmed Shaikh, Musarrat Jabeen Executive Director SECP, Naeem Qureshi President NFEH, Kamran Rizvi, Amna Munawar, Bashir Malik, Faizan Sarwar, A. Samad and others addressing at 17th CSR Summit Islamabad

for making a difference in society. He advocated integrating CSR efforts with core business strategies while prioritizing key social issues.

NFEH President Naeem Qureshi congratulated the award winners, noting that their CSR initiatives have provided significant relief to the general public. He highlighted that the participating companies have collectively planted over 270,000 trees as part of the Green Pakistan initiative. CEO Youth Impact Aftab Hussain, CEO Sundus Foundation Dr Imran Taj, A. Samade, President of EmpowerHer and the Center of Pakistan and International Relations, Amna Munawwar Awan, and CEO of My Impact Meter, discussed their efforts in uplifting marginalized communities across the country.

Other distinguished speakers included Tariq Jadoon Vice President of FPCCI, Muhammad Atif Sheikh, a disability and development expert; President Pak USA Alumni Association Saima Amjad; Sana Ajmal, Founder and Executive Director of Meethi Zindagi; Aatekah Mir Khan, Corporate Manager of Policy Development at Nestlé Pakistan; Faizan Sarwar, Business Development Manager at Schneider Electric; Dr Yogi Wajahat and Bashir Malik, Chairman of Bin Qutub Foundation.

The summit successfully highlighted the critical role of corporate social responsibility in fostering sustainable development and improving the lives of underprivileged communities in Pakistan.

Panel Discussion on Sustainable Pakistan

17th CSR Summit & Awards 2025 ceremony

Sindh govt to launch E-commerce platforms for female artisans

Women Development Minister Shaheena Sher Ali says 100 female skilled workers will be trained to use e-commerce services

Sindh Minister for Women Development Shaheen Sher Ali addressing at 17th CSR Summit Karachi Edition at Local Hotel.

EU Report

The Sindh government's Women Development Department will soon launch an E-commerce website and smartphone application to enable craftswomen and female artisans of rural and deprived areas of the province to connect with prospective buyers in the international market.

This was stated by her while speaking as the chief guest at the 17th CSR Summit & Awards 2025 ceremony organized by the National Forum for Environment & Health (NFEH). The women development minister told the audience that 100 female skilled workers from every district in Sindh would soon be properly trained to use e-commerce services for their connectivity with foreign markets.

She said that the female artisans from rural areas using the e-commerce tools would directly sell their products to prospective buyers in and outside the country for maximum financial gain without the involvement of middlemen.

Shaheena said the provincial women's development department would organize training sessions to help rural female artisans upgrade their skills as per the latest global requirements and also help them extend their outreach to the international markets. The minister said that smartphones should be used as an effective marketing tool by skilled men and women from low and middle-income groups to launch their businesses.

Minister for Women Development Shaheena Sher Ali, M. Ghazzal, Abu Bakar Ismail, M. Naeem Qureshi, Yogi Wajahat, Ruqiya Naeem, Brig R Lakhair, Faryal Asif, MNA Ahmed Saleem Siddiqui and Engr. Nadeem Ashraf addressing at 17th CSR Summit Karachi Edition.

She said: "The COVID-19 lockdowns have proved that smartphones are effective tools the world over for accessing online education and e-commerce platforms.

Speaking as the guest of honor, MNA Ahmed Saleem Siddiqui urged the audience to stay connected with the elected public representatives of their constituencies to adopt an effective mechanism to resolve basic civic issues in urban areas.

He disclosed that the federal government had approved the release of funds to the MNAs, which would be utilized to undertake much-needed development works in Karachi and Hyderabad. He informed the audience that the release of these development funds was a longstanding demand of the concerned parliamentarians from the two main urban centres of Sindh.

CEO of Sindh Integrated Emergency & Health Services (SIEHS), Brig (retired) Tarique Quadir Lakhiar, told the audience at the event that Rescue 1122 service had been operational in Sindh with 461 ambulances. He said the fleet of emergency service vehicles for the entire province would soon be expanded to 640 ambulances. He said that Rescue 1122 ambulances were equipped with 29 lifesaving equipment. Brig (retired) Lakhiar said that 110 of these ambulances had a highly expensive facility of ventilators. He said that the Rescue 1122 service in Punjab carried up to 14 life-saving equipment. He said the SIEHS would soon launch a boat-based ambulance service to protect fishermen from Sindh's coast who went into the sea for fishing.

Group Photo of award winners of 17th CSR Summit Karachi Edition with Chief Guest Minister Women Development Sindh Shaheena Sher Ali

Ruqiya Naeem Secretary General NFEH Presenting Memento to Chief Guest Minister Women Development Sindh Shaheena Sher Ali

Chief Operating Officer of Saylani Welfare International Trust, Muhammad Ghazzal, informed the audience that earlier Saylani Trust had partnered with the Thar Foundation to impart the latest IT training to Thari students, enabling them to earn in dollars through freelance work in the international market. He said the mass IT education program of Saylani Trust had been producing 30,000 graduates annually who possessed the latest software skills required by global tech companies.

Faryal Asif of Al-Furqan Welfare Organisation informed the audience that her non-profit organization had recently signed an agreement with the Korangi Association of Trade & Industry to set up charitable schools for children of deprived industrial workers.

NFEH President Naeem Qureshi emphasized that the government should enhance its partnership with the concerned private sector organizations, donors, and philanthropists to secure Sustainable Development Goals in Pakistan in the shortest possible time.

NFEH Secretary General Ruqiya Naeem and Vice-President Nadeem Asraf also spoke and praised the philanthropic work carried out by the private sector. ■

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CSR CLUB PAKISTAN

ENERGY UPDATE

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17TH CORPORATE SOCIAL RESPONSIBILITY AWARDS 2025

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Safety benchmark must to make LPG preferred fuel

Owais Mir

The writer is Founder of DEA Group of Companies

Well-regulated LPG ecosystem is vital to protecting lives

Recent LPG-related incidents in Multan and other parts of the country serve as stark reminders of the critical importance of LPG safety. As the founder of a company with a flawless safety record in LPG projects, I firmly believe that safety is a collective responsibility, so there should be no compromise. Every stakeholder, from authorities to consumers, must play an active role in ensuring safe practices.

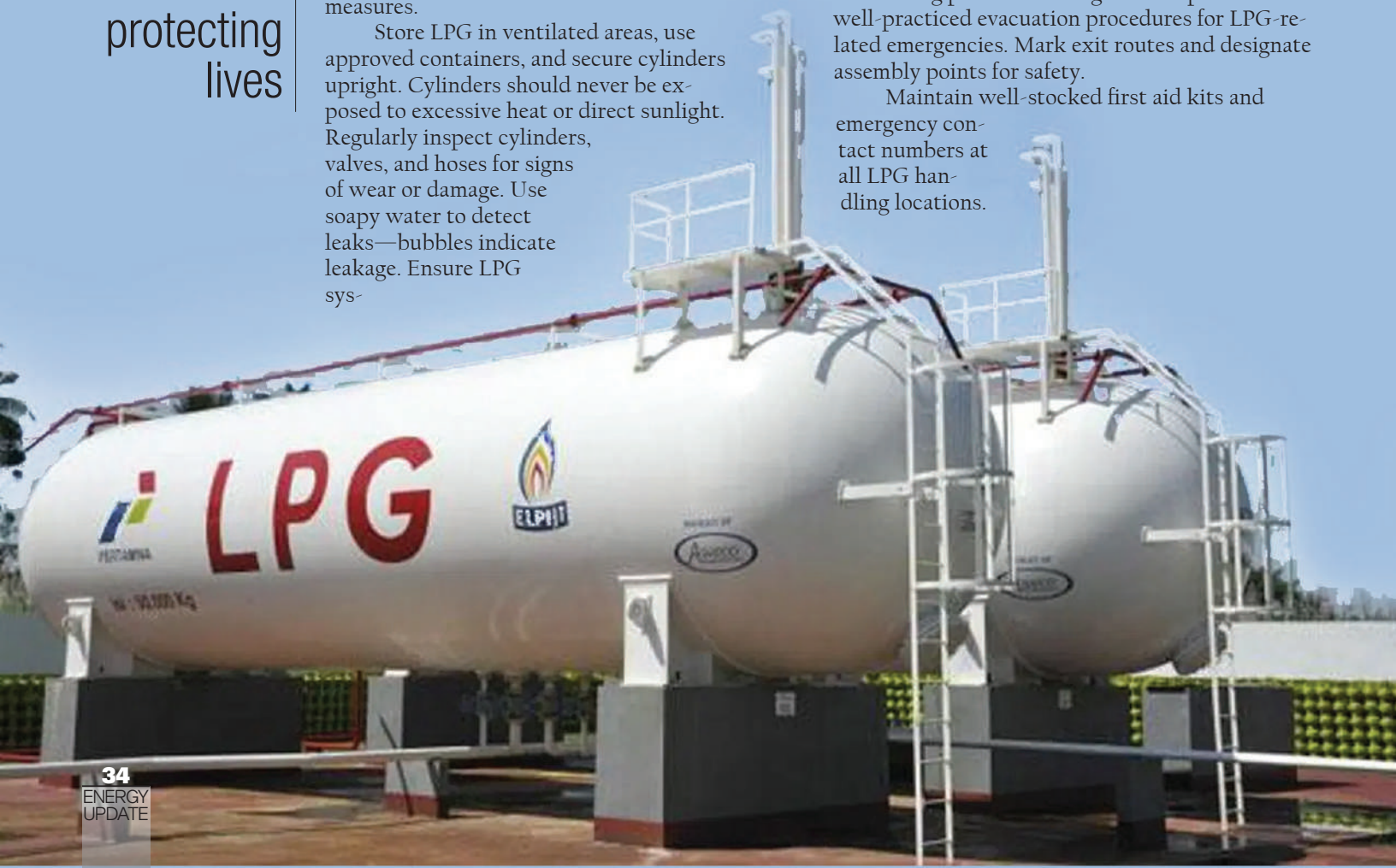
Stricter regulations and enforcement mechanisms are necessary to ensure LPG filling shops, transportation, and storage facilities adhere to the highest safety standards. Globally, LPG is a key energy source, yet negligence has led to fatal accidents. A robust safety framework is essential to mitigate these risks and prevent tragedies that can be avoided through diligence and proactive measures.

Store LPG in ventilated areas, use approved containers, and secure cylinders upright. Cylinders should never be exposed to excessive heat or direct sunlight. Regularly inspect cylinders, valves, and hoses for signs of wear or damage. Use soapy water to detect leaks—bubbles indicate leakage. Ensure LPG systems are installed by licensed professionals following regulatory safety codes and industry best practices. Maintain proper ventilation in areas where LPG is used to ensure complete combustion and prevent gas accumulation, reducing the risk of asphyxiation or explosions. Store LPG away from open flames, electrical sources, and high-temperature environments. Smoking should be strictly prohibited in LPG storage and usage areas.

Educate users and personnel on proper handling, emergency response, and regulatory compliance. Display safety instructions prominently at LPG distribution and storage sites. Install LPG gas detectors to provide early warnings of leaks, enabling prompt action before incidents escalate.

Place fire extinguishers (Class B for flammable gases) near LPG storage areas. Fire blankets and automatic suppression systems should be installed in high-risk environments. Equip LPG systems with manual and automatic shut-off valves to stop gas flow in case of leaks or fires, minimizing potential damage. Develop clear and well-practiced evacuation procedures for LPG-related emergencies. Mark exit routes and designate assembly points for safety.

