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ENERGY UPDATE

SPECIAL EDITION ON 18th ANNIVERSARY

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FROM THE Editor's desk...

New era of Pak-Iran friendship

With the historical visit of Iranian President Ebrahim Raisi, a landscape of new and revolutionary trade between Iran and Pakistan have emerged, reflecting a renewed commitment to strengthen bilateral relations.

Both countries have agreed to expeditiously finalize a Free Trade Agreement (FTA) and enhance mutual interaction through regular exchange of high-level visits. In the first phase, the FTA aims to boost bilateral trade to a remarkable \$10 billion over the next five years. This is indeed a revolutionary development between the two countries.

The most needed and importance thing is that they have vowed to boost cooperation in the energy domain, including trade in electricity, power transmission lines and Iran-Pakistan Gas Pipeline Project. Iran and Pakistan also agreed on a number of steps aimed at combating terrorism. Both sides signed eight agreements that will help revive Pakistan's economy and create a soft image of the country in the international arena.

The Iran-Pakistan Gas Pipeline Project, also known as the Peace Pipeline, has been under discussion for many years and has faced various challenges and delays. In February, the outgoing caretaker government in Pakistan approved the construction of an 80km section of the pipeline, primarily to avoid the payment of billions of dollars in penalties to Iran due to years of delays. As both countries have vowed to construct pipeline as soon as possible, this will help avert gas crisis in the country. With completion of this pipeline, industries running on gas will boost up their production and household people get rid of the gas load shedding. A new era of prosperity will start.

The worrying thing is that US has warned that Pakistan could face US trade sanctions, saying it does not support the pipeline going forward. It also said that more trade sanctions could be imposed against Pakistan if both countries begins trade.

The pipeline is designed to stretch approximately 1,100 miles from Iran's South Pars gas field to the border with Pakistan. From there, it would extend into Pakistan's Balochistan and Sindh provinces, ultimately reaching consumers in various parts of the country.

Overall, the Iran-Pakistan Gas Pipeline Project holds significant potential for meeting Pakistan's energy needs and enhancing regional cooperation, but its successful implementation depends on overcoming various obstacles and maintaining political will on both sides. One significant development is the advancement of economic cooperation, with discussions focusing on increasing trade volume and exploring new avenues for investment. Both sides expressed their commitment to removing barriers to trade and promoting economic growth.

Energy cooperation also featured prominently, with discussions on potential collaborations in the energy sector, including projects related to oil, gas, and electricity. Both countries recognize the importance of energy cooperation for their respective economies and emphasized the need for continued collaboration in this area.

Security cooperation was another key aspect of the discussions, with both countries pledging to work together to address common security challenges, including border security and counterterrorism efforts. Enhancing security cooperation is essential for maintaining stability in the region and combating shared threats effectively.

Overall, the visit of the Iranian President has laid the foundation for a new chapter in Iran-Pakistan relations, characterized by increased cooperation and collaboration across various sectors. Both countries are committed to building stronger ties for the benefit of their peoples and the wider region.



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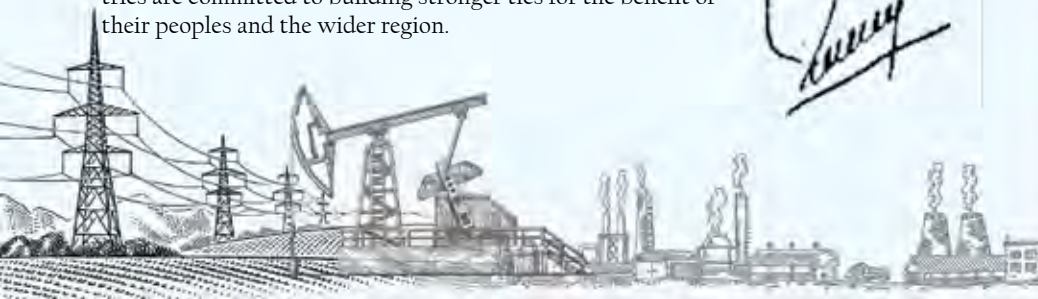
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MESSAGES & FELICITATIONS

Kamran Khan Tessori

Governor Sindh

I am immensely pleased to know that the Monthly Energy Update is celebrating in May 2024 the 18th anniversary of its publication. I am glad to know that the Energy Update to this date is the only print media publication in Pakistan exclusively dedicated to covering Pakistan's power and energy sectors. The editorial team of the Energy Update deserves applause for continuously publishing news, articles, analysis, and research findings on Pakistan's energy crisis. I am also happy to know that in all these years, the Energy Update has organised several seminars, conferences, and roundtables on various aspects of conventional and renewable sources of energy abundantly available in our motherland. In this manner, the Energy Update has been acting as a vibrant forum to thoroughly discuss Pakistan's energy crises and present their possible solutions. I am also glad to know that Energy Update has fully branched out into social and digital media to provide instant updates about the power sector in Pakistan and the rest of the world. Print publications like Energy Update must have a strong presence on the Internet and social media for survival, and growth, and remaining relevant in the present age of the fastest communications. I am further pleased to know that Energy Update, through its editorial content and conferences, has been fully supporting the drive of the present government to ensure maximum utilisation of Pakistan's renewable energy sources that are available in abundance. The full exploitation of Pakistan's clean energy potential could ensure a reduction in power tariffs and the supply of uninterrupted electricity to consumers in the residential, commercial, and industrial sectors. The present government and the relevant agencies, including the Special Investment Facilitation Council, have been doing their best to ensure that businessmen, industrialists, and foreign investors get an uninterrupted supply of energy for running new industries and business ventures in the country. I am glad that the Energy Update stands shoulder-to-shoulder with the government in these efforts.



I wish Energy Update more success in the years to come.

Syed Murad Ali Shah

Chief Minister Sindh

I would like to warmly congratulate the editorial team of the Monthly 'Energy Update' on the completion of the 18th year of its publication.

I am immensely pleased to know that 'Energy Update' is the only monthly print publication in Pakistan dedicated to covering the energy sector, operating from the capital city of Sindh- an energy-rich province of Pakistan and the host to the country's only wind corridor. However, we do need more such specialised publications focusing on the issues of energy in Pakistan.

The Government of Sindh has been fully committed to utilising the abundant energy resources of the province and has been making all-out efforts to tap both, conventional and clean energy resources to maximize output and benefit the consumers. The maximum utilisation of the province's energy resources could ensure uninterrupted electricity at the most inexpensive rates to the power consumers not only in Sindh but across the country. Hectic efforts are on to tap the vast clean energy resource in the form of solar power to benefit power consumers belonging to low-income groups in the province as per the election manifesto of the Pakistan Peoples Party.

The Sindh government in pursuance of this mission joined hands with the private sector to undertake the historic project of extracting vast reserves of coal in Thar for massive electricity production. The government of Sindh also established, in a first, a provincial Transmission and Dispatch Company in the country. Now a separate power regulatory authority is being established in Sindh in line with the 18th Constitutional Amendment following passage of a bill to this effect by the Sindh Assembly last year.

I would like to conclude by commending the Energy Update for achieving this milestone and praying for its continuous success.

Thank you.



Shah Jahan Mirza

Managing Director, PPIB

I am immensely pleased to learn that the Monthly Energy Update is celebrating 18th anniversary of its publication in May 2024. To my knowledge, the Energy Update to this date is the only print media publication in Pakistan exclusively dedicated to covering Pakistan's power and energy sectors. The editorial team of the Energy Update deserves applause for continuously publishing news, articles, analysis, and research findings on Pakistan's energy issues and possible solutions and disseminating its awareness amongst the masses. It is also heartening that in all these years, the Energy Update has organized several seminars, conferences, and roundtables on various aspects of conventional and renewable sources of energy abundantly available in our motherland. I am further pleased to know that Energy Update, through its editorial content and conferences, has been fully supporting the drive of the government to ensure maximum utilization of Pakistan's renewable energy sources and reduce greenhouse gases emissions.



In the backdrop of climate change and Sustainable Development Goals, a strong consideration is now being given for alternative sources of energy, which are clean, green, renewable and sustainable; hence better suit the global future. Today, the energy sources like wind, solar, biomass, hydro and geothermal etc. are not only deemed as indispensable for the ecological safety, rather technologies transforming these sources into energy modes have become cost competitive and in some cases the cheapest sources of energy. The Government of Pakistan (GoP) is maintaining its efforts to increase the share of clean and green power generation in order to achieve the policy objectives of affordability, energy security, self-reliance, transparency and sustainability. The Government of Pakistan has set the target of achieving 60 – 62 % share of its generation capacity through indigenous clean energy technologies by 2030.

Energy Update has been playing a vital role in spreading information about the efforts of the Government and PPIB for improvement of the energy sector. It is imperative that the private sector remains up to date with the policies and plans being adopted by the Government/PPIB towards energy transition and transformation so that the initiatives taken by the private sector are aligned with the Government's plans. Energy Update can serve as the platform for policy makers, practitioners, academia, industries and investors to discuss the challenges and barriers that need to be addressed in order to make the transition towards a clean and green future.

I wish Energy Update more success in the years to come.