Maintain well-stocked first aid kits and emergency contact numbers at all LPG handling locations.



Train personnel in basic first aid for burns, gas inhalation, and explosion-related injuries. Regular Maintenance & Inspections: Conduct periodic checks of LPG systems to ensure all components function safely and efficiently. Establish a structured maintenance schedule to detect potential hazards early.

In many developing countries, weak enforcement of LPG safety measures has led to a rise in avoidable accidents. The informal approach to LPG usage, combined with a lack of awareness, increases the risk of mishaps. To establish LPG as a reliable and sustainable fuel, strict safety regulations must be upheld and consistently enforced.

Public awareness campaigns can play a vital role in promoting LPG safety. Individuals must be encouraged to report safety hazards, illegal refilling practices, and any suspicious activities related to LPG handling. Collaboration between authorities, industry players, and the public can foster a culture of accountability and safe usage.

There are multiple resources available to enhance safety knowledge, including guidelines from organizations such as the World Liquid Gas Association (WLGA). Such resources offer valuable insights into the correct storage, handling, distribution, and usage of LPG to prevent mishaps.

A well-regulated LPG ecosystem is vital to protecting lives and ensuring the long-term sustainability of this essential energy source. As one of the most viable alternative fuels for both industrial and domestic sectors, LPG must be handled with the utmost care. Authorities must implement and strictly enforce safety regulations, while consumers must remain vigilant and educated.

Now is the time for collective action before another preventable disaster occurs. By prioritizing safety at every stage of the LPG supply chain, we can safeguard lives, protect property, and ensure a secure energy future. ■

DISCOURAGING SOLAR ENERGY

GST on imported gross solar units: A flawed taxation decision

Muhammad Arif

The Federal Tax Ombudsman (FTO) has recently ruled to impose General Sales Tax (GST) on the gross electricity units imported by net-metering consumers without providing credit for exported units. This decision contradicts fundamental taxation principles, discourages renewable energy investments, and unfairly burdens solar energy adopters.

The ruling fails to recognize that exported solar energy units function as "goods returned" under taxation principles. If imported electricity is taxable, exported units should be deducted before calculating GST liability. By charging GST on gross imports without considering exports, the ruling effectively results in double taxation, violating the principle that returned goods should not be taxed.

The decision can best be explained with a working example. This decision disregards Pakistan's taxation laws and legal precedents. The Sales Tax Act, 1990, defines GST as a value-added tax applicable only to final consumption. Sections 3 and 7 of the Act state that tax should be charged on net supply, not transactions where input and output nullify each other. The FTO's ruling misapplies these provisions, making it legally questionable. Such decisions also reflect a brazen ignorance of modern concepts like Society 5.0, where the well-being of people remains the focal point of institutional governance and policy formulation.

Globally, value-added tax systems, including those in the European Union and the United States, allow credit for returned goods to prevent undue financial burdens. Pakistan's Federal Board of Revenue (FBR) has similarly allowed refunds or offsets in cases of returned goods. Denying net-metering consumers this credit reflects inconsistency in the application of tax policy.

Impact on Renewable Energy Investments

The ruling discourages solar energy investments by increasing costs for individuals and businesses adopting renewable energy. Taxing gross imports contradicts government commitments to promoting clean energy and risks stalling the expansion of the solar sector. This flawed framework may push consumers toward off-grid solutions, reducing reliance on the national energy infrastructure and worsening the financial strain on power distribution companies.

Economic and Social Consequences

Pakistan already faces an energy crisis, with some of the highest electricity tariffs in the region. Consumers' ability to pay has deteriorated due to eroded disposable incomes and worsening economic conditions. Rising electricity costs have led to increasing defaults, power theft, and greater dependence on alternative energy. Unjust taxation on solar energy will only worsen economic distress and social inequalities.

Violation of International Commitments

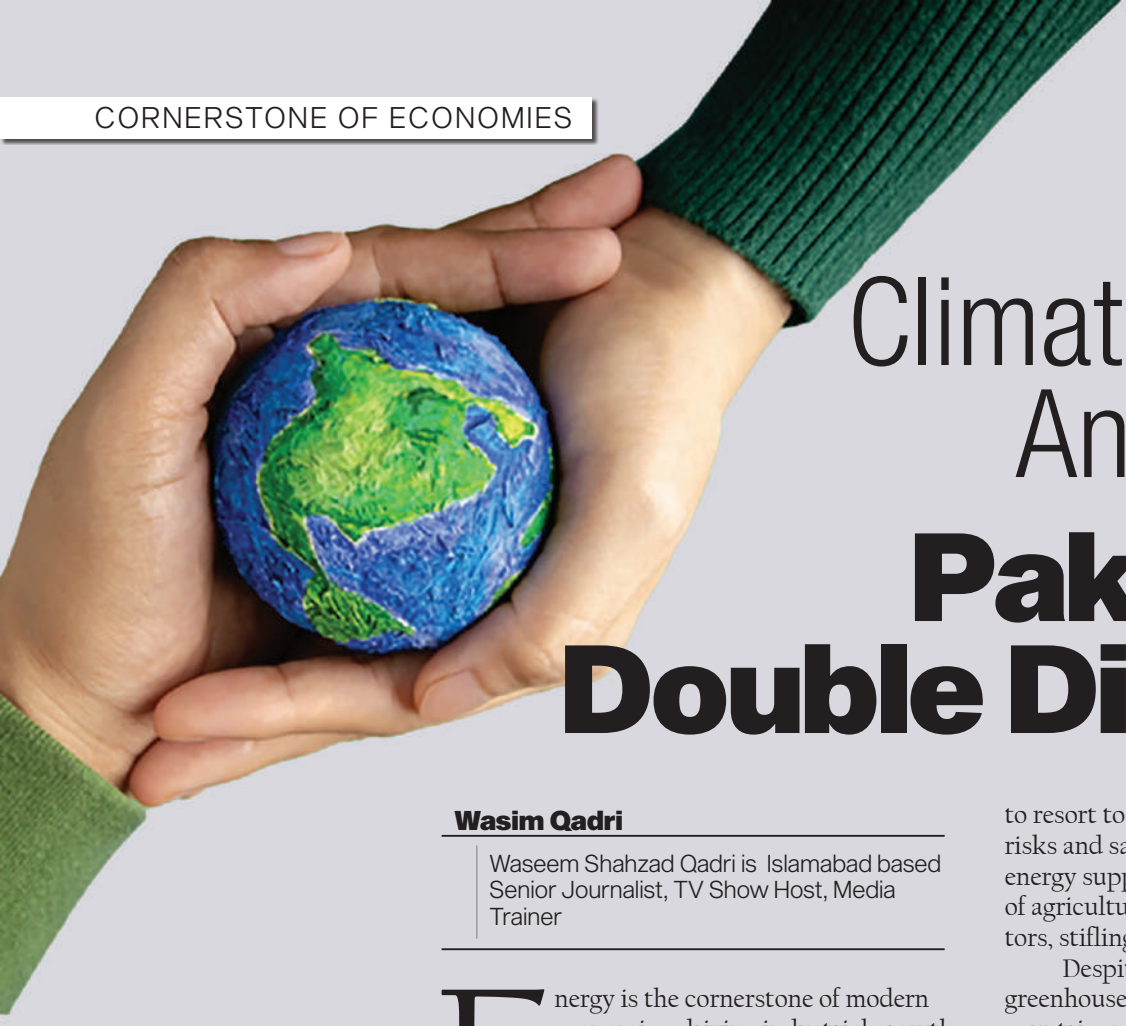
The FTO's ruling also undermines Pakistan's international commitments under the Paris Agreement to expand renewable energy and reduce carbon emissions. By disincentivizing net-metering, the decision indirectly increases reliance on fossil fuels, reversing progress toward sustainability goals. Given Pakistan's pledge to enhance renewable energy capacity, this decision sets a regressive precedent.

Government Action Needed Before March 20

Before March 20, 2025, the National Electric Power Regulatory Authority (NEPRA) or the Federal Government must make a Representation to the President to overturn the FTO's order under Section 32 of the "Establishment of the Office of Federal Tax Ombudsman Ordinance, 2000." At this juncture, government intervention is essential to ensure fair taxation, maintain renewable energy incentives, and protect consumer rights. This appeal is also crucial to plugging the additional loophole for corruption, preserving investor confidence and ensuring that consumers are not unfairly taxed for contributing clean energy to the national grid.

Conclusion

The FTO's decision must be immediately reversed to ensure a fair and rational taxation policy. Policymakers should adopt a framework that promotes public welfare, the purpose for which taxes are imposed and collected. Immediate corrective action is necessary to safeguard consumer rights, encourage renewable energy growth, and maintain an investment-friendly economic environment. ■



Climate Change And Energy: Pakistan's Double Dilemma

Wasim Qadri

Waseem Shahzad Qadri is Islamabad based Senior Journalist, TV Show Host, Media Trainer

40 million people lack access to electricity; coastal areas of Gwadar, Badin, Thatta face rising sea levels, leading to flooding, land erosion

Energy is the cornerstone of modern economies, driving industrial growth, technological advancement, and improved living standards. However, for Pakistan, the energy sector presents a paradox: despite having substantial energy resources, the nation grapples with energy poverty due to policy missteps and infrastructural challenges. This energy dilemma is further compounded by the escalating impacts of climate change, which threaten the country's environmental and economic stability.

As of 2023, Pakistan's per capita annual energy consumption stood at 14 gigajoules, a mere 18% of the global average. Similarly, per capita electricity consumption was 670 kWh, only 18% of the world average. These figures underscore the nation's struggle with energy insufficiency, which hampers economic development and limits improvements in living standards.

A significant portion of Pakistan's energy supply is derived from oil and natural gas, with hydropower being the primary renewable source. However, the reliance on imported fuels and technologies has led to prohibitively expensive and unsustainable energy supplies. This over-dependence on external resources not only strains the national economy but also exposes it to global market volatilities.

Energy poverty in Pakistan manifests in limited access to affordable and reliable energy services. Approximately 40 million people lack access to electricity, and half the population is without clean cooking facilities. This scarcity adversely affects households, compelling them to resort to traditional fuels, which pose health risks and safety hazards. Moreover, inadequate energy supply undermines the competitiveness of agricultural, commercial, and industrial sectors, stifling economic growth.

Despite contributing less than 1% to global greenhouse gas emissions, Pakistan is among the countries most vulnerable to climate change. The nation has witnessed a surge in extreme weather events, including severe heatwaves, intensified monsoons, and catastrophic floods. In 2022, unprecedented floods submerged a third of the country, affecting 33 million people and causing widespread devastation.

Coastal areas of Gwadar, Badin, Thatta face rising sea levels, leading to flooding, erosion, and damage to infrastructure. The fishing industry has suffered due to changes in marine life patterns, further impacting local economies. These climate-induced challenges exacerbate the existing energy crisis, as infrastructure damage disrupts energy production and distribution.

Addressing Pakistan's energy and climate challenges requires a comprehensive and forward-thinking strategy. The current approach, characterized by disjointed and issue-specific initiatives, is insufficient. A paradigm shift towards a decentralized energy supply and delivery system is imperative. This transition involves:

Investing in renewable energy sources such as solar, wind, and hydropower should be ensured to reduce dependence on imported fuels and mitigate environmental impacts is essential besides shifting the transportation sector to electricity derived from renewable sources to decrease fossil fuel consumption and emissions.

Developing and deploying energy storage technologies needed to manage the intermittent nature of renewable energy and ensure a stable supply. Exploring the production of alternative fuels from sustainable resources should be ensured to diversify the energy mix.