Syed Nasir Hussain Shah

Sindh Minister Energy

I warmly greet the editorial management of the Energy Update on the 18th anniversary of its publication. I am glad to know that this print publication, exclusively dedicated to covering Pakistan's and international energy sectors, has been constantly publishing every month for the past 18 years. I am further pleased to note that in all these years, the Energy Update has remained steadfast in supporting the drive of the Sindh government to fully exploit both conventional and renewable energy sources abundantly available in the province for electricity production to benefit the entire country. The present Sindh government has the fullest resolve to ensure maximum utilisation of clean energy sources, especially solar power, for the provision of up to 300 units of free electricity to consumers from low-income groups, as per the latest election manifesto of the Pakistan Peoples Party. The Sindh government has planned to provide solar systems to energise 500,000 destitute households in hilly, riverine, and desert areas in the province that are without electricity. I feel immense satisfaction that Energy Update, being an important stakeholder in the energy sector, is going to lend its fullest support to the Sindh government's drive to serve the underprivileged communities in the province. The Sindh government, in line with the 18th Constitutional Amendment, has already established Pakistan's first provincial transmission and dispatch company, and it will also soon set up a province-wise power sector regulator. Sindh's own power sector regulator will go a long way in encouraging the private sector to launch clean energy projects to energise industries through a provincial grid system. I am pleased to mention that the earlier Energy Update fully supported the project to extract vast coal reserves in Thar for massive electricity production in the country.



I hope that the Energy Update will continue to support the government in its drive to ensure uninterrupted supply of electricity to power consumers at the most affordable rates. I pray for the further success of this sincere publication.

Masroor Khan

Chairman OGRA

I am pleased that Energy-update is celebrating its 18th anniversary and is about to publish its special edition and I congratulate the Energy Update team for playing their part through contribution of technological knowledge with its peers and energy experts in the field. This magazine/effort has



been bringing technologically innovative knowledge in the market and creating positive discourse among the industry professionals. Energy-update is a renowned magazine launched in May 2006 and it has maintained its reputation as voice of the energy industry, power, and environment.

The Oil and Gas Regulatory Authority (OGRA) supports such initiatives and wants that a link between energy, development and awareness may be created to achieve common goal of contributing towards societal and economic development objectives of the country and being a head of an organization, which regulates more than two third of country's energy sector and fuels the engine of the economy in the development of our country, I appreciate the efforts of Energy-update team.

Pakistan is currently facing multi-faceted challenges which include safety/ security, economic constraints, floods, viruses, and environmental issues including pandemic disease etc. Therefore, we as nation must stand tall to face these challenges collectively as one firm community aligned to our shared values and committed to our shared future. In that process the initiatives like Energy-update play vital role on the education of stakeholders to understand challenges.

With limited resources OGRA has shown resilience and maintained its reputation as top regulator of the country. Behind the results achieved are the day-to-day stories and determination of the millions of people with whom OGRA works. Most important, through all the challenges, our culture — as created and sustained by each of our colleagues — is revealed to be our greatest strength.

Dr. Sardar Mohazzam

Managing Director

National Energy Efficiency and Conservation Authority (NEECA)

Dear Esteemed Readers,

I am honored to address the valuable readers of "Energy Update" – a leading magazine covering the energy sector of Pakistan and committed to promoting energy efficiency, its conservation, and sustainability in Pakistan, I extend my warmest greetings to Energy Update magazine on their 18th anniversary.



Energy efficiency stands at the forefront of our nation's efforts to address pressing challenges such as energy waste, climate change, energy security, and economic development. With over 36% of Pakistan's total final energy consumption attributed to the industrial sector alone, the imperative for efficiency improvements cannot be overstated. NEECA recognizes this urgency and is dedicated to catalyzing transformative change across all sectors of the economy.

In pursuit of a more sustainable future for the energy sector of Pakistan, NEECA collaborates closely with industry stakeholders, policymakers, and communities to promote a culture of energy efficiency. Through initiatives and actions chalked in the NEEC Action Plan 2023-2027; such as the implementation of the Energy Conservation Building Code (ECBC-2023), Energy Labelling Regulations for efficient electrical appliances, the promotion of ESCO market, innovative Financing mechanisms, and the adoption of best practices in industrial processes. These efforts are not only reducing energy costs for consumers but also enhancing competitiveness, improving air quality, and creating green jobs.

However, our journey towards energy efficiency and conservation is far from over. We must continue to innovate, educate, and empower individuals and organizations to embrace energy-efficient technologies and practices. Together, we can build a brighter, more sustainable future for generations to come.

As we navigate the complexities of the energy landscape, let us remain steadfast in our commitment to sustainability, resilience, and progress. NEECA is striving to make Pakistan a beacon of energy efficiency excellence on the global stage and welcomes the readers of Energy Update to collaborate with NEECA on this noble endeavor.

Thank you for your unwavering support and dedication to the cause of energy efficiency.

Amir Iqbal

CEO, SECMC

Sustainable and affordable energy is the foundation of spurring economic growth for Pakistan. Challenges such as circular debt and over-reliance on imported fuels continue to strangle the country's power sector and plunge us further into an energy and economic crisis.

For that, SECMC is at the forefront of providing an indigenous and cheap source of energy through Thar Coal. We are committed to the national cause and to play our part in the economic prosperity and energy security of the country.

I would like to highlight and appreciate the role that Energy Update has played in documenting the challenges and concerns we face and for gathering the valuable opinions of thought leaders and change makers and become a voice of the energy industry.

I would also like to congratulate Energy Update on the launch of their 18th edition of the annual magazine.



Mian Fahad

Country Head Growatt

Happy 18th Anniversary!

As an energy expert, I've witnessed the transformative power of knowledge and innovation in our field. For over a decade, Energy Magazine has been our guiding light—a beacon of wisdom, research, and healing. It's where science converges with intuition, and practitioners connect with learners.

In these pages, we've explored the quantum dance of electrons, harnessed the sun's warmth, and delved into the mysteries of energy medicine. We've celebrated breakthroughs and honored ancient wisdom. But most importantly, we've built a vibrant community—one that thrives on curiosity, compassion, and collaboration.

As we step into our 18th year, let's continue to illuminate minds, heal hearts, and ignite change. Here's to the next chapter of growth, discovery, and shared energy.



Ali Majid

General Manager Pakistan / MEA & Central Asia
DG Business Group . LONGi Solar

Congratulations on Energy Update Magazine's 18th anniversary! LONGi Solar applauds your steadfast dedication to delivering insightful content amidst the challenges posed by climate change. As GM Pakistan, I take immense pride in our enduring association and eagerly anticipate future collaborations aimed at advancing sustainable energy solutions. Your contributions are invaluable in shaping the discourse and driving positive change in the energy sector. Here's to continued success and impactful endeavors ahead!



Engr. Mehfooz Kazi,

Director Solar Projects, Government of Sindh

I warmly greet the editorial management of the Energy Update on the 18th anniversary of its publication. It is, a matter of pride for us that this magazine is exclusively dedicated to covering Pakistan's and international energy sectors developments, innovations and technologies. It is published regularly and is a content source of sectorial updates. We are pleased to note that in all these 18 years life, the Energy Update has remained steadfast in supporting the drive of the Sindh government to fully exploit renewable energy sources abundantly available in the province for electricity production to benefit the entire country. The Energy Department, Sindh is ensuring maximum utilization of clean energy sources, especially solar power, for access energy at affordable prize. The Sindh government has planned to provide solar systems to energies 500,000 destitute households in hilly, riverine, and desert areas in the province that are without electricity. I feel immense pleasure that Energy Update, being an important stakeholder in the energy sector, is going to lend its fullest support to the Energy Department drive to serve the under-privileged communities in the province.

I pray success for the entire team of Energy Update in their future endeavors.



Tiger Yan

Regional Sales Director
Solax Power

Happy 18th Anniversary! Eighteen years of dedication, innovation, and excellence. Here's to the remarkable journey we've traveled together, filled with countless achievements and cherished memories. As we celebrate this milestone, let's reflect on the challenges we've overcome, the growth we've experienced, and the bonds we've forged. Thank you to our loyal readers, contributors, and partners for your unwavering support throughout the years. Together, we've written a story of resilience, creativity, and success. Over the past 18 years, we have witnessed the growth trajectory of Pakistan's solar photovoltaic industry. And then we have observed the journey of SolaX from market entry to flourishing prominence. I aspire to be a steadfast partner, collaborating diligently towards Pakistan's green and low-carbon future.



Zakir Ali

CEO, Inverex Solar Energy

Congratulations to Energy Update Magazine on its 18th Anniversary! At Inverex Solar Energy, we are committed to accelerating the adoption of solar technology for a sustainable and conflict-free power supply. We believe solar is a mainstream, viable technology today, driving us towards zero-emission power.

At Inverex, we provide high-value solutions built on a strong foundation in photovoltaics and a commitment to innovation. Our goal is to break the bonds of fuel-powered grids and join the green power revolution. We empower customers to become educated energy producers and consumers, offering seamless solutions from design to installation and monitoring. Our focus is on helping clients define their goals, evaluate options, and make informed decisions for a better, energy-efficient life.



Saleem Diwan

CEO, Diwan International

Congratulations to the Energy Update team, particularly Naeem bhai and Mustafa, on the 18th anniversary of Energy Update Magazine. Your relentless commitment to promoting solar energy is admirable and has significantly influenced the industry. Your dedication has not gone unnoticed and is sincerely appreciated. Keep up the outstanding work!



Muhammad Haris

CEO, Tariq Electric Pvt Ltd.