Encouraging industries must also be ensured to adopt electric processes where feasible, enhancing efficiency and reducing emissions. Efforts are required to interconnect energy systems with neighboring countries to enhance energy security and share resources. There is also need to implement measures across all sectors to conserve energy and improve efficiency, thereby reducing overall demand.

Pakistan stands at a critical juncture where the convergence of energy insufficiency and climate vulnerability necessitates decisive action. By embracing a strategic vision that prioritizes sustainable and decentralized energy solutions, the nation can overcome its current challenges. This approach will not only alleviate energy poverty but also bolster economic development and enhance resilience against climate change. The path forward demands unwavering commitment from leadership, innovative policy frameworks, and active participation from all stakeholders to secure a sustainable and prosperous future for Pakistan. ■

SOLAR CONSUMERS' CONCERN

Impact of FTO Ruling on Solar Net Metering, Tax Collection

Engr Syed Faizan Ali Shah

Member Prime Minister Solarization Committee

The rise in solar energy adoption in Pakistan has been significant, with solar net metered capacity now exceeding 3600 MW in the country's Distribution Companies (DISCOs). This growth is largely due to the increasing demand for self-generating energy solutions amid rising electricity prices, making solar power a lucrative business. With electricity tariffs reaching new heights, consumers are increasingly turning to solar power to offset their high energy bills. The solar energy sector has thus become an attractive option for both consumers and investors, given its potential to reduce dependence on the national grid and generate long-term savings.

In the net metering system, consumers with solar panels can feed excess electricity generated during the day back into the grid, receiving credits for the power sent to the grid. These credits are then used to offset their electricity consumption during nighttime or other hours when solar generation is low. Under the existing Net Metering system, many consumers, particularly those with solar panel systems, could zero out their electricity bills by ensuring that the amount of power they consumed from the grid was less than or equal to the amount they generated and fed back into the grid. This net consumption model also allowed them to avoid taxes, as they were only charged for the net consumption, which accounted for the electricity consumed from the grid, less the credits received from the excess solar power they fed into it.

In essence, power companies must charge sales tax on the gross consumption of electricity, regardless of how much is fed back into the grid. Key points from the FTO ruling include: Sales tax must be calculated on the total electricity supplied to consumers. K-Electric is already applying the correct method for sales tax collection on total supply, while state-owned DISCOs have been found non-compliant.

The Federal Board of Revenue (FBR) has been instructed to investigate why DISCOs failed to implement this tax collection method. The FTO emphasized that net metering does not impact the sales tax calculation, which means consumers will no longer have the ability to avoid tax by offsetting their bill with credits from solar generation. The FTO order also extends to withholding of income tax on gross amount of electricity consumption without any effect of net metering.

This ruling has raised concerns among solar consumers, as it will have a direct impact on their monthly electricity bills. For example, a typical 10 kW solar system can generate around 1200 units of electricity per month. Of these, approximately 240 units (20%) are consumed during peak hours, and about 550 units (45%) are consumed during off-peak hours, with the remaining units consumed at the source (i.e., the solar system itself).

However, this new tax regime is expected to push consumers toward further reducing their reliance on the grid. As the costs of Battery Energy Storage Solutions continue to fall, many consumers will seek to increase their solar installations and become more self-sufficient by integrating battery storage systems into their solar setups. This will allow them to store excess solar energy generated during the day and use it during peak hours, avoiding both grid consumption and sales tax.

The FTO's decision is likely to quicken the adoption of battery storage solutions by consumers, as it will no longer be financially viable for them to rely on the grid to avoid taxes. As energy storage technology becomes more affordable, solar self-generation will become a more attractive option, making the transition towards a self-sustaining energy model not just a choice but a necessity for many consumers. Therefore, while the FTO ruling may result in an increased financial burden for solar net metering consumers in the short term, it is expected to encourage the early adoption of battery storage systems, further boosting solar self-generation and accelerating the transition towards a more independent but sustainable energy ecosystem in Pakistan. ■

SOLAR PAKISTAN
exhibition concludes in Lahore

SOLAR PAKISTAN 2025, region's largest solar energy exhibition, commenced at Expo Center, Lahore, marking a major step forward in Pakistan's clean energy transition. Organized by Fakt Exhibitions, the three-day event held on February 21–23 brought together global industry leaders, innovators, and policymakers to accelerate the adoption of cutting-edge solar technologies and drive sustainable progress. The inauguration ceremony was graced by Shah Jahan Mirza, MD Private Power & Infrastructure Board Ministry of Energy, who emphasized the critical role of alternative energy in Pakistan's future and said, "SOLAR PAKISTAN is a game-changer in our nation's journey towards sustainability. Events like these pave the way for innovation, investment, and climate action, ensuring a cleaner, and greener Pakistan." Saleem Khan Tanoli, CEO of Fakt Exhibitions, highlighted the exhibition's impact on the alternative energy landscape as saying SOLAR PAKISTAN is not just an exhibition, it's a catalyst for progress. By bringing together global expertise and next-generation solar technologies, we are unlocking new opportunities for energy efficiency, economic growth, and environmental stewardship.

Reko Diq mine deal

A Real Golden Era In the Offing

Dr Hafiz Muhammad Usman Rana

The writer is a senior lecturer in finance and leads international and transnational education at the College of Accountancy, Finance and Economics at Birmingham City University, UK

As global transition to clean energy picks up pace, Pakistan's Reko Diq mine has emerged as a pivotal opportunity, attracting international interest and positioning the nation as a key player in the green energy supply chain. This landmark venture promises to not only reshape Pakistan's economic trajectory but also establish the country as a crucial supplier of minerals essential for renewable energy technologies.

Historically, gold and copper mining has been a powerful engine for economic growth, generating jobs, infrastructure development and foreign direct investment in resource-rich nations. The cases of Chile and Australia provide compelling lessons that Pakistan can emulate to unlock Reko Diq's full potential.

Chile, where copper mining contributes nearly 10 percent of the GDP and constitutes 50 percent of the country's exports, largely driven by its state-owned mining giant, Codelco, serves as a global benchmark. Australia's transformative Gold Rush in the 19th Century catalysed infrastructure investments, including railways, ports and towns to support mining and trade activities.

Over the decades, Australia has leveraged advanced mining technologies to achieve extraction efficiency and environmental sustainability, firmly establishing itself as a leading global exporter. These success stories highlight the enormous potential for Pakistan's Reko Diq project to drive economic transformation, provided that it is managed strategically and supported by robust governance frameworks.

Pakistan now has the opportunity to adopt a two-pronged approach, mirroring Chile's model of encouraging foreign investment while ensuring equitable profit distribution through royalties and re-investment in public welfare.

Strategic investments in infrastructure surrounding the Reko Diq mine, such as transport networks, processing facilities and export hubs, could significantly enhance the project's economic impact, drawing parallels with Australia's infrastructure-first strategy. Recently, Manara Minerals Investment Company of Saudi Arabia has expressed its intention to invest in the Reko Diq project, with estimates ranging from $500 million to $1 billion. This announcement reflects the Kingdom's growing interest in strengthening its presence in the global mining sector and its commitment to deepening economic relations with Pakistan.

Barrick Gold, the operator of Reko Diq, envisions the project as a transformative contributor to Pakistan's economy. CEO Mark Bristow has forecast a $74 billion cash flow over the next 37 years. Annual production is expected to reach 400,000 tonnes of copper and 500,000 ounces of gold upon the completion of both phases.

The substantial cash flow not only promises significant economic benefits but also has the potential to transform Pakistan's economy by fostering foreign investment and generating numerous job opportunities for its citizens.

By leveraging this demand, Pakistan could strategically position Reko Diq as a cornerstone in the international supply chain for materials essential to green energy. The implementation of proactive policies, such as prioritising sustainable mining practices and establishing strategic partnerships with renewable energy firmscan amplify the project's global impact.

Recently, several countries, including China, have expressed an interest in Pakistan's natural resources. Global mining corporations from Canada and Australia too represent viable partnership options.

A 2021 report by Goldman Sachs, titled Copper is the New Oil, predicted copper's crucial role in the global transition toward renewable energy. Four years later, the report's projections of increased demand and significant supply gaps have proven remarkably accurate. Copper will be indispensable as wind turbines, solar panels and electric vehicles gain ground. As a result, initiatives like Reko Diq have gained heightened strategic importance. This underscores Pakistan's opportunity to place Reko Diq at the forefront of the green energy revolution, addressing a globally recognised need that has grown more urgent than ever before.

As Pakistan embarks on the Reko Diq project, the government must maintain transparency in its investment negotiations. Clear guidelines regarding revenue sharing and project management should be implemented to foster trust among investors and the public. This transparency is crucial for building confidence in the project's potential and ensuring its success.

Additionally, the government must address potential environmental concerns associated with the Reko Diq initiative. Prioritising the rigorous enforcement of stringent environmental regulations is essential to guarantee sustainable mining practices. Regular impact assessments should be conducted, and modern technologies should be employed to minimise ecological disruption. These measures aim to safeguard the local environment while protecting the needs and livelihoods of surrounding communities in Balochistan.

Pakistan and Saudi Arabia share a long-standing and resilient relationship. Over the decades, the Kingdom has extended various forms of support to Pakistan, particularly during crises. This has included crucial loan rollovers, central bank deposits and oil facilities.

The forthcoming investment in the Reko Diq project will further strengthen the economic ties between the two nations and reinforce their collaborative partnership. While nurturing robust relations with Saudi Arabia, Pakistan should proactively seek opportunities with other potential investors to diversify its economic portfolio and enhance its diplomatic leverage.

Recently, several countries including China have expressed an interest in Pakistan's natural resources. Global mining corporations from Canada and Australia too represent viable partnership options. By encouraging diverse investments, Pakistan can mitigate the risk of reliance on a single investor and foster innovation and competitive practices within the sector, thus ensuring sustained economic stability.

It is imperative that the government engage in and conclude negotiations to finalise the investment agreement with Saudi Arabia within the proposed six-month timeframe. The government must capitalise on this unique opportunity while adhering to well-established strategies emphasising transparency, addressing environmental considerations and diversifying the investment base. By doing so, Pakistan can fully leverage the potential of the Reko Diq project, which promises to stimulate significant economic growth, attract foreign investment and pave the way for a more prosperous and sustainable future. ■

Hubco's Narowal Energy executes Hybrid Take and Pay tariff deal

EU Report

Narowal Energy Limited (NEL), a wholly owned subsidiary of the Hub Power Company Limited (HUBCO), has formally executed the Amendment Agreement reached with the government last month.

The development was disclosed by HUBCO, Pakistan's largest Independent Power Producer (IPP), in its notice to the Pakistan Stock Exchange (PSX) on Wednesday.

"Upon the request of the task force constituted under the Prime Minister's Office, to revise the tariff and to convert the existing tariff to 'Hybrid Take and Pay' model, Narowal Energy Limited (NEL), a wholly owned subsidiary of the HUBCO, has executed an Amendment Agreement dated February 14, 2025 with the Government of Islamic Republic of Pakistan (GoP) and the Central Power Purchasing Agency (Guarantee) Limited (CPPA) to implement the proposed amendments," read the statement.

Hubco's Narowal Plant engines develop fault, electricity generation halted

Sharing salient terms and conditions, Hubco shared that the Amendment Agreement shall be effective from November 1, 2024. The indexation mechanism of O&M has been changed, whereas tariff of cost of working capital and O&M have been revised, it added.

Under the new terms, the return on equity tariff component will be paid in a hybrid take and pay mode. Moreover, the insurance premium tariff is capped at 0.9% of EPC cost.

"GoP will unconditionally withdraw arbitration under Arbitration Submission Agreements, whereas, CPPA will make the payment of outstanding receivables as of October 31, 2024 within 90 days of approval of the agreement by the cabinet." ■

AETPL launches latest renewable energy project

Apple Energy Technologies Pvt Ltd has kicked off construction on its latest renewable energy project, an 8 MW solar plant combined with an 8 MW / 8.9 MWh battery energy storage system.

The groundbreaking ceremony, held at the project site in Karachi, signals a major step forward in sustainable energy solutions for the industrial sector. This project is being developed for Artistic Milliners, one of Pakistan's leading textile manufacturers, as a captive power plant.

Speaking at the groundbreaking event, Hamid M Asghar, CEO of Apple Energy Technologies, emphasized the importance of innovation in Pakistan's energy landscape. He said: "This project is a game-changer—not just for Artistic Milliners, but for Pakistan's industrial sector as a whole. We're proving that renewable energy can be both reliable and cost-effective. It's not just about sustainability; it's about smart business decisions." A representative from Artistic Milliners also shared their enthusiasm as saying: "Sustainability is a core part of our business, and this project aligns perfectly with our long-term goals. Investing in clean energy helps us reduce our environmental impact while keeping our operations running efficiently."

For more information: www.appleenergy.com.pk

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Pakistan's Next Leap

Muhammad Zeshan

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

Aligning industries with global demand trends is mandatory

Pakistan's economic future hinges on its ability to align industries with global demand trends and harness its comparative advantages. For decades, 'Made in Pakistan' was synonymous with textiles and agriculture.

While these sectors remain essential, the real game-changer lies elsewhere — a shift toward innovation-driven, high-growth industries that can redefine the country's economic landscape. This transformation is no longer theoretical; it's happening now. From a booming tech ecosystem and fintech revolution to advancements in renewable energy, electric vehicles, and pharmaceuticals, Pakistan's sunrise industries are emerging as the new engines of growth. The question is: Are we ready to embrace and accelerate this change?

Let's start with the elephant in the room: our tech revolution. Pakistani IT exports crossed $3 billion in 2024, and that's not even counting the freelancers working through personal accounts. Systems Limited, our first tech unicorn, isn't just a local success story – it's a wake-up call.

But here's what really gets me fired up: our fintech explosion. For decades, we've scratched our heads over how to bank the unbanked. It turns out that the answer wasn't more bank branches – it was putting banking in people's pockets. Raast, our instant payment system, processed nearly

892 million transactions totaling around Rs20 trillion in about two weeks. Companies like Sadapay and Abhi are making payday loans and salary advances as easy as ordering biryani online. This isn't just banking; it's financial revolution 2.0.

Speaking of revolutions, let's talk about Pakistan's green transition. Yes, I can hear the sceptics: "But what about our energy crisis?" Fair point — but consider this: Solar power is now cheaper than grid electricity in most parts of Pakistan. The Jhimpir wind corridor in Sindh is generating more power than a mid-sized dam. When the World Bank commits $10 billion to Pakistan's clean energy transition, you know this isn't just environmental feel-good – it's serious business.

Here's another sunrise sector that deserves your attention: electric vehicles. Jolta Electric is already producing e-bikes in Lahore. Crown Group is setting up Pakistan's first electric vehicle plant in Karachi. Even our beloved rickshaws are going electric – Sazgar Engineering has launched electric three-wheelers.

Now, let's get personal about e-commerce. Remember when ordering groceries online seemed like science fiction? Today, my neighbourhood kiryana store takes WhatsApp orders. Pakistan's e-commerce market is expected to hit $6.7 billion by 2029, and it's not just the big players like Daraz driving growth. It's the Instagram baker selling custom cakes, the Facebook marketplace seller offering handcrafted jewelry, and the YouTube influencer selling products from China. This digital marketplace is creating entrepreneurs faster than our universities can produce graduates.

Here's a sunrise industry you might not expect: gaming and animation. Pakistani studios are now developing games for international markets. Caramel Tech Studios in Lahore has produced games with millions of downloads. Our animators are working on projects for Netflix and Disney

Agriculture might seem like an odd addition to the list of sunrise industries, but trust me – what's happening in our fields is revolutionary. Startups like Farmdar are using satellites and AI to help farmers increase yields while using less water. eFarm is connecting farmers directly to urban consumers, cutting out middlemen and increasing farmer profits by up to 50 per cent.

Here's a sunrise industry you might not expect: gaming and animation. Pakistani studios are now developing games for international markets. Caramel Tech Studios in Lahore has produced games with millions of downloads. Our animators are working on projects for Netflix and Disney. When a Pakistani gaming startup gets acquired by a US company for millions of dollars, maybe it's time to tell our kids that gaming isn't a waste of time.

The pharmaceutical sector is another dark horse. We're not just talking about generic drugs anymore. Companies like Searle and Getz Pharma are investing in R&D. Pakistan aims to export $1 billion in pharma in FY2025. With the government's new API (Active Pharmaceutical Ingredients) policy, we're finally moving up the value chain from pill-pressing to actual drug development.

But here's the reality check: these sunrise industries face serious challenges. Our education system isn't producing enough skilled workers. Our regulatory environment often feels like it was designed for the 1980s. Power outages still plague our industrial zones. And our financial sector needs to get better at funding innovation rather than just real estate.

Yet, I'm optimistic. Why? Because these new industries are fundamentally different from our traditional sectors. They're more resilient, more innovative, and more inclusive. They're creating opportunities for women to work from home, for young people to start businesses with just a laptop, and for rural communities to access urban markets.

The real question isn't whether these sunrise industries will grow – they already are growing. The question is whether we'll embrace this transformation fast enough. Will we update our regulations to support digital businesses? Will we reform our education system to prepare workers for these new jobs? Will we invest in the infrastructure these industries need?

Pakistan's economic future won't be built on the industries of yesterday. It will be built on the bold, innovative, and sometimes messy transformation that is happening right now. The sun is rising in a new economic era. Are we ready to shine? ■

Nestlé launches 100,000 trees plantation drive

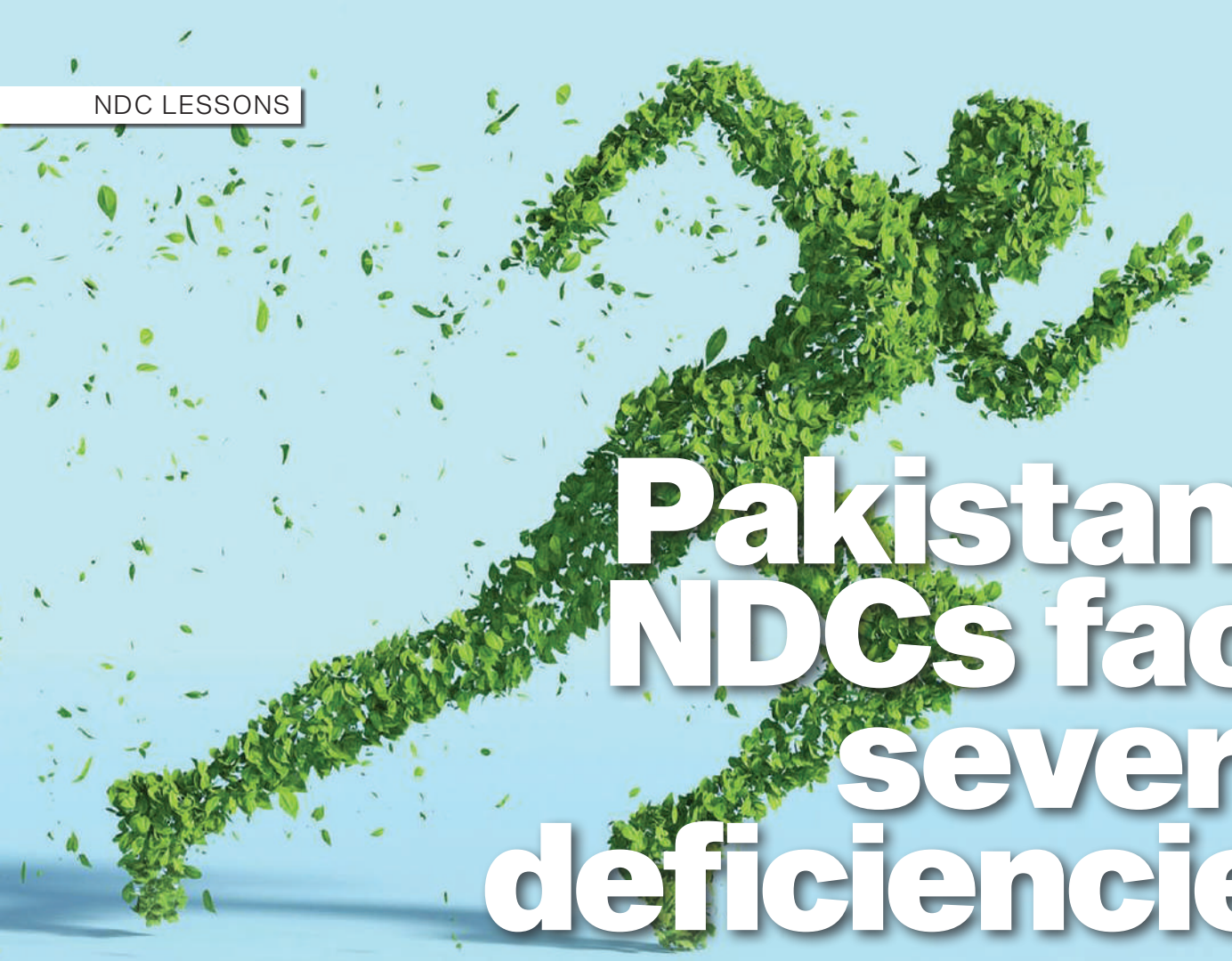
EU Report

Coordinator to Prime Minister on Climate Change Romina Khurshid Alam inaugurated Nestlé Pakistan's first 100,000 trees urban forest plantation drive in Islamabad. Organized in partnership with Capital Development Authority, the activity under the company's Nestlé Cares initiative supports endeavors to reduce carbon footprint in its ambition to achieve Net Zero by 2050.

Speaking at plantation ceremony, Romina said, "Planting an urban forest is a great example of what can be achieved when the public and private sectors come together with a common goal. We acknowledge Nestlé's support and collaboration in driving this with CDA. Together, we are not just planting trees – we are nurturing a legacy for future generations.

Jason Avanceña Chief Executive Officer, Nestlé Pakistan said, "Climate change is a reality and we all need to play a proactive role in mitigating this challenge. Nestlé has been continuously investing in sustainability initiatives such as planting urban forests for the wellbeing of our communities. It is our duty to reverse the trend of deforestation and work towards a greener future."

"Initiatives such as urban forests and continuous investment in renewable energy reflects our dedication towards making a positive impact on society and environmental sustainability. We remain committed to being a force for good throughout our value chain by Creating Shared Value for communities," he added. ■



Pakistan's NDCs face several deficiencies

Dr Khalid Waleed

Draw lessons from international best practices mandatory to ensure effective Nationally Determined Contribution

As Pakistan prepares to enhance its climate commitments in the form of NDCs 3.0 under the Paris Agreement's Article 4, it is crucial to draw lessons from international best practices to ensure a robust and effective Nationally Determined Contribution (NDC).

Brazil and the United Arab Emirates (UAE) experiences provide insightful models for shaping Pakistan's NDCs 3.0, particularly in integrating climate action with sustainable economic development, ensuring resilience, and fostering cross-sectoral coordination.