Hearty felicitations on reaching your 18th corporate milestone! I'm thrilled to witness the remarkable growth of your magazine, staying abreast of industry dynamics. It's truly inspiring to observe Energy Update, with its extensive reach, keeping us abreast of industry developments and your steadfast presence is greatly valued. Keep forging ahead with your diligent efforts and revel in the fruits of your well-earned success.



Muhammad Farhan

Founder, Pakistan Solar Association

Warm congratulations on your 18th anniversary! Your commitment to covering the energy sector's developments and innovations has been exceptional. Through your insightful articles and comprehensive reporting, you've been a cornerstone of information and progress in the industry. Here's to many more years of success, impact, and collaboration in advancing sustainable energy solutions. Best wishes from the Pakistan Solar Association and myself for continued excellence.



Mr. Robin Xing

Managing Director
Huawei Fusion Solar

Congratulations on reaching this significant milestone of your 18th anniversary! Your dedication to providing insightful coverage and analysis in the energy sector has been commendable. Through your efforts, you have played a pivotal role in keeping stakeholders informed and driving discussions on sustainable energy solutions. Huawei Fusion Solar applauds your commitment to excellence and wishes you continued success in your mission to empower the energy industry with knowledge and innovation.



Mohammad Naeem Qureshi

Managing Editor Energy Update

“This month we celebrate a major milestone - 18 incredible years of Energy Update magazine! On behalf EU I want to express my heartfelt gratitude to our loyal advertisers, sponsors of our Energy event, our writers, dedicated readers, and the hardworking team at Energy Update. Your unwavering support, trust, and contributions have been instrumental in our success. We couldn't have done it without you! Thank you for being an integral part of our journey. Here's to many more years of illuminating the energy industry together!”
I look forward your support in future



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We're proud to have been a part of the energy industry's journey and look forward to many more years together.

Here's to 18 years strong and many more to come!

Iran-Pakistan pipeline: a much-needed lifeline

Calling the energy crisis in Pakistan the mother of all crises is not an exaggeration

Faraz Ahmed

The writer is a financial market enthusiast and is attached to Pakistan's stocks, commodities and emerging technology

Calling the energy crisis in Pakistan the mother of all crises is not an exaggeration by any stretch. I have iterated the deteriorating effect of the crisis on all factions of society in previous articles as ignoring this elephant in the room is not something we, as a nation, can afford anymore. At the heart of this crisis is the rapid depletion of the country's energy resources, coupled with a glaring lack of further exploration and development. Pakistan's heavy reliance on finite energy sources, primarily natural gas and oil, has created a precarious imbalance between supply and demand.

It is indeed an unfortunate state of affairs for a country neighbouring Iran, which holds the world's second-largest gas reserves, amounting to 33 trillion cubic metres, second only to Russia. However, to tap this resource, we need a balance of courage and determination on the political side and delicate craftsmanship on the foreign policy front. Unfortunately, the Pakistan Democratic Movement (PDM) leadership threw the towel from the onset during its PDM 1.0 tenure when Prime Minister Shehbaz Sharif declared that "Beggars can't be choosers!". This resignation to fate meant that we gave up on this issue before even trying, as highlighted by the US Assistant Secretary of State for South and Central Asia, Donal Lu, in the recent congressional hearing.

He informed the committee members that Pakistan did not even approach the US for a waiver to build the pipeline with Iran.

As an alternative, we have been given another pipeline option in the past – the Turkmenistan-Afghanistan-Pakistan-India (TAPI) – originating from Turkmenistan, which is even more geopolitically complicated as the majority portion of this pipeline will pass through Afghanistan, a region fast becoming the most volatile and hostile. Additionally, the TAPI pipeline traverses challenging terrain, including mountainous regions and potentially seismic areas, which could pose technical and logistical challenges during construction and operation. These challenges could lead to delays and cost overruns, further complicating the project's viability.

The Iran-Pakistan gas pipeline project offers several long-term benefits to Pakistan that could significantly impact its economy, energy security, and regional relations. Firstly, the pipeline can provide a stable and reliable source of natural gas, helping to meet the country's growing energy demands. This would reduce the country's reliance on more volatile and less efficient imported fuels, such as coal, oil, and liquefied natural gas (LNG), and help stabilise energy prices, benefiting consumers and industries alike.

Secondly, the pipeline project could better Pakistan's economic ties with Iran, leading to increased trade and investment opportunities. The project can act as a major confidence-building step, especially in the backdrop of a recent unfortunate flare-up in the security situation in the region bordering both countries. The project could also pave way for further regional cooperation, potentially opening up new markets

for Pakistani goods and services.

Additionally, it holds the promise to strengthen Pakistan's energy security by diversifying its sources of energy. This would reduce the country's vulnerability to supply disruptions and geopolitical pressures, enhancing its overall energy resilience.

Overall, the Iran-Pakistan gas pipeline project has the potential to significantly contribute to Pakistan's economic development, energy security, and regional cooperation, making it a crucial component of the country's long-term energy strategy. However, so far, the government's response to such a critical infrastructure project, aimed at securing the future energy supply, remains very ambiguous and conflicting.

On one hand, our foreign ministry spokesperson told Voice of America (VoA) recently that we do not need a US waiver to build a pipeline within our territory, on the other hand, we have done nothing yet to build the 80 kilometres segment of the pipeline, as agreed upon by the interim government. This inaction took place despite the deadline being September 2024 which can help avoid \$18 billion in fines and penalties. Notably, in a recent statement from the Minister of Petroleum Musadiq Malik it seems that finally, the government has decided to approach the US government for the much-needed waiver.

Moreover, the recent letter by US President Joe Biden to PM Shehbaz Sharif after years of silence gives some hope for a potential softening of Washington's stance on Pakistan. This certainly opens a window of opportunity to get the waiver passed through the House by comprehensively presenting the case for the project through effective lobbying. ■



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PPIB role in renewable energy

Shah Jahan Mirza

Writer is Managing Director PPIB

The Private Power & Infrastructure Board (PPIB) was established in 1994 as a one-window facilitator on behalf of the Government of Pakistan (GoP) to promote private investment in the power sector of Pakistan. Since its inception, PPIB has consistently remained a frontrunner institution in Pakistan's power sector. Recognizing the performance and success of PPIB, the government, on the advice of multilateral organizations, merged the Alternate Energy Development Board (AEDB) into PPIB last year in order to transform it into a true one-window facilitator for all investors in the private sector.

PPIB has achieved unprecedented success by facilitating the commissioning of one hundred (100) multi-fuel-based Independent Power Producers (IPPs) with a cumulative capacity of around 25,000 MW, in addition to a mega +600 kV HVDC Matiari-Lahore transmission line project. The power generation projects implemented through PPIB utilize multiple technologies, including hydel, wind, solar, bagasse, imported and local coal, gas/RLNG, and RFO. The materialization of local and foreign direct investment (FDI) of around US\$ 33 billion through private sector investments places PPIB in a unique position among power sector organizations in Pakistan.

PPIB also serves as the coordinator for power sector activities under the China Pakistan Economic Corridor (CPEC) and leads the Energy Planning Experts' Panel (EPEP) of the CPEC. To date, IPPs with a capacity of 8,020 MW have been commissioned under the CPEC regime, while another set of projects with a capacity of 5,028 MW is currently at various

stages of development.

As Pakistan strides towards a future goal of sustainable power sector and energy security, the spotlight turns to a diverse array of renewable energy sources, including hydropower, wind, solar, and bagasse. These resources collectively emerge as pillars of hope in Pakistan's quest for a greener and more resilient energy landscape. With its favorable geographical location and abundant natural resources, Pakistan holds significant potential for renewable energy. It boasts over 64,000 MW of hydro resources, abundant sunny days promising a potential of up to 2.9 million MW of solar energy, a lengthy and windy coastal strip offering an inexhaustible supply of wind power reaching up to 132,000 MW, and the huge 175 billion-ton Thar Coal Reserve providing a cost-effective and indigenous fuel option for base load power generation for decades to come. The GoP has embarked upon harnessing all these resources to curb country's greenhouse gas emissions by 2030. Renewable energy not only contributes to affordable electricity nationwide and stabilizes energy prices in the long run but also aligns with the sustainable development goals of the United Nations, particularly SDG 7, by promoting access to clean energy, alleviating poverty, addressing climate change, and ensuring access to affordable, reliable, sustainable, and modern energy for all. Regarding coal-based projects, the GoP/PPIB is fully cognizant of the climate change agenda, hence, all such projects have been developed in strict compliance to the international environmental standards set by the World Bank/IFC.

PPIB, being a policy implementing agency of GOP, also has a strong focus on development of clean and indigenous power generation sources. In this context, PPIB is facilitating the installation of private sector power plants inter alia based on hydropower, solar, wind and Bagasse. Current portfolio of PPIB for renewable energy technologies is as under:

GOP has set an ambitious target to optimize the share of renewables. Pursuant to IGCEP 2022-

31, the proposed share from renewable energy resources is 12,926 MW for Solar and 6,767 MW for Wind, while the share of hydropower in the national energy mix will be increased from 25% to 33% (i.e., from 10,847 MW to 22,701 MW). These figures indicate that the total share of clean and green energy in domestic installed capacity is targeted to be optimized up to 62% by 2031. This underscores Pakistan's commitment to transitioning towards a more sustainable and diversified energy mix, reducing reliance on fossil fuels, and mitigating the impacts of climate change. As a first step in this direction, 1,200-2,400 MW Solar Power Projects are planned to be implemented under the substitution plan.