Pakistan's 2021 NDCs, while ambitious in their intent, faced several deficiencies that need to be addressed in NDCs 3.0. One of the critical shortcomings was the heavy reliance on very ambitious conditional targets, with 35 per cent of the committed 50 per cent emission reduction contingent upon international financial assistance. This approach limited the country's ability to achieve tangible climate action without external support. Moving forward, Pakistan must focus on designing more realistic and domestically driven mitigation and adaptation measures, ensuring that a greater portion of its climate action is implemented through national resources without undermining the socioeconomic development and remaining on the second stage of the environmental Kuznets Curve.

Another major gap was the lack of a clear and enforceable implementation roadmap. The 2021 NDC outlined broad targets but failed to provide sector-specific pathways, institutional accountability, and measurable progress indicators. To overcome this, Pakistan's NDCs 3.0 should introduce a detailed sectoral breakdown, enhanced transparency measures, and a strengthened Monitoring, Reporting, and Verification (MRV) framework. The UAE's MRV system provides a strong model for integrating data transparency and accountability.

Pakistan's 2021 NDC also did not fully integrate emerging climate finance instruments such as carbon markets under Article 6 of the Paris Agreement and green bonds. Brazil and the UAE have leveraged these mechanisms effectively to finance their decarbonisation strategies. Pakistan should institutionalise a domestic carbon trading market, explore green financing options, and align its fiscal policies with sustainable development goals to ensure long-term financial sustainability for climate action. Pakistan can also look at Brazil's approach to leveraging international funding for reforestation and carbon sequestration projects as a model.

Brazil's NDC outlines a vision for 2035 that integrates ecological transformation with economic growth, leveraging science, indigenous knowledge, and policy coherence. Pakistan must adopt a similar long-term approach, linking its climate goals with its economic development objectives. The government should institutionalise a 'National Climate Resilience Pact' akin to Brazil's 'Pact for Ecological Transformation', ensuring a whole-of-government and whole-of-society approach to combating climate change. Furthermore, Brazil's focus on expanding conservation areas and restoring degraded ecosystems should serve as a model for Pakistan's afforestation and reforestation efforts.

Pakistan should also implement a multi-decade investment strategy similar to Brazil's Amazon protection policies, which have integrated financial incentives for landowners to maintain forests. Given Pakistan's vulnerability to land degradation, climate-smart land-use policies should be incorporated into the long-term NDC framework.

The UAE's third NDC includes an ambitious commitment to a 47 per cent reduction in emissions by 2035, compared to a 2019 baseline. Pakistan should establish clear, economy-wide emission reduction targets, moving beyond sector-specific goals to a holistic decarbonisation strategy. Given the country's reliance on fossil fuels, a realistic transition plan must be developed to phase out high-emission activities while ensuring economic stability and energy security.

The UAE's Green Growth Strategy and its integration of clean energy into industrial and urban sectors provide a framework that Pakistan can adapt. By setting milestones for renewable energy integration in power generation, transportation, and manufacturing, Pakistan can ensure a more structured and achievable emissions reduction pathway.

Brazil's commitment to a just energy transition highlights the importance of decarbonising its energy matrix while promoting economic instruments for sustainable development. Similarly, the UAE has invested in renewables and carbon capture technologies to align with its Net Zero 2050 strategy.

Pakistan must accelerate investments in renewable energy, particularly in solar, wind, and mini/micro hydropower, ensuring that the transition does not disproportionately impact vulnerable communities dependent on traditional energy sectors. However, to achieve this a detailed decarbonisation plan of the power sector is required; for example, the utility of Just Energy Transition Partnerships (JETPs) is still not being considered in Pakistan.

Both Brazil and the UAE emphasise robust climate governance frameworks. Brazil's 'Commitment to Climate Federalism' fosters coordination across federal, state, and municipal governments, ensuring integrated climate action. The UAE's National Council on Climate Action aligns federal and emirate-level policies. Pakistan should institutionalise inter-ministerial coordination mechanisms to ensure policy coherence across climate, energy, agriculture, and industrial sectors.

Operationalisation and revamping of the 'National Climate Change Authority' to the 'National Climate Policy and Implementation Authority' modelled on the UAE's cross-sectoral council can help streamline efforts while incorporating Brazil's multi-stakeholder engagement strategies to ensure climate policies align with economic and social development objectives.

Brazil and the UAE are leveraging carbon markets as a key tool for achieving their NDCs 3.0, integrating emissions trading mechanisms to attract green investments and incentivise low-carbon transitions. Brazil has established a legal framework for carbon markets through its National Decarbonisation Plan, which includes sectoral emissions caps, tradable carbon credits, and offsets from forestry conservation projects.

One of Brazil's most significant carbon finance strategies is the expansion of REDD+ (Reducing Emissions from Deforestation and Forest Degradation) programs, allowing companies and international partners to purchase forest-based carbon credits. The country is also integrating its domestic carbon market with international emissions trading schemes, creating opportunities for Brazilian industries to earn revenue while reducing emissions. By implementing transparent Monitoring, Reporting, and Verification (MRV) mechanisms, Brazil ensures that carbon credits are credible, making its carbon market an attractive avenue for climate finance.

Similarly, the UAE has developed a comprehensive approach to carbon markets by combining domestic emissions trading with global partnerships. The UAE's ALTERRA climate finance initiative, valued at $30 billion, plays a central role in funding carbon market activities, and supporting emissions reductions through investment in renewable energy, industrial decarbonisation and energy efficiency projects.

The UAE is emerging as a regional carbon trading hub by collaborating with platforms like Singapore's Climate Impact X and launching voluntary carbon markets to support corporate sustainability. It has also integrated carbon capture and storage (CCS) in its oil and gas sector, enabling carbon credit generation as part of transition strategies. Similarly, Brazil and the UAE are leveraging market-driven approaches to fund their NDCs 3.0, balancing emissions reduction with economic growth.

Pakistan must operationalise its domestic carbon market and mobilise international climate finance through its National Climate Finance Strategy and Dashboard, ensuring transparency in mitigation and adaptation projects. Public-private-people partnerships should scale up green investments. Pakistan can also explore Brazil's forest-based carbon offset projects and the UAE's sovereign green bonds to attract global investors.

Given its vulnerability to climate disasters, Pakistan should integrate climate adaptation into national planning, focusing on water security, urban resilience, and climate-smart agriculture. Brazil's agroforestry initiatives and the UAE's climate-resilient urban planning offer valuable models. Establishing a National Adaptation Fund, similar to the UAE's, would help finance long-term resilience projects.

Pakistan should enhance public engagement in NDC formulation through consultations with civil society, academia, businesses, and indigenous communities. Digital platforms can facilitate crowdsourcing ideas and tracking progress. The Ministry of Climate Change's research arm, GCISC, is working to integrate NDCs 3.0 across sectors.

Pakistan must also strengthen its Monitoring, Reporting, and Verification (MRV) systems, aligning with the Paris Agreement's Enhanced Transparency Framework. A 'Pakistan Climate Data Portal' akin to Brazil's DataClima+ can enhance transparency, while the UAE's real-time emissions monitoring offers a model for industrial oversight.

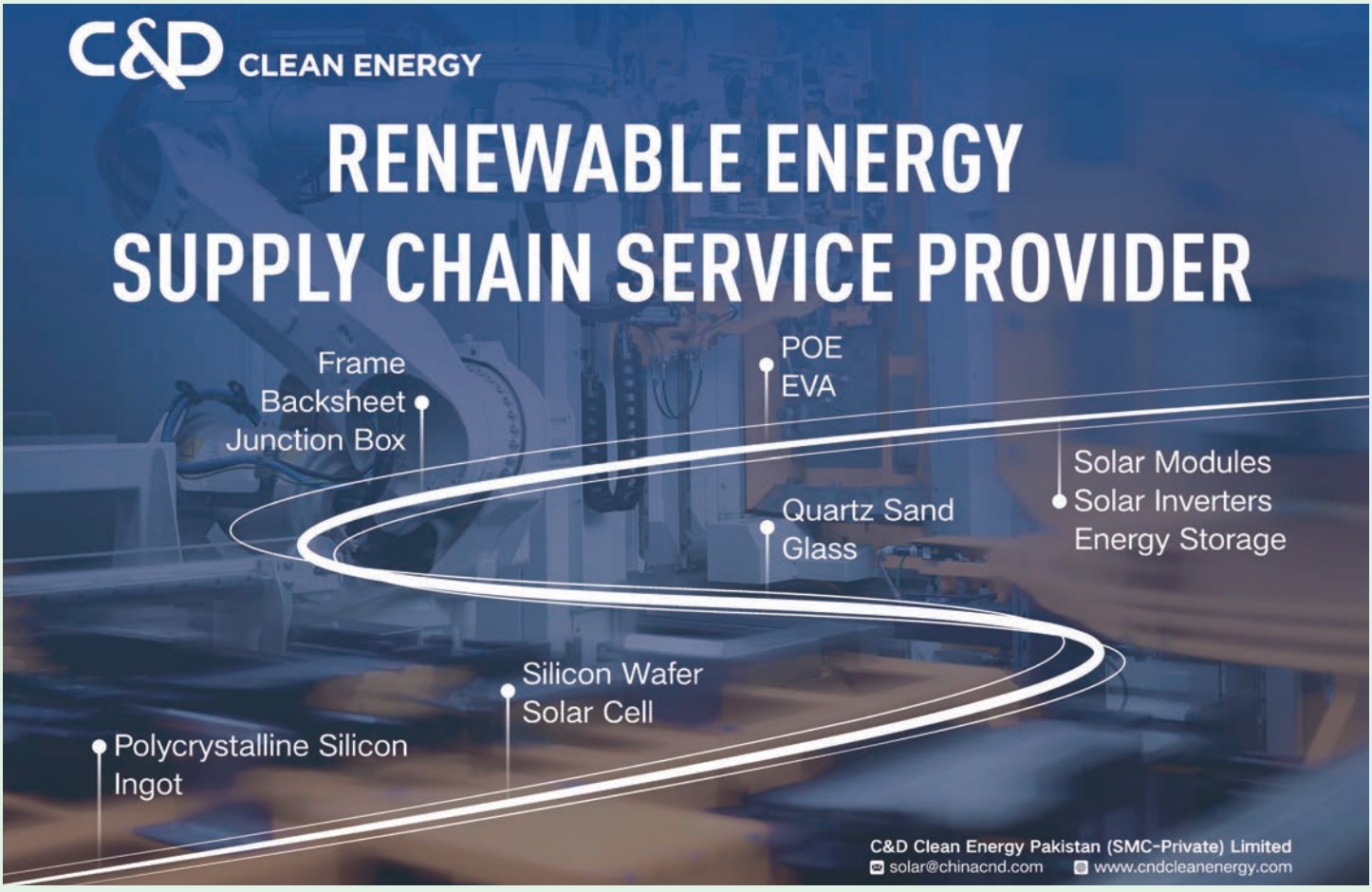
By learning from Brazil and the UAE, Pakistan can develop robust NDCs, institutionalise climate governance, and ensure inclusive participation to meet its climate commitments. ■

C&D Clean Energy and LONGi Partner to Deliver 500MW Solar Modules for Pakistan's Renewable Future

C&D Clean Energy, a leading renewable energy supply chain service provider, has announced a strategic partnership with LONGi Green Energy Technology Co., Ltd. (LONGi), a global leader in high-efficiency solar solutions. Under this collaboration, C&D Clean Energy will procure 500MW of advanced solar modules from LONGi over the next year, significantly strengthening Pakistan's solar energy sector.

By combining expertise in marketing, technology, and supply chain management, the two companies aim to expand the reach of LONGi's high-efficiency solar modules while driving Pakistan's transition to renewable energy. This initiative will help meet the country's growing energy needs with cost-effective, reliable solar solutions.

As a subsidiary of the Fortune 500 C&D Group, C&D Clean Energy has extensive experience in the Pakistani and regional markets. Its supply chain expertise has played a key role in advancing renewable energy solutions, and this partnership with LONGi reinforces its commitment to accelerating sustainable energy adoption in Pakistan and beyond. Baggio Teng, Vice President of EMR at LONGi, stated, "Our collaboration with C&D Clean Energy is a vital step toward meeting Pakistan's increasing demand for clean energy. By delivering innovative solar products and solutions, we are not only supporting Pakistan's energy transition but also contributing to its long-term sustainability and energy independence." Michael K. Lee, CEO of C&D Clean Energy, added, "We are thrilled to partner with LONGi to drive Pakistan's clean energy transformation. With our supply chain expertise and LONGi's cutting-edge solar technology, this collaboration will create long-term value for the region, accelerating the shift to a low-carbon economy and strengthening energy sustainability in Pakistan and beyond."



C&D Clean Energy Expands Global Supply Chain Partnerships to Strengthen Pakistan's Solar Sector

C&D Clean Energy, a leading renewable energy supply chain service provider, has signed strategic cooperation agreements with six prominent Pakistani partners: Bahum Associates (Pvt) Ltd, Integra Energy Group, Pantera Energy, SSEM Enterprises (Pvt) Ltd, Alam Energy, and Hadron Solar. This collaboration reinforces C&D Clean Energy's commitment to expanding its presence in Pakistan and the broader South Asian market while driving the adoption of renewable energy solutions.

As a subsidiary of the Fortune 500 C&D Group, C&D Clean Energy leverages its global supply chain expertise to deliver high-quality solar solutions. These partnerships unite industry leaders with strong market presence and technical proficiency to enhance Pakistan's renewable energy landscape.

Bahum Associates (Pvt) Ltd specializes in engineering and management services, delivering innovative solutions across commercial and industrial sectors. Integra Energy Group, established in 2011 and headquartered in Rawalpindi, focuses on high-quality solar energy systems and energy storage solutions. Pantera Energy, founded in 2013, is a key player in Pakistan's solar industry, providing reliable systems for residential, commercial, industrial, and agricultural sectors. SSEM Enterprises (Pvt) Ltd is renowned for its advanced solar systems and commitment to sustainable energy practices.

Additionally, Alam Energy and Hadron Solar play vital roles in expanding solar adoption in Pakistan, offering high-quality solar solutions to meet the country's growing energy demands.

"These strategic agreements mark a significant milestone in our global expansion," said Michael K. Lee, CEO of C&D Clean Energy. "By combining our partners' deep local market expertise with our global supply chain capabilities, we are well-positioned to meet the rising demand for renewable energy solutions, contributing to a more sustainable future in Pakistan and beyond." ■

SOCIAL ROUND UP

A Picture of Cake Cutting at stall of Longi at Solar Pakistan Lahore.

A Group Photo of Team Energy Update with Bilal Naeem CEO Beyond Green at Solar Pakistan

Hammad Arora, Naeem Qureshi & Ruqiya Naeem at stall of Ziewnic

A Group Photo of Tiger Yan, Khursheed Abbas, Naeem Qureshi & others at stall of solax.

Inverex hosted iftar dinner at New Head Quarter Karachi

Growatt hosted iftar dinner at Movenpick Hotel, Karachi

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Breaking the climate silos

Recent cloudburst incidents in the upper catchment areas resulted in cascading losses

Ali Tauqeer Sheikh

The writer is a climate change and sustainable development expert who participated in Dawn's recent Breathe Pakistan conference in Islamabad

As the winter smog blankets our cities from Lahore to Delhi, and farmers from Punjab to Bihar watch shifting monsoon patterns upend centuries-old agricultural practices, we are reminded daily that climate change knows no borders.

While Pakistan ranks amongst the world's 10 most climate-vulnerable countries, this challenge extends across South Asia, home to the world's largest concentration of climate-vulnerable populations. South Asia has emerged as the global epicentre of climate vulnerability, with scientific evidence showing unprecedented changes in regional weather patterns and ecosystems.

Dawn Media Group's climate change conference last week in Islamabad was a learning hub, and a melting pot of ideas presented by over 100 learned speakers. For me, the key takeaway was best distilled by the conference slogan: 'let's weather the change-together'.

This message is at its strongest when it comes to the regional aspect of the climate crisis. Our common destiny is written in the geography we inhabit. From the Bay of Bengal to the Arabian Sea, we share ecosystems that have shaped our civilisations. Our futures are inextricably linked through common environmental systems that transcend national boundaries.

This interconnectedness manifests itself in multiple ways. River flows, whether in abundance and causing floods or scarce and leading to droughts, affect communities across borders.

Recent cloudburst incidents in the upper catchment areas resulted in cascading losses and damage across the downstream communities of Sialkot (2020), Uttarakhand (2021), Nowshera (2022), Hunza and Himachal Pradesh (2023). They exemplify the trans-jurisdictional nature of climate extremes.

When glacial lakes burst in Nepal, the impacts ripple through Bihar and Bangladesh. When Cyclone Yaas (2021) struck the Bay of Bengal, its effects were felt in Odisha and West Bengal. Cyclonic storm Biparjoy (2023) changed its mind at the last minute and made landfall near Jakhau Port in Gujarat, India, after particularly affecting Thatta, Badin, and Karachi with heavy rainfall and strong winds. Such persistent challenges cannot be effectively addressed through isolated national actions.

The common threats facing our region are numerous and growing. We are witnessing dramatic changes in snowfall patterns and receding glaciers, with permafrost thaw adding new dimensions. Monsoon patterns that have historically defined our agricultural rhythms, are becoming increasingly erratic. Surface and groundwater availability has become more uncertain across the region.

The regional nature of climate impacts extends beyond immediate environmental effects. The migration patterns of the Rohingya to Karachi or the spread of epidemics like polio from Afghanistan have cross-border implications and demonstrated how environmental challenges can rapidly transform into regional crises requiring globally coordinated responses.

Understanding the nature of these non-traditional security threats is crucial. They are neither purely domestic nor entirely interstate issues. The global climate discourse has often overshadowed our regional and domestic conversations, sometimes at the cost of local solutions and regional approaches. These challenges need not result in zero-sum outcomes but can, instead, present opportunities for win-win solutions that benefit all participating nations. This is particularly significant because the climate crisis poses non-traditional security threats that cannot be addressed through conventional security approaches.

Traditional knowledge often transcends our geographical borders. Farmers across the region from Chitral to Tamil Nadu still rely on shared traditional methods to predict weather patterns. The catastrophic floods of 2022 in Pakistan demonstrated this interconnectedness vividly. As the Indus river swelled beyond its banks, the ensuing disaster highlighted how changes in upstream glacial melt and rainfall patterns affect communities downstream.

Similarly, when farmers in Indian Punjab light post-harvest fires, the resulting smog affects air quality, depending on wind patterns and atmospheric dispersion over the distance, and spreads across the region —Lahore, Karachi, Lucknow and parts of Bihar were all affected. Addressing these challenges require complex, prolonged and collaborated approaches. It demands 'intelligence' — the engagement of the knowledge economy and diverse stakeholders. This necessitates the integration of local knowledge with global finance, not the other way around.

The key to such shared challenges lies in prioritizing local knowledge while leveraging international resources. Rising sea levels are threatening the subcontinent's coastline from Khulna and Cox's Bazar to Odisha and Mumbai to Thatta and Badin; the solutions must come from communities that have lived there for generations.

Climate events increasingly shape

regional trade patterns in South Asia. Pakistan's emergency imports of vegetables from India during extreme weather-driven shortages demonstrate the immediate need is for climate-resilient regional economic policies that facilitate timely trade responses during weather-induced scarcities. It is estimated that regional trade could boost Pakistan's shrinking GDP by one per cent.

The media plays a crucial role in fostering this regional understanding. Climate change is fundamentally a development issue, and readers need to understand its governance, political economy, and implications for their communities. While coverage of disasters remains important, people increasingly seek deeper, more nuanced coverage of embedded climate governance for national development policies that connect climate resilience with daily lives and equitable development. People want to know how communities in Chennai are managing water scarcity, how Ahmadabad has addressed urban heat islands, and how Dhaka or Mumbai is protecting vulnerable populations from floods. From the tea gardens of Assam to the mango orchards of Multan, from the fishing communities of Kerala to the mountain farmers of Swat, climate change affects us all. Our response must reflect this shared reality.

There is growing interest across the region in innovative responses. Communities across the region are developing solutions that others can learn from. In several countries, the governments are encouraging locally led adaptation to reduce vulnerabilities. Pakistan, however, has still to develop and resource local governments to promote locally led adaptation for resilience. This presents an opportunity for media to facilitate regional learning through syndicated columns, regular solution spotlights and regional roundups. The message from Dawn's conference was clear: the success of our response to the climate crisis will depend not just on individual national actions, but on our ability to work together as a region, learning from each other's experiences, and building on our shared heritage of resilience and adaptation.

The writer is a climate change and sustainable development expert who participated in Dawn's recent Breathe Pakistan conference in Islamabad. ■

Climate Speak: Look Who's Talking!

Afia Salam tells on how regional and digital media are driving the climate change narrative, leaving mainstream outlets to play catch-up

Afia Salam

Afia Salam is a journalist, climate change advocate and member of the National Climate Change Council

Climate change and environmental issues are the new 'trend' in the media or so it would seem. But are they really? There was a time when journalists would find it hard to 'pitch' their stories on these issues to their editors. Only a 'hard sell' or a connection to a high-profile event or cataclysmic happening would get them the editorial nod; otherwise, at best, they would be tucked in an obscure column or aired at an unearthly hour on the airwaves.

Years ago, I made a statement at a media event regarding the fact that if climate change wasn't given the space it deserved, a time would come when it would snatch the headlines and occupy the front pages. Subsequent climate-induced disasters did just that, although I wish I had not been proved correct in this instance.

Generally, when making a rapid assessment, we equate prominence with influence, and in Pakistan, as far as the legacy media houses are concerned, their reach has primarily been measured by influence rather than clout. While this is not the forum to go into the whys and hows of this, it has to be said that the English-language media has, for the most part, been considered more influential than the Urdu-language or regional media.

However, it also needs to be acknowledged that the regional language media has played a very robust and vibrant role in giving space to environmental awareness, climate change advocacy and highlighting the issues related to these matters. In doing so, they have been able to reach a wider audience that, for the most part, has no access to the Urdu and English language press.

Regional media coverage is embedded in on-ground realities.

As a result, it has successfully brought life to voices that people would otherwise be unaware of. Because of the ease of communicating in the same language as the people whose stories they want to project and in the right cultural context, their coverage has been more nuanced. Furthermore, the democratization in the dissemination of information through the digital space has also brought greater depth to their coverage.

The mainstream media is generally resource-strapped. Sending teams deep into remote areas means allocating reporters, whose numbers are dwindling, added to which are transportation and equipment expenses, boarding, lodging and so on. It is far easier for regional journalists to reach a spot and cover an issue or an event. I experienced this firsthand during the floods of 2010 when the mainstream media was just readying its team, which could only reach accessible locations via the roads that had not been washed away. It is still fair to say that the regional media has been successful in featuring in-depth articles and research reports on a variety of topics, including some inspiring success stories.