PPIB is currently operating within various policy frameworks, including the National Electricity Policy (NEP) 2021, Power Generation Policy 2015, Transmission Line Policy 2015, Alternative and Renewable Energy (ARE) Policy 2019, Framework Guidelines for Fast-Track Solar PV Initiatives 2022, NEPRA (Alternative & Renewable Energy) Distributed Generation, Net Metering Regulations 2015, and AEDB (Certification) Regulations.

NEP 2021 visions to ensure universal access of electricity through a self-sustainable power sector, developed and premised on:

- optimal utilization of indigenous resources;
- integrated planning approach; efficient, liquid and competitive market design; and affordable & environment friendly outcome for the consumers.

In light of NEP 2021, NEPRA has introduced IGCEP, NEPRA (Electric Power Procurement) Regulations, 2022 for their implementation by relevant entities as per the assigned mandate. PPIB is observing IGCEP, and entering into the role of IAA in relation with the CTBCM.

Similarly, the ARE Policy 2019 is designed to create a conducive environment and a robust framework for the sustainable

growth of the ARE sector in Pakistan. The Framework Guidelines for Fast-Track Solar PV Initiatives 2022 have been launched to address the impact of high international oil and LNG prices on electricity tariffs and foreign exchange reserves. These initiatives include the substitution of expensive imported fossil fuels with solar PV energy, solar PV generation on 11 kV feeders, and the solarization of public buildings. Government has already started an initiative to streamline and align all these policies to achieve goals and target set by National Electricity Plan 2023.

In addition to large-scale RE projects, the GOP encourages the adoption of renewable energy technology at the consumer level across domestic, commercial, and industrial sectors. PPIB promotes renewable energy-based net-metering deployments under the NEPRA (Alternative & Renewable Energy) Distributed Generation and Net Metering Regulations, 2015. PPIB is also involved in certifying service providers, vendors, and installers of solar systems under the AEDB (Certification) Regulations. This certification process aims to facilitate consumers and Distribution Companies (DISCOs) while ensuring the quality of installed equipment/systems and provision of quality after sales services. The regulations were revised in August 2021 to simplify procedures in alignment with the government's vision of 'Ease of Doing Business. Encouraging statistics reveal that as of March 2024, the number of net-metering-based solar installations has reached up to 117,807, with a cumulative capacity of 1,822 MW, while the number of active AEDB certified installers has surpassed 400.

Investment in hydropower projects by the private sector has been attracted from both foreign and local investors by policy incentives, such as those offered in the 2002 and 2015 power policies. However, the perception of sufficient and to some extent surplus capacities has slowed down the progress on LOIs and LOSs already issued by PPIB and provincial governments. Challenges such as Sinosure clearance (mandatory insurance requirements related to financing by Chinese financial institutions), and

the application of the Electric Power Procurement Regulations (EPPR), inclusion/exclusion of projects in IGCEP iterations, non-determination of Feasibility (stage-1) tariff for hydropower projects with completed feasibility studies serve as potential speed-breakers in the fast track development of RE projects.

The ambitious targets for harnessing the potential of renewables currently face several challenges, including reinforcement and automation of transmission network, circular debt, country's credit rating, pressure on foreign exchange reserves, and policy & regulatory challenges. To regain momentum in renewables, the government has aggressively initiated measures to put the power system on solid footing i.e. improve collaboration between power sector entities to boost investments, control power system losses/theft, improve recoveries from consumers, remove transmission constraints, introduce private sector participation in DISCOs, streamline development tracks, and introduce long term reality-based policy and regulatory measures etc., to instill investors' confidence in ongoing and future RE projects.

PPIB firmly believes that renewables are pivotal to Pakistan's energy future. Thus, it is poised to embark on a significant journey towards promoting renewable energy sources such as hydel, wind, and solar. This initiative aims to foster sustainable energy solutions that align with Pakistan's broader objectives of energy security, environmental sustainability, and economic development. While talking about the development of RE Projects, it is critical to reiterate GoP and PPIB's commitment to carryout bidding of Cat-III wind and solar projects which have been stalled for long time due to one reason or other. Additionally, realizing GoP's fiscal constraints and importance of a robust automated transmission and dispatch system, PPIB is also actively working on offering transmission lines and grid infrastructure development to the private sector as soon as the Transmission System Expansion Plan (TSEP) is finalized and approved. ■





Sungrow supporting CPEC in Pakistan through clean energy

Interview with

Howard Fu

Director APAC (Asia Pacific)

Pakistan's market is ready to embrace renewable energy, says Howard Fu

Amer Malik

Sungrow, the green power technology company, has been making a significant contribution in Pakistan to support and strengthen the China-Pakistan Economic Corridor (CPEC) under the One Belt One Road (OBOR) initiative through clean energy.

Pakistan's government has been very responsive and actively working on renewables to mitigate the energy crisis and improve the economy, says Mr Howard Fu, Director APAC (Asia Pacific) at Sungrow Power Supply Co. Ltd, in an exclusive interview with Energy Update.

EU: Could you please tell us about yourself and your team's work across the globe, including in Pakistan?

Howard Fu: Sungrow is a global leader in conversion technology. We are a leading technology brand in Pakistan. I have been in this business for 15 years. Sungrow launched its operations in Pakistan in 2019.

At that time, not many people knew about solar energy. I am glad that after the lapse of six years, everybody knows about it, and the market is ready to embrace solar technology.

Sungrow is a proponent of green power, and it is playing a vital role in CPEC under One Belt One Road. We are pleased to contribute to this project. I am very thankful to our team in Pakistan. Without the support of our team, we couldn't have achieved such success in Pakistan. We are like a family working together.

EU: Can you please highlight the Sungrow Power Day event and the importance of PV and energy storage systems? What is its significance in the context of your company's work in Pakistan?

Howard Fu: Our partners came together at the Sungrow Power Day event to learn about Sungrow and its operations in Pakistan. Various types of customers attended, attentively listening to technical presentations. They have diverse and intriguing projects; some are interested in our hybrid residential

battery, others in C&I, and some in future energy.

They are excited about the new solar technology and energy storage systems. Sungrow not only produces inverter energy systems but also leads in conversion technology. We offer clean robots, floating solar, wind converters, and green hydro equipment. In the future, we aim to be a leading company in green hydro equipment in the global market. With Sungrow from China, we aim to support Pakistan's technological growth. We are contributing to helping Pakistan develop and enjoy green power.

EU: How do you perceive Pakistan's market? Is it ready to embrace new clean renewable energy and help the environment?

Howard Fu: The market in Pakistan is ready to embrace renewable energy. Common people are burdened with expensive electricity bills, which increase every year. As consumers have to consider their budgets, renewable energy can help reduce costs. It's a necessity. That's why the market in Pakistan is prepared. We aim to contribute through our technology and new products, which will provide high value and help reduce electricity costs. We are also collaborating with the Pakistani government to make renewable energy the future of clean energy in Pakistan.

EU: How do you view the Pakistani government's response to renewable energy?

Howard Fu: The Pakistani government is very responsive and is actively working in the renewable energy sector, especially to mitigate the energy crisis and improve the economy. Pakistan aims to increase its renewable energy from 25% in 2025 to up to 70% in 2030. To balance foreign currency flows, the Pakistani government has temporarily halted imports.

We support the government's measures to stabilize the economy and are ready to support our customers. We provide high-technology and low-cost products to our customers. Like high-value countries including Australia, America, and Europe, we are also playing our role in supporting low-economic countries in the global market.

EU: How does Sungrow discharge its Corporate Social Responsibility (CSR)?

Howard Fu: Sungrow is a globally leading power brand, and we fulfill our Corporate Social Responsibility (CSR). In Pakistan, we provide employment opportunities. We support the renewable sector to create more employment opportunities for people to work in this sector, earn their livelihoods, and support their families. This is how we support our brothers in Pakistan.

EU: Finally, what is your message for the people of Pakistan?

Howard Fu: The China-Pakistan relationship has always been our pride. The people of China consider Pakistan as China's best friend in the world, and the sentiment is reciprocated among the people of Pakistan towards China. We will continue to work together for the One Belt One Road initiative, as we want our people to benefit from clean energy. Long live the China-Pakistan relationship! ■



The grid and energy sustainability

Kashif Mateen Ansari

The writer is CEO of a wind power project

In the ambitious quest for a sustainable future, the conversation about energy often revolves around the creation of energy utilizing various fuels, including renewable technologies. Pakistan is blessed with huge renewable potential, and now we have wind turbines churning in the wilderness of Jhimpir and solar panels glistening atop rooftops, manifesting a transition in progress towards sustainable and greener energy.

Grid constraints in Pakistan are a result of problems like poor departmental management, a reliance on imported fossil fuels, high power generation costs, and antiquated monitoring techniques. The country has faced energy crises for the past many decades due to these challenges.

Additionally, blackouts are critical issues affecting the stability and reliability of Pakistan's power supply systems, emphasizing the need for a robust and reliable power infrastructure. Pakistan's national grid has suffered major breakdowns, highlighting infrastructural weaknesses and the need for upgrades that the government struggles to afford.

The power sector problems in Pakistan, such as the depreciation of the rupee, underutilization of generation capacity, and inefficiencies in generation, transmission, distribution, and supply segments, have had a significant impact on the economy. The challenges have led to increased electricity prices, financial instability for power companies, and higher tariffs for consumers, affecting the overall industry's financial liquidity and stability.

These difficulties have a significant impact on Pakistan's industrial sector. Many businesses in Pakistan are struggling to remain competitive and profitable in the face of these challenges. The higher electricity prices and unreliable supply have forced many industries to cut back on production or even shut down operations entirely.

This not only affects the companies themselves but also has a ripple effect on the economy, leading to job losses and decreased economic growth. To ensure a stable and

reliable energy supply for businesses, many companies have looked towards renewable energy sources such as solar and wind power.

Though as promising as it may look, this approach will further lead us into trouble as more and more of the existing generation capacity that has been put in place will become idle due to no demand from the industry, and this will enhance the capacity charge on consumers. Which in turn would result in increased costs and shrinking demand due to affordability issues.

While the promise of renewable energy captures the imagination, the reality of integrating these green sources into our existing grid reveals a more complex picture. The limitations of our current grid infrastructure are steadily impeding the dream of a sustainable economy and a decent lifestyle for the masses. This is a piece of infrastructure that, without urgent and intelligent upgrades, could jeopardize the pace of our economic growth and energy transition. This is a critical issue that must be addressed promptly to ensure a brighter future for all.

Innovation in the form of digitalization offers a promising path forward, enabling us to reimagine the grid as a dynamic, intelligent system capable of meeting the demands of the 21st century. There are virtual models that allow for the simulation of future scenarios, modelling live data to optimize performance and efficiency comprehensively.

The dialogue on energy is often saturated with discussions of installed capacity. However, we are way behind in the electrification of the economy or transitioning our energy sector towards a more sustainable and green future. This narrow focus of our policymakers

on the generation of power and reducing costs without looking into the complexity of the challenge at hand is the real problem. The crux of the matter, as we venture deeper into the era of electrification, is not solely how much we can generate but how effectively we can transmit, distribute, and utilize this energy.

Smart grids use advanced communication and control systems to better manage power distribution, allowing for more efficient and reliable transmission of energy. This technology can also help integrate renewable energy sources into the grid, ensuring a smoother transition to a cleaner, more sustainable future.

Furthermore, smart grid technology enables real-time monitoring of energy usage, allowing for more accurate forecasting and load balancing. Moreover, they have the potential to support the growth of electric vehicles by enabling a more efficient and widespread charging infrastructure. This will not only reduce greenhouse gas emissions but also decrease the dependence on fossil fuels for transportation.

Overall, smart grid technology plays a crucial role in creating a more sustainable and reliable energy system. By integrating renewable energy sources, improving efficiency, and supporting the growth of electric vehicles, it is a key component in transitioning to a cleaner and more sustainable future.

The transformation of our grid will require collaboration from all stakeholders: government, utility companies, and technology providers.

Digitalization stands as a beacon of efficiency, offering avenues to minimize transmission losses, align electricity flows with demand, and enhance the transparency of grid operations.

The transition towards a sustainable energy future demands more than passive acknowledgment of the grid's role; it calls for active, informed engagement in redefining what the grid can and should be.

We stand at a watershed moment in our energy history. It is incumbent upon policymakers, industry leaders, and society at large to champion the evolution of the grid. Only through a concerted effort to upgrade, digitalize, and reimagine our energy networks can we unlock the full potential of renewable energy. This is not merely an investment in infrastructure but a foundational commitment to a sustainable, equitable future. ■



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Debt, climate, inflation

Ali Tauqeer Sheikh

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

In Pakistan, these issues blend with the country's economic vulnerabilities

Debt, climate, and inflation have in recent years become important planks of the spring meetings hosted by the World Bank and IMF. The agenda for this year's meetings, which concluded last week, included finding ways to reform the global financial architecture, mobilise additional development and climate finance, and strengthen international cooperation to address multiple global crises, especially their impact on developing countries. For us in Pakistan, these issues blend with the country's economic vulnerabilities, climate imperatives, and foreign policy compulsions. Are we doing enough to integrate them at the policy level?

The agenda of the spring meetings has evolved over the years from simpler institutional issues to redesigning the architecture of the global financial system. This year's meetings were particularly important as they coincided with the 80th anniversary of Bretton Woods. While the World Bank is seeking how best to ramp up its lending, the IMF is emerging as the guardian of global financial and climate resilience. They are now faced with the unfolding

challenge of financing development and climate change and the need to equip themselves to deal with the deepening impacts of debt, climate change, and inflation.

It is too early to know exactly what was decided at the spring meetings. The details will emerge slowly and be reflected in the G20 policy decisions during the year. While Pakistan was busy negotiating the Extended Fund Facility with the IMF, key issues of particular interest to it were discussed at the spring meetings: i) reversal of development gains and increase in poverty levels, ii) addressing the burden of public debt that is crowding out crucial investments, iii) strengthening global cooperation and multilateralism, and iv) reaffirming the commitment to the SDGs.

The concept of debt sustainability generally refers to the ability of a country to manage its debt without unrealistic adjustment to the balance of income and expenditure or the growth of its economy. Pakistan is eligible under the Chinese-supported Debt Sustainability Initiative and the G20-supported Debt Service Suspension Initiative, and has received debt relief under the DSSI from several creditors following its climate-triggered floods.

The Bridgetown Initiative seeks to unlock liquidity support through six key actions.



Such initiatives made way for the Bridgetown Initiative that aims to address the shortcomings of the current global financial architecture that has exacerbated inequalities and the inability to respond to the scale of global climate challenges. A proposal was made by Prime Minister Mia Mottley of Barbados and her climate finance envoy Avinash Persaud, who had initially proposed the initiative at Glasgow at COP27 in 2022. It has won support from IMF chief Kristalina Georgieva, in addition to that of the World Bank, UN, the French and UK governments and several countries of the Global South. The initiative has since been actively advanced through key international forums including the Paris Summit on a 'New Global Finance Pact' in June and the COP28 in December 2023. Pakistan has thus far taken a back seat.

First, providing immediate liquidity support, including rechanneling at least \$100 billion of unused special drawing rights through equitable mechanisms. Second, increasing development lending to reach \$500bn in annual stimulus for investment for SDGs. Third, mobilising \$1.5 trillion per year of private sector investment in green transformation. Fourth, transforming the governance of international financial institutions to make them more representative, equitable and inclusive. Fifth, creating an international trade system that supports global green and just transformations. Sixth, restoring debt sustainability and supporting countries in

restructuring their debt with long-term low-interest financing.

Responding to climate-triggered disasters in countries like Pakistan, the initiative has encouraged the inclusion of a clause that would stipulate a temporary suspension of interest payments on debt. The additional financial resources for rebuilding, it is argued, should be in the form of grants, instead of loans.

Pakistan has a vested interest in the success of the Bridgetown Initiative. It has built an environment for the V20 Accra-Marrakech agenda on debt sustainability. Launched at the 2023 spring meetings, it seeks to reform the global debt architecture to better address debt sustainability challenges. The Vulnerable Twenty is a coalition of 55 climate-vulnerable developing countries, and an offshoot bloc of the broader Climate Vulnerable Forum launched in 2015.

It has advocated enhancing the G20's Common Framework for Debt Treatments to address debt sustainability. The agenda emphasises the need for a new set of rules and a roadmap to reform and transform the sovereign debt architecture. The purpose is to align it with climate and development goals, rather than just focusing on short-term debt stabilisation, an approach that is often spearheaded by IMF. It has advocated ambitious steps: i) establishing a 'Climate Mitigation Trust' to draw in \$5tr in private savings for climate action, ii) widening access to concessional finance

for climate adaptation and resilience, iii) expanding MDB lending for climate and sustainable development by \$1tr, iv) funding loss and damage from climate change, and v) making the financial system more shock-absorbent.

This has catalysed a global debate on systemic reform and coordinated action on climate and development. Most remarkably, its articulation on supporting the establishment of the Loss & Damage Fund has helped create an enabling environment for about \$750 million in pledges to the fund.

The Bridgetown Initiative was a key topic of discussion at this year's spring meetings. There is indeed resistance to reforming existing power structures. It faces political and technical challenges in reshaping the global financial system to better address the debt and liquidity needs of developing countries.

Overcoming these obstacles will require a sustained commitment to engaging with a wide range of stakeholders. Pakistan's case of getting a pause in repayments, or the restructuring of its debt, and accessing international climate finance will enjoy stronger credibility if its narrative is closely aligned with the global discourse. For this, we'll need to coordinate our position and seek alignments with climate-vulnerable groups.

Can Pakistan's economic, climate and foreign policies latch on to the current international initiatives to manage debt, climate and inflation challenges? ■



The QTAs and FPAs of power sector

Engr Tahir Basharat Cheema

The writer is BE (Elect), Dip. Pub. Admn, Dip. Bus. Admn., Cert. Statistical Sciences, M.B.A. and former MD PEPCO, former President IEEEEP. Former Caretaker President IEEEEP

Each sector has its issues that need interpretations for the people to understand. The power sector has become a riddle to say the least. Every month the regulator, Nepra (National Electric Power Regulatory Authority), notifies public hearings to consider some new charge or the other. The strange part is that none of these hearings has resulted in the cancellation of any request by the CPPA-G (Central Power Purchasing Agency—Guaranteed) or the DISCOs. The little change that is ever evident is more of a joke, as normally it is just a fraction of the original claims.

That none of these deductions are known to be on account of any intervention proves that the hearings are just a ritual, and all claims are accepted as necessary expense. This could be because of the mindset that a public sector entity could not err or pad-up a claim. However, as it is the same for Pakistan's lone privatised utility KE too, hence it could be a case of hear no evil and see no evil syndrome faced by NEPRA. Because of this way of notifying the various monthly, quarterly and the annual charges, such hearings or simply ignored all together with lesser and lesser public interest or interventions.

What exactly are these adjustments/changes that now haunt the public? Before we delve into the exact details of these QTAs and the FPAs, we need to understand the business model of power utility companies. These are not normal businesses – rather, are completely regulated. The earnings of the Discos, like NTDC (National Transmission and Despatch Company) and the Gencos (IPPs are another genre and are governed by their PPAs) are calculated by Nepra on the basis of their yearly revenue requirements, making up of the PPP – viz. the power purchase price notified by the CPPA-G, the DM (distribution margin containing the O&M charges etc.) as allowed and lastly the effect of depreciation and the ROR on the investments. The consumer-end tariff is then crafted while keeping all of the above in view and especially the calculated sales in that particular FY, its make-up category wise, proposed PPP, inflation figure, the establishment and O&M cost of operations, etc. In other words, in case of any variation (positive and

negative) in any of the above costs, the Discos have the right to seek the same from the Regulator under a set-roster. This is so because the DISCOs do not have recourse to reserves accumulated on account of profits in the past which could ever be tapped into.

Moreover, such a situation further merits recoupment of any extra expense on an immediate basis, as continued operations cannot be compromised. Based on this requirement and the volatility in oil/fuel prices, the Monthly Fuel Price Adjustment (MFPA) was introduced in mid-2010. This was necessitated on account of the high price of oil in the market then which thereafter reached its nadir of only US\$ 40/per barrel in 2016. Because of the continuous fall in crude oil price, the monthly FPA for much of 2016-20 was in the negative – meaning, that each month 25 paise to up to Rs 5.00 per KWHr was deducted from the consumer bill. This facility then was considered as a right. Unfortunately, the present extremely low parity of PKR to US\$ has led to heavy billing of the monthly FPA each month since the last three years or so. Such billing is further exacerbated by paucity of foreign exchange with the government and the burden of the upset EDO (economic dispatch order) on account of non-availability of comparatively cheaper fuel each month, which forces the sector to utilize expensive fuels if it wishes to mitigate the consumer demand. The judiciousness of this charge is another issue. Besides, it too has to be debated whether the consumer is to be held responsible for this or has the GoP to be burdened with such charges.

Subsequently, it was also felt that besides the fuel cost, other elements too needed to be considered for adjustment on the quarterly basis. The various heads that would make-up the QTA were the burden of the less or the relief on account of more than assumed usage/demand, the consumer-mix change from the fixed proportions, the effect of inflation, change in the variable O&M, UoS, capacity charges, impact of T&G losses etc. Theoretically, all of these charges have to accrue from causes and reasons not attributable to inefficiency and lack of correct decision making by the management of the whole value chain. In other words, all of these charges have to be considered as necessary and legal claims.

In line with the laid down process, both the FPAs and QTAs sought by the CPPA(G) are put to test and intervention through notified hearings by NEPRA. It is also mandatory that the Regulator too would audit the requests in a very stringent manner.

A table listing the monthly FPA figures asked, those allowed by the Regulator and the minuscule difference is reproduced as below. The small deductions, on the face of it, cannot be accepted as it is, as the FPAs – as per reports are based on two variables viz. the increase in the oil prices (with which the RLNG price is pegged etc.) or a deviation from the approved EDO (economic dispatch order). The latter could be because of non-availability of the marked / suggested power plant(s) or paucity of fuel – a common grouse / complaint during the FOREX starved last three years or so. All in all, it has nothing to do with the poor consumers.

The information in the table reveals that either the asked amounts were perfectly in order or the audit by the Regulator was perfunctory at best. In other words, as all cannot be that correct in Pakistan, it seems that costs that were not due were charged to the unsuspecting consumers. As the QTAs and the FPAs are debilitating to say the least – specially, in light with the continuing inflation figures and the low demand, the average addition to the monthly adjustments is around Rs. 4 per unit, which has become a regular feature. Here, burden of the current inflation is beyond the sector, but the huge chunk on account of low demand – mainly, spurned due to the mindless increase in the tariffs and the stoic attitude of all of the players viz. the GENCOs, IPPs, NTDC, CPPA(G), NEPRA and the DISCOs, call for Nuremberg style trials. That the PPIB (plus AEDB) carries on with more induction of generation besides the 26,000 MW of already labeled units likely to come on bar by 2031 (just 6 years away), calls for deep introspection. More so, when PPIB's feeble attempts to receive competitive bids for some mythical solution to all of our woes viz. the proposed 600 MW solar power plant at Muzaffargarh – termed as a fuel substitution project (and that too without any serious study)—has miserably failed. The sad part is that the same PPIB and the other proponents privately call for doling out more to the interested, as no one is ready to invest in Pakistan unless windfall gains are promised. Everyone is waiting with bated breath on the results of the latest bidding, while the UAE and Saudi Arabia are being asked to invest on the G-to-G basis (a misnomer as none of the states do business at the governmental level and normally would designate their surrogates).

Accepting the low level of audit and

possible receptivity of undue charges, Nepra's Tribunal required the regulator to re-hear and re-appraise the CPPA(G) demands. Probably, the hearing fixed for 14th March, 2024 had to be cancelled on orders of the Islamabad High Court (IHC). But one thing is clear viz. that NEPRA has to be clinical in its appraisals without giving in to whatever is brought before it by the CPPA(G) on behalf of the DISCOs.

It has not to accept even a cent of undue claims and thus not burden the people with any cost of inefficiency, sad or incorrect interpretations of IPP PPAs, burden of bad planning of sectoral operations, poor contracting of fuels, etc. and such unacceptable claims. The Regulator has to remain un-awed by any pressure from the same MOE (ministry of energy) that may be the reason for most of the charges. Experts opine that such charges do reach between 30 and 50% of the asked FPAs and the QTAs.

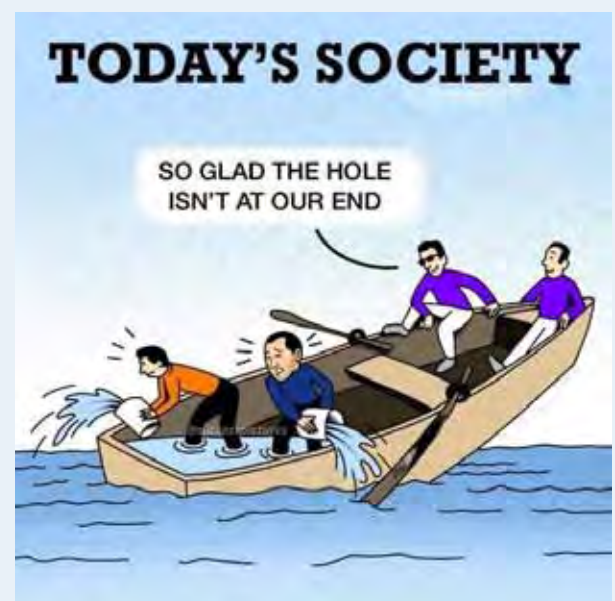
In other words, most of the QTAs and the FPAs are a result of the serious skew in the assumptions considered for tariff petitions and ensuing determinations by the same entities (GENCO /IPPs, NTDC and the DISCOs) that each month come up with the request for the regulator to approve such additional charges from the consumers. While some of these adjustments are triggered and then occur on account of events beyond their fray, but most of the offending issues are the ones that should have been known beforehand. And thus, the above entities had the obligation to arrange mitigation of the same beforehand. The first of the categories could be any abrupt rise in international fuel prices, depletion of the PKR – incidentally, remaining in a very small band-with during the last twenty months or so, some acts of nature – like the floods in the past that forced some power generation to shut or the pipelines/railways carrying fuel that had been affected.

Conversely, if none of these reasons is evident and the QTAs get charged on the basis of lower demand or if a category of consumers decides to reduce its off-take, etc., than the same cannot be made the reason for such an adjustment and that too chargeable to

the people. As it could be on account of bad projections at the time of the yearly or multiyear tariff petitions, the Disco concerned has to take the burden on itself. The Discos must be cognizant of all this and efforts to mitigate such a burden, should be glaringly evident, otherwise the poor consumer cannot be burdened with any such adjustment.

The FPAs on the other hand, depend basically on the change in fuel cost for that particular month and the change in generation pattern beyond anyone's sway (like Hydel, Wind and Solar) and the ensuing change in the EDO (Economic Dispatch Order). However, it cannot ever be on the basis of someone's inability to arrange for fuel at the right time and of the needed volume, non-availability of generation beyond allowed downtimes ,etc., continued constriction to transmission and distribution of power and lastly to the change in the set EDO or account of one of the other reason. In other words, weight relating to any of the above reasons does not merit being billed to the consumers. As such, Nepra has to certify that the allowed FPA is not on account of any of the above reasons and the poor unsuspecting consumers are not getting billed for the inefficiency of the sectoral managers.

Unfortunately, inefficiency and even complacency on part of the various sectoral entities is allowed as it is and both the QTAs and the FPAs are being passed on to the consumers without the needed stringent audit. All of these charges are considered as fate accompli. Consequently, the pervasive inefficiency and complacency continuously allow the DISCOs, etc. to burden the consumers at will. ■



Solar Price: Lows, Bottoms and Rock Bottom!

Farheen Irfan

The writer works as a COO for a solar EPC company and is an ex-Investment Banker

Closing 2023 with a bang and opening 2024 at a higher node of PKR 120-130 per watt making the most out of the LC restrictions and PKR uncertainty, solar panels became hot investment item for investors of all races – from Jodia Bazar of Karachi to big boys sitting in E-7, Islamabad. The declining global prices which started in the start of 2023 never really recovered. From a \$0.30 per watt to now currently being trade at \$0.10-\$0.11 with the exception of one brand which trades at \$0.125 per watt (Yes, you got it right! Jinko Premium guys which in actuality was never a premium just another bubble to lure investors!)

The Background:

Blanket under the slogan of Green Energy was the thirst of wealth for investors who jumped into wafer manufacturing and solar PV module assembling in China. Jumping on the bandwagon, a huge influx of investments came into the solar value chain thereby improving supply side. The demand for solar which initially was high in Europe and USA really moved away quickly to Green Hydrogen, small wind turbines and Big Energy Storage System (BESS) thereby limiting the scope of on-grid systems. Coupled up with tariffs imposed on Chinese products by USA was another blow to the industry. The Chinese quickly saw Pakistan as one of the prominent places for sale. The trick really worked considering the green flag was facing multifaceted troubles on economic and financial front. As Pakistan crippled from its energy woes and higher grid prices, solar became a hot selling item till the greed of few exporters, investors, and big guns brought the entire industry to its collapse.

25 Din men Paisa Double!

The above meme actually became a reality. A typical container of a tier1 brand n-type

panels would cost buyers \$45,000 (taking \$0.13 per watt as an average price). Typical shipment would take 25-30 days and with ease on the import bill, a lot of exporters came and encashed upon their export proceeds to gain import quota. The same container was easily sellable for \$83,520 (\$0.20 per watt as an average price assuming PKR 55/watt in local market). This way, investors made a whopping 94% return in 25-days. Sounds better than bitcoin, absolutely!

And who would listen to Mr. Buffet quotes when you are making money on Pre-Booking just by investing 30% that too from your client's pocket. As the import/export condition became better, banks were lenient enough to allow big importers open LC on a 30% margin, Taking the same or even higher 40% from investor – these importers opened up hundreds of LCs without knowing the worse was yet to come.

Within this chaos, few importers took the game to a newer high by importing solar panels from third-party distributors in China to create further panic in the local market. As the price for domestic market (meaning China) and Pakistani market differ as much as \$0.02, the panels which Pakistani importers bought di-

rectly from OEM were already expensive than the ones being bought by third-party distributors in China.

Finally, the manipulation of price girders by various OEM sales managers became a final nail in the coffin to sink the entire Solar ship. Few investors were given extra favors while the rest of the importers and industry at large suffered resulted in importers moving away from top three brands to newer brands. There was already an excess of supply upcoming which on top coupled up with fresh imports for newer brands thus resulting into a baggage of excess supply. Today, a 1,000 of containers have already reached Karachi port while most of importers already sitting on stock giving away ready stock in same price as that of pre-booking rates.

The Net Metering Game!

While there are rumours that the net metering rate might be revised from an existing PKR 22 to PKR 11 per unit, this would further slowdown market activity thereby limiting system size of existing and newer users. Having said this, the industry may see surge in EV charging stations and battery storages thus keeping the demand for solar panels afloat! ■



Empowering Pakistan's Economic Growth

SECMC recognizes Thar's promise and contributions to Pakistan's growth through its resource-rich land and people. With the current mine capacity of **7.6 MTPA**, the project has supplied over **27,000 GwH** of electricity since inception to the national grid using Thar Coal. This reliance on domestic Thar Coal has resulted in annual forex savings of around **USD 1.1 Billion** through import substitution and created long-term value.

SECMC remains steadfast in its commitment to uplifting the communities of Thar and shaping a sustainable future for Pakistan's energy sector.



Water pollution on the rise in Karachi

90% of citizens forced to purchase bottled water for drinking and food making; access to clean drinking water is not uniform across the city; resolving water pollution in Karachi requires concerted efforts from both the govt and civil society



Special Report by Mansoor

Karachi, the bustling metropolis of Pakistan, faces rising water contamination that has affected citizen's health. The Karachiites are struggling to get clean and safe drinking water as 90% of the citizens have been forced to purchase bottled water for drinking and food making. The water being provided through most of the pipelines and water tankers is not safe for public health as a few areas in the city can get only safe drinking water.

At the heart of Karachi's water contamination crisis lies a confluence of factors. The unchecked growth of the city's population has strained its resources beyond capacity. With over 20 million residents and other

counting, the demand for water has soared, placing immense pressure on an already fragile system.

Moreover, rampant pollution further exacerbates the issue. Industrial waste, sewage discharge, and agricultural runoff contaminate water bodies, rendering them unfit for human consumption. The Lyari and Malir rivers, once lifelines for the city, have become cesspools of toxins, posing a grave risk to public health.

Contamination of water sources, both surface and groundwater, is a significant concern. Industrial discharge, sewage contamination, and agricultural runoff contribute to the pollution of water bodies, making the available water unsafe for consumption without proper treatment.

Access to clean drinking water is not uniform across the city. Residents in informal settlements (slums) often lack access to piped water and rely on water tankers or contaminated sources, exacerbating health risks.

Efforts to improve the situation include initiatives to upgrade water infrastructure, implement water conservation measures, enhance water treatment facilities, and regulate industrial discharge. However, addressing Karachi's water challenges requires comprehensive long-term planning, investment, and coordination among various stakeholders.

The consequences of water contamination are grave and far-reaching. Contaminated water serves as a breeding ground for waterborne diseases, including cholera, typhoid, and hepatitis. The World Health Organization estimates that diarrhea alone claims the lives of over 50,000 Pakistanis annually, many of whom are children under the age of five.

Cheap renewables to KE system soon

EU Report

Moreover, chronic exposure to contaminated water can lead to long-term health complications, such as kidney damage, liver disease, and neurological disorders. Vulnerable populations, including the elderly, children, and pregnant women, bear the brunt of these health hazards, perpetuating a cycle of poverty and illness.

While the gravity of Karachi's water contamination crisis is evident, governmental responses have been woefully inadequate. Corruption, mismanagement, and bureaucratic inertia have hampered efforts to address the root causes of the problem. The lack of investment in infrastructure upgrades and wastewater treatment facilities only exacerbates the situation, perpetuating a vicious cycle of contamination and disease.

Furthermore, the marginalized communities residing in informal settlements, or "katchi abadis," are disproportionately affected by the water crisis. Lacking access to piped water, residents are forced to rely on contaminated sources or purchase expensive bottled water, further deepening the divide between the haves and have-nots.

Addressing Karachi's water contamination crisis demands a multifaceted approach that prioritizes public health, environmental sustainability, and social equity. Key stakeholders, including government agencies, civil society organizations, and the private sector, must collaborate to implement sustainable solutions.

Investment in infrastructure upgrades, including the construction of wastewater treatment plants and the rehabilitation of aging pipelines, is paramount to ensuring access to safe and clean water for all residents. Additionally, stringent regulations must be enforced to curb industrial pollution and prevent further degradation of water bodies.

Community engagement and education initiatives play a crucial role in raising awareness about the importance of water conservation and hygiene practices. Empowering local communities to actively participate in water management efforts fosters a sense of ownership and accountability, laying the groundwork for long-term sustainability.

Moreover, harnessing innovative technologies, such as water filtration systems and rainwater harvesting, can supplement traditional water sources and alleviate pressure on the existing infrastructure.

Karachi's water contamination is not merely a local issue but a humanitarian emergency that demands urgent attention and decisive action. Failure to address the root causes of water pollution jeopardizes the health and well-being of millions of residents, perpetuating a cycle of poverty and suffering.

By prioritizing public health, environmental sustainability, and social equity, Karachi can chart a path towards a future where clean and safe water is accessible to all. Only through concerted efforts and collective commitment can we safeguard the fundamental human right to water and ensure a healthier and more prosperous future for generations to come.

Resolving the water pollution in Karachi requires concerted efforts from both the government and civil society. Immediate measures such as improving water treatment facilities, repairing leaky pipes, and enforcing regulations on industrial pollution are essential to mitigate the immediate risks to public health. Long-term solutions involve investing in infrastructure development, implementing sustainable water management practices, and raising public awareness about the importance of water conservation and hygiene. ■

K-Electric has given good news to the citizens of Karachi who are suffering from expensive electricity, as 640MW will be added from wind energy. Solar and wind power will significantly reduce the production cost of electricity.

KE CEO Syed Moonis Abdullah Alvi told the delegation of the Council of Energy and Economic Journalists (CEEJ) that 12 companies from Europe, China, and Middle East had also submitted their bids for investment in solar and wind power projects.

Alvi said that alternative energy projects in Hub, Othal, Bela, and Sarjani Town of Karachi will be installed, while in the solar and wind power project, an investment of 450 million dollars had been made. Alvi also said that the installation of smart meters had started in Karachi.

Expansion Plan' with an innovative tariff regime, which should complement the existing Indicative Generation Capacity Expansion Plan and Transmission Capacity Expansion Plan.

The IDCEP should be anchored in long-term economic planning with a focus on export-led growth, ensuring that the expansion of electricity demand is aligned with the broader economic objectives and industrial development strategies.

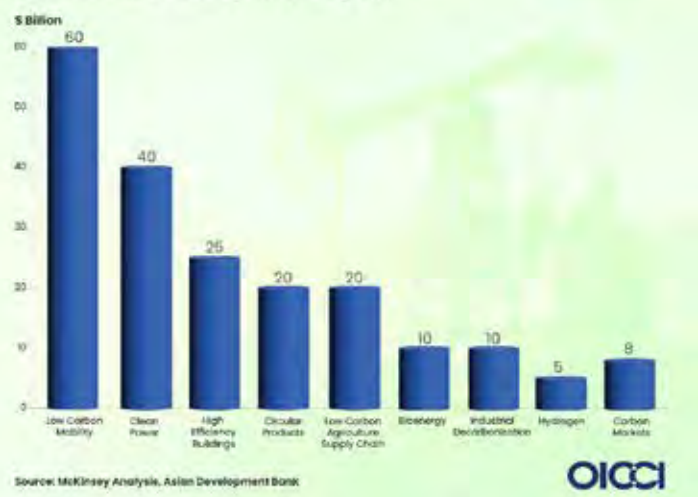
Secondly, a 'sectorial diversion strategy' to increase electricity demand can be implemented by redirecting surplus power towards industry, household cooking, and electric vehicles, particularly focusing on electric mass transit systems.

Finally, there is a need to attract more investments into the transmission system, especially under CPEC, to enhance the network's capacity, efficiency, and reliability.

South Asia Has Different Priorities

Estimated Sustainability Revenue Pools by 2030

On the other hand, Southeast Asian countries are investing in renewable energy manufacturing. The anticipated financial resources from sustainable initiatives amount to \$200 billion by 2030.



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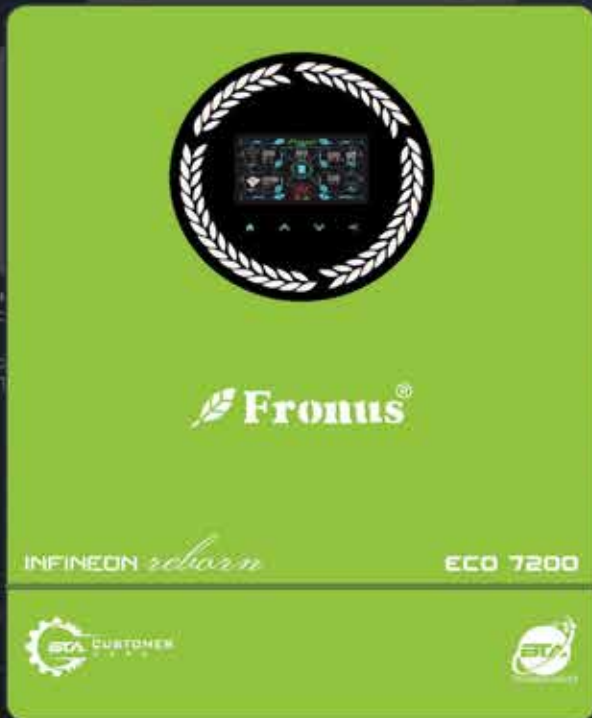
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SK Hydro

building 884MW hydropower plant

Dy CEO **Danish Haseeb Khan** says the main sponsor of the company is China Energy Engineering Corporation

Halima Khan

SK Hydro Private Limited is developing the 884 MW Suki Kinari Hydropower Project on Kunhar River in Kaghan Valley of District Mansehra. The main sponsor of the company is China Energy Engineering Corporation, which is referred to as Energy China or CEEC. We are also the first and largest private sector hydropower project to achieve financial close in the strategic China-Pakistan Economic Corridor. Pakistan is blessed with abundant hydropower potential out of which a small percent has been tapped so far.

This was stated by SK Hydro Private Limited Dy CEO Danish Haseeb Khan in an interview with Energy Update magazine. The detailed interview is given below:

Q1. Can you provide an overview of SK Hydro's current project and initiatives in the renewable energy sector, particularly focusing on hydroelectric power?

Ans: SK Hydro Private Limited is developing the 884 MW Suki Kinari Hydropower Project on Kunhar River in Kaghan Valley of District Mansehra. The main sponsor of the company is China Energy Engineering Corporation, which is referred to as Energy China or CEEC. Energy China is one of the largest comprehensive solution providers for the power industry in China and globally. It is also part of the esteemed Fortune Global 500. We are moving towards project completion, and are expected to achieve commercial operations this year.

Q2. What sets SK Hydro apart from other projects in the hydroelectric power industry?

Ans: SK Hydro has been a trailblazer in the power sector of Pakistan, particularly the hydropower industry. It is gratifying to note that we are the largest private sector hydropower to achieve financial close in the history of Pakistan, bringing in the largest Chinese financing for private hydropower development in the country.

We are also the first and largest private sector hydropower project to achieve financial close in the strategic China-Pakistan Economic Corridor (CPEC). We are deeply thankful to all stakeholders, including the Government of China & Pakistan, federal government entities, especially PPIB, and the Government of Khyber Pakhtunkhwa for



supporting us in achieving these unprecedented milestones.

Now, as we near construction completion, Suki Kinari hydropower project will stand as an engineering marvel. The project has a Head Race Tunnel of 23km providing a head of an astounding 900 meters. We have the largest-sized Pelton Turbines to be installed in Pakistan and various other engineering firsts. This project is a testament to the efforts and steadfastness of our sponsors and our construction contractor China Gezhouba Group Company. With the help of Almighty Allah, we have come through many challenges during the construction of this unique project.

Q3. How does SK Hydro approach sustainability and environmental stewardship?

Ans: While developing this project, sustainability and environmental sensibility were a key consideration for our team. Due care was taken to limit ill-effects on the environment during construction. Our efforts were recognized by NERPA which rewarded us with its Certificate of Appreciation for health safety & environmental excellence in December 2022.

Being a run-of-the-river project, the project requires minimal storage and has limited effect on the environment. Additionally, there were no known major habitats in the project area.

Once Suki Kinari starts generating electricity, it is expected to contribute more than 3,000 GWh of clean energy to the National Grid annually. This has the dual advantage of saving the country valuable foreign exchange, as it would otherwise have had to expend on imported fuels, and also by replacing imported fossil fuels will save the environment from related emissions.

Q4. What are the challenges being faced by SK Hydro in the current energy landscape, and how is the company addressing

them?

Ans: Whenever any endeavor of this magnitude is undertaken, there are sure to be challenges along the way. Being an unprecedented project, the challenges could not be fully predicted. One such challenge we faced was the Covid-19 pandemic and its effects on construction, supply chain, logistics, work environment, and finances.

We had to work hard and think out of the box to keep the construction activities going. It was great to see the efforts made by our sponsors and contractors to keep the project activities going during this difficult time. Even with all our efforts, the project timelines were unfortunately affected. Now, with Covid-19 hopefully behind us, we are making all out efforts to try to bring the project online as soon as possible.

The next challenge will be to address the fallout of Covid-19-related delays, but we are hopeful that owing to the exceptional nature of the pandemic, the relevant governmental entities will work with us pragmatically to not only appreciate the difficulties faced during this period but also recognize the dedication & commitment of our investors.

Q5. In what ways does SK Hydro contribute to the socioeconomic development of the regions where it operates?

Ans: We are deeply conscious of our responsibility towards the people of Kaghan Valley as SK Hydro & its contractor have taken every opportunity to contribute positively towards their lives.

The construction has contributed positively to the region by providing employment to the local residents and imparting training to them in certain skills. The connectivity in the area has increased greatly due to the construction of river crossings and paved access to remote project structures. Once completed, the project's reservoir will add to the beauty of the valley and increase its tourism potential.

We also work directly with the local community to provide them with encouragement and support. For instance, we have held youth encouragement activities, including debate and drawing competitions for local schools, and provided sports equipment & uniforms to schools in the valley.

While moving forward, we are working with the district administration to provide scholarships for college, post-college, technical & skill development. Additionally, we are also working with the district administration to support its health care and community infrastructure needs in the Valley.

Q6. Finally, what do you see as the future of hydroelectric power, and how does SK Hydro plan to stay at the forefront of innovation in this field?

Ans: Pakistan is blessed with abundant hydropower potential out of which a small percent has been tapped so far. The successive governments have been making commendable efforts to develop some of this potential in the public sector, however, private sector participation is essential to fully realize the hydropower potential in the country. We hope that this Suki Kinari Hydropower project will be seen as a beacon for investors and developers. On our part, our sponsors are looking at other potential hydropower investment opportunities as well.

The future of Pakistan's hydropower sector seems bright, with the pivotal role of CPEC. When the CPEC and the Belt & Road initiative were launched by President Xi Jinping, it promised a 'community of shared destiny. If you look at it, this aptly reflects the concept of the initiative, i.e. participating countries will share the fruits of mutual growth and prosperity. We are looking forward to achieving our shared goals by successfully commissioning the Suki Kinari Project and developing more projects under the CPEC framework. ■

Recent Heavy Rains-Flooding: A Call for Action in Dubai and UAE

M. Naeem Qureshi

The Writer is Managing Editor of Energy Update and Environment Activist

As a dedicated environmental activist and publisher, my recent journey from Karachi to Abu Dhabi via Dubai for the World Future Energy Summit provided