Digital has given a great fillip to smaller media houses, which can now invest in capacity building without having to divert resources to maintaining a physical presence. Furthermore, opportunities offered by media development organisations have been snapped up by freelance digital content creators who learn the tricks of the trade, are not restricted to the whims of their editors and can pitch their stories to others if refused by one outlet. There is also an increasing trend in climate change and environmental journalists self-publishing on platforms and monetising them.

This growth of local and regional self-published media may not benefit from editorial oversight, but the more diligent focus on honing their fact-checking and data journalism skills. No longer do we have to lament the paucity of real, grounded content as far as climate change and environmental discourse are concerned, as the widening media landscape is now giving the English-language media a run for its money. ■

Alleviating Pakistan's Energy Poverty

Dr Shahid Rahim

The author is a freelance contributor interested in sustainable energy and power sector policy, planning, and development

A strategic shift to efficient policy reforms essential for sustainable development

Dr. John P. Holdren, Advisor on Science & Technology to President Obama for his dual term in office and a distinguished faculty at Harvard and Berkley for over two decades, believes that there are two ways a society can get into trouble with "energy": either not having enough resources or having them but their cost moves beyond its reach. What Dr. Holden perhaps did not expect was that a society can have sufficient energy resources, but poor vision of its leaders and inappropriate policies can push energy beyond its reach. Pakistan's present energy Imbroglio is a case in point.

Energy is undoubtedly the lifeblood of modern society. The amount of energy required to produce a unit of GDP can be contested, but what cannot be contested is that access to some minimum affordable, secure, and sustainable energy is inevitable for a country to power its economy and provide decent living to its people. Though not absolute, per capita energy use is a reasonable indicator of the development of a country. But the energy sector is also the hub of environmental pollution and the growing threats of global climate change.

Electricity, a derived form of energy, is considered a superior energy career for its versatility of use, ease of control, and cleanliness. As societies develop and their incomes rise, they switch from other forms of energy to electricity. Electricity is emerging as the choice energy career because if derived from renewable resources and use cleaner technologies, it can enable the world to phase out its reliance on fossil fuels and serve its energy needs sustainably.

Pakistan's per capita annual energy consumption of 14 gigajoules in 2023 was only 18% of the world average, 11% of the European Union average, 12% of China, and 51% of India (1). Its per capita annual electricity consumption of 670 kWh in 2023 was only 18% of the world average, 11% of the European Union average, 12% that of China, and 49% that of India (2).

Pakistan's Legal Framework: Transforming Deserts Into Solar Energy Hubs

Pakistan's per capita annual GDP of 1,365 US$ in 2023 was only 10% of the world average, 5% of that of European Union average, 16% of that of China, and 81% of that of India (3). Only 70 to 75% of its population at present has access to electricity service meaning that 60 to 70 million people in Pakistan are still without it (4).

So, Pakistan faces abject poverty, both in terms of economic development and energy availability. Energy poverty (lack of access or unaffordable prices) may not be the sole cause of Pakistan's economic poverty, but it's certainly

among the key factors.

Most analysts now agree that the primary cause of Pakistan's energy poverty is its over-reliance on energy supply system that is largely based on imported technologies and fuels

Energy poverty adversely affects the quality of life of households, compelling them to compromise on other basic needs, and forcing them to use traditional fuels which seriously affects their health and safety. Lack of energy at reasonable prices to agricultural consumers, commercial businesses, and industries undermines the competitiveness of their products and services.

Most analysts now agree that the primary cause of Pakistan's energy poverty is its over-reliance on energy supply system that is largely based on imported technologies and fuels. This approach has failed to deliver its objectives and has led to energy supplies that are prohibitively expensive, inequitable, and unsustainable.

Pakistan needs a clear strategic vision from its leaders and a strong belief in that vision undeterred by any resistance from bureaucracy, political opponents, or vested interests. The present piecemeal, disjointed, issue-specific, and lobbyist-driven initiatives cannot be termed a well-thought-out and imaginative strategic energy vision.

Phasing out fossil fuels, adding renewable power generation, and increasing hydro and nuclear may bring some symptomatic relief to a sector under financial siege but will not cure it. Both are capital-intensive, have long lead times, and have several unresolved issues associated with them.

Building A Sustainable Future For Pakistan: Where Architecture Meets Renewable Energy

The recent love-affair of our leaders with renewable generation (both solar and wind) may be short-lived too once the reality sets in. They will have to grapple with issues of connecting renewable generation from resource-rich remote locations to distant load centers. This will require flexibility, backup reserve, or storage of some kind whose cost, if accounted, can make them equally expensive.

Fortunately, Pakistan does not face limitations of choice of technology, size, and fuels, and the typical medium to deliver the energy produced to end users. The world's energy market has taken a favorable turn, opening a historic window of opportunity for the country. However, to benefit from it, we will need to make a fundamental shift in the way we produce, deliver, and consume energy.

Pakistan must rethink its energy vision and reflect the new market realities and trends in its policies and plans. A continuation on the traditional path—centralised supply, transportation, and distribution systems, albeit at slightly more efficiently and with a small share of renewables—would be suicidal. Pakistan must make transition to distributed energy supply and delivery systems.

Pakistan's energy vision should build at least on the following strategic strands: (i) deploying sustainable technologies; (ii) shifting its transport to renewables-derived electricity; (iii) deploying energy storage technologies; (iv) producing alternative fuels from sustainable resources; (v) switching industrial processes to electricity wherever feasible; (vi) interconnecting its energy systems with those of its neighbors; (vii) promoting energy conservation and efficiency in every walk of life; and (vii) building a flexible, enabling, and resilient smart power grid.

When formulating policies, effort should be made to set a clear hierarchy among different policies, from top national down to local ones

Pakistan also needs to switch from its present "top-down" to a new "bottom-up" approach to energy planning and development. Our planners should strive to serve the future energy demand at its source, from a nearby location, or from the central system whichever proves feasible. This will avoid big capital outlays and operating costs otherwise required to keep excessive reserves, transportation systems, and excessive losses.

Transforming Pakistan's Power Sector: A Roadmap For Sustainable Energy Reforms

Distributed energy supplies, especially those based on renewable, will enhance the "security" of energy supplies by reducing risks of sabotage and terrorism generally associated with mega projects. These will also contribute to "sustainability" by virtue of their reliance on natural energy flows and technologies, skills, and support that can be developed in the country.

Pakistan must also critically review its energy sector policies. We have seen a streak of energy policies, introduced at regular intervals by successive governments mostly to attract private investment in power projects. But they failed to deliver and have led to serious unintended consequences like excess capacity, suppressed demand, runaway circular-debt, and high electricity tariffs.

Pakistan is passing through challenging times. No challenge however is superior to human ingenuity and capability. With challenges come hidden opportunities that need to be searched and discovered. Our leaders must look beyond the next general election and demonstrate wisdom, foresight, and sagacity to steer the nation using a clear and strategic vision along the lines suggested above and using a unified, cohesive, and holistic set of policies to realise that vision. ■

Govt eyes 3,400 closed CNG stations for EV charging

Israr Khan

With only eight operational electric vehicle charging stations and 94,000 electricity units consumed for EV charging over the past year, the government aims to expand its EV infrastructure by reducing electricity tariffs and repurposing 3,400 closed CNG stations as potential charging hubs.

The National Electric Power Regulatory Authority (NEPRA) reviewed a government proposal to lower the base electricity tariff for EV charging stations from Rs45.55 per unit to Rs23.57 per unit. The move is intended to attract investment to the sector.

However, NEPRA raised concerns about pricing controls and regulatory challenges, questioning how operators would be prevented from arbitrarily setting charging rates.

Currently, EV users pay up to Rs70 per unit for charging, which is financially unviable for many. Officials from the Power Division emphasized that reducing tariffs would encourage private sector investment in charging infrastructure. ■

Reviving Pakistan's Desert:

Innovative Irrigation and Rainwater Harvesting Techniques for Corporate Farming

Dr Basharat Hasan Bashir, Ph.D, P.E

Climate change mitigation and adaptation specialist

Pakistan's desert regions offer enormous potential for transforming barren land into productive, sustainable agricultural enterprises. Corporate farming, when combined with cutting-edge water management practices and indigenous adaptations, can help overcome the twin challenges of water scarcity and soil degradation. Drawing inspiration from successful examples in arid regions worldwide—including Israel's desert innovations—Pakistan can implement a suite of techniques tailored to its desert conditions.

Advanced Irrigation Strategies

- Drip Irrigation: This precision method delivers water directly to plant roots, minimizing evaporation and ensuring optimal nutrient delivery. Its efficiency in water conservation has been a key factor in making arid lands productive.
- Wastewater Recycling: By treating and reusing municipal or industrial effluent for irrigation, farms can secure an alternative water source, lessening the pressure on limited freshwater resources.
- Precision Agriculture: Integrating soil moisture sensors and data analytics enables real-time monitoring of water needs. This targeted application prevents waste and helps maintain optimal crop performance.
- Pitcher Irrigation: A low-tech solution already in use in parts of Pakistan's Thar Desert, this method involves burying porous clay pots near plant roots to release water slowly, offering a cost-effective means to sustain crops with minimal water loss.
- Evaporation Control: The use of organic mulches and shade nets reduces surface evaporation, helping maintain soil moisture even under intense desert heat.

Rainwater Harvesting Techniques for Desert Areas

Even in deserts where rainfall is sporadic, capturing and storing rainwater can dramatically improve water availability for agriculture. The following methods are well suited to arid environments:

- Liman Irrigation Systems: Inspired by techniques in Israel, a Liman involves constructing an earthen dam or check structure across a wadi (dry riverbed) to capture episodic floodwaters. By slowing the runoff, these structures allow water to infiltrate the soil, enhancing groundwater recharge and creating localized wet areas for planting drought-tolerant species.
- Micro-Catchment Bunding: This involves contour bunding around individual plants or small clusters to create small catchment basins. By concentrating runoff in a defined area, micro-catchments improve water infiltration and reduce evaporation losses, ensuring that even limited rainfall is effectively used.
- Check Dams and Diversion Structures: Small check dams built across ephemeral streams or wadis help slow down fast-flowing water, preventing soil erosion while promoting groundwater recharge. These structures can create a series of small ponds that gradually release water to the fields.
- Rainwater Harvesting Ponds (Tobas): Traditional depressions or man-made ponds—known locally as Tobas—can be excavated to capture and store rainwater. Properly designed with low-permeability linings and protected from excessive evaporation, these ponds serve as a reliable water reserve for irrigation during dry spells.
- Traditional Kunds: In some desert communities, Kunds (small, brick-lined cisterns) are used to store rainwater collected from natural catchments. Although primarily designed for domestic use, adaptations of Kund systems can support small-scale irrigation, particularly when integrated with modern maintenance practices.

By combining these advanced irrigation and rainwater harvesting techniques, corporate farming ventures in Pakistan's deserts can overcome water scarcity, boost crop yields, and ensure sustainable agricultural development. Adapting and integrating both high-tech and locally proven low-tech solutions creates a resilient strategy that leverages every drop of water—even in the harshest environments.

ENERGY NEWS

Mari Energies Limited 2nd Gas and Condensate Discovery at Spinwam-1 Well, Waziristan Block

Following our first hydrocarbon discovery in the Samanasuk formation at Spinwam-1 well, announced on February 25, 2025, MariEnergies is pleased to share yet another milestone—our second gas/condensate discovery in the same well in Kawagarh Formation of the Waziristan Block, KP Province. The Post-Acid Testing Results has shown a flow of 20.485 MMSCFD of gas & 117 bbl/day of condensate at 32/64" choke.

This achievement aligns with our commitment to bridging Pakistan's energy gap using domestic resources while strengthening the country's hydrocarbon reserves. Further testing and evaluations are underway which includes testing of additional targeted formations to fully evaluate the well's potential.

OGDCL Announces Gas and Condensate Discovery at Soghri North-1 Well in Attock

OGDCL has announced a significant Gas and Condensate discovery at its Soghri North-1 well in the Soghri Block, located in the Attock district of Punjab. OGDCL is the sole of the Soghri Exploration License, with a 100% working interest.

The Soghri North-1 well was spudded on May 21, 2024, as part of OGDCL's ongoing commitment to exploring Pakistan's hydrocarbon potential. The well is producing 13.95 Million Standard Cubic Feet per Day (MMSCFD) of gas along with 430 Barrels per Day (BPD) of condensate. The gas and condensate discovery is a testament to OGDCL's technical expertise and unwavering commitment to reducing Pakistan's reliance on imported energy resources.

Miftah Ismail Questions Awais Leghari's Claims on Net Metering Losses

Former Finance Minister Miftah Ismail has responded to Energy Minister Awais Leghari's claim that net metering causes losses of Rs 150 billion to power distribution companies (DISCOs). In a detailed statement, Ismail expressed confusion over the figures presented by Leghari, challenging the rationale behind reducing net metering incentives while ignoring the larger issue of transmission and distribution (T&D) losses.

"You say DISCOs lose Rs 150 billion due to net metering. However, last year, they purchased only 1,269 GWh from solar consumers, which at Rs 27 per unit amounts to Rs 34.3 billion—not as payments to consumers but as a reduction in their electricity bills," he stated. Ismail pointed out that this figure represents less than 1% of the total units purchased by DISCOs and only 5% of the 24,020 GWh lost during distribution.

He criticized the government for focusing on reducing payments for green energy rather than addressing distribution losses, which he claimed are 20 times higher than the solar power purchased. "Can you tell us how much in T&D losses the DISCOs incur annually beyond what NEPRA allows? And has there been any improvement?" he asked.

Ismail further argued that the actual cost of purchasing solar power for this year would not exceed Rs 50 billion. "This Rs 50 billion is not a net loss, as DISCOs will receive 1,850 GWh in return, which they can resell," he said, urging Leghari to re-evaluate the Rs 150 billion loss claim. He also criticized the government's decision to stop purchasing solar power at Rs 27 per unit from new consumers while continuing the same rate for older ones. "This means the wealthier households who adopted solar early will benefit, while the middle class, now turning to solar to escape high electricity bills, will be at a disadvantage," he remarked. Calling for fairness, he suggested that all consumers—old and new—should receive the same Rs 27 per unit rate.

Citing regional disparities, Ismail highlighted that last year, IESCO had over 34,000 solar meter consumers, while Sukkur, Quetta, and FATA's DISCOs had fewer than 200 combined. He urged the government to ensure equitable policies across all regions.

Raising concerns over electricity pricing, he questioned why the government is buying power from new solar consumers at just Rs 10 per unit while selling electricity at Rs 48.8 per unit (plus taxes). "Is this fair? Why can India, Bangladesh, and Sri Lanka sell power at much lower rates than Pakistan? If we have excess capacity, why is the government not pricing electricity closer to its marginal production cost?" he asked.

Finally, he demanded answers regarding the impact of renegotiated Independent Power Producer (IPP) contracts. "We heard that the government successfully reduced or ended many IPP agreements, which was supposed to save consumers a lot of money. So why haven't we seen any reduction in our power bills?" he questioned. Ismail's remarks come amid growing concerns over rising electricity tariffs and the government's handling of the energy crisis. His statement underscores the need for a transparent and equitable approach to energy pricing and net metering policies.

Meritless appointments threaten future of Pakistan's largest gas utility

The government's recent appointments to the Board of Directors of Sui Northern Gas Pipelines Ltd. (SNGPL) completely disregard the principle of merit, jeopardizing the efficient functioning, sustainability, and growth of the gas utility.

In a recent podcast with famous host Sohail Iqbal Bhatti, senior journalist Syed Khalid Mustafa brought to light critical concerns regarding the appointments made by the government to the Board of Directors of SNGPL, Pakistan's largest gas utility. Mustafa asserts that these appointments lack merit, ultimately hindering SNGPL's ability to fulfill its fundamental charter and objectives without incurring further financial deficits. Mustafa, who has a deep understanding of Pakistan's energy sector, criticized key appointments as emblematic of elite capture and conflicts of interest. He highlighted the appointment of Ismail Qureshi, a retired bureaucrat and former secretary in the federal government's Establishment and Power divisions, as the Chairman of SNGPL. Mustafa noted that Qureshi, lacking any relevant experience in the gas sector, secured this lucrative position due to his connections with a politically influential family during the past tenure of Sardar Ayaz Sadiq as the Federal Minister for Economic Affairs.

The journalist continued to unveil a pattern of questionable appointments, citing Sardar Saadat Ali Khan, a former SNGPL general manager, who was elected to the board through connections with Najam Sethi, a prominent political analyst and former chairman of the Pakistan Cricket Board. Another board member, Faaria Rehman Salahuddin, is linked to notable social figure Yousuf Salahuddin, while Arif Saeed, CEO of Service Industries Limited, was appointed due to his ties with the ruling Pakistan Muslim League (Nawaz). Additionally, Osman Saifullah Khan, son of businessman Anwar Saifullah, who has stakes in the oil and gas sector, is part of the board despite the evident need for qualified professionals.

Mustafa urgently called on Prime Minister Shehbaz Sharif to realign the appointment process for public sector companies, including SNGPL, based on merit rather than political connections. He urged the Prime Minister to scrutinize the management and financial dealings of SNGPL, emphasizing that merit-based selections could lead to significant improvements for these state-owned enterprises.

Moreover, Mustafa appealed to the Oil and Gas Regulatory Authority to take heed of the imbalance in board appointments and suggested that a representative from oil and gas exploration and production companies should be included on the SNGPL board to enhance oversight of decision-making processes. With SNGPL facing a staggering Rs 1.5 trillion debt owed to E&P companies, he cautioned that the financial plight of the gas utility should not result in consumer exploitation due to mismanagement and a lack of qualified leadership.

In a climate where appointing capable leaders can determine the fate of essential services, Mustafa's revelations serve as a stark reminder of the pressing need for reform in the governance of Pakistan's energy sector. ■

PSA, Energy Update sign MoU to jointly hold events to promote Pakistan's solar industry

The Pakistan Solar Association (PSA) and Energy Update (EU) have signed a memorandum of understanding to jointly organise events aimed at promoting renewable power sources in the country.

The MoU will enable the PSA to act as a partner of the Energy Update to help it organise its forthcoming event, the 2nd International Solar Conclave and Technology Excellence Awards-2025. The two entities will collaborate to promote Pakistan's solar energy sector. The PSA will utilise its networks and channels to promote the EU's upcoming event aimed at discussing issues faced by Pakistan's clean energy industry and celebrating the show of technological excellence by the solar companies. The PSA will also extend a helping hand to the EU in sponsoring and marketing the event. The PSA will promote the forthcoming EU through its website, social media accounts, and newsletters. The PSA will encourage its members to participate in the event and other forthcoming EU activities aimed at promoting renewable sources in the country.

The MoU was signed by PSA Chairman Waqas Moosa and EU Managing Editor Naeem Qureshi. Also present on the occasion were EU's Chief Marketing Officer, Nadeem Ashraf, Head of Accounts and Administration, Ruqiya Naeem, and Manager of Marketing and Promotions, Mustafa Tahir. ■

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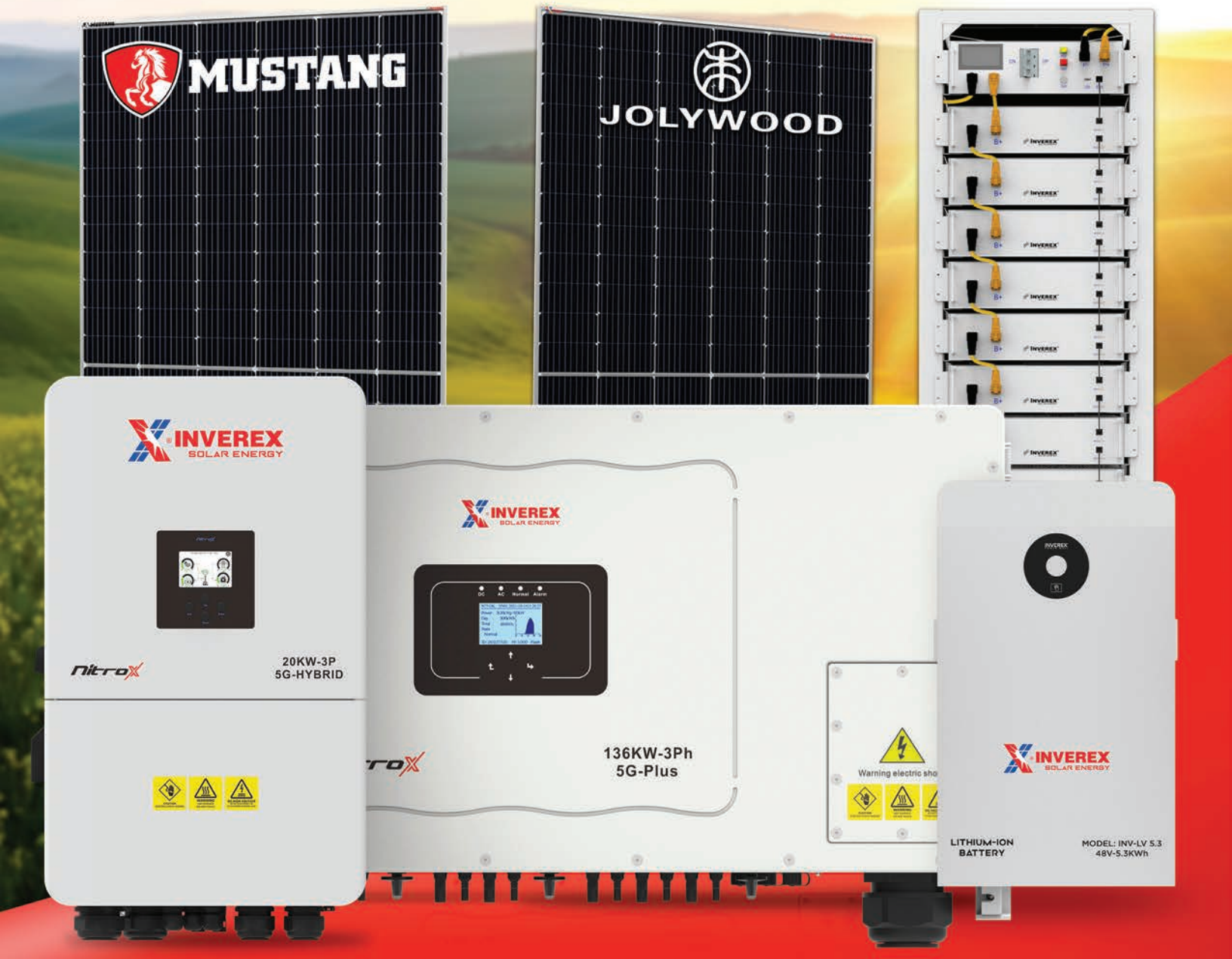

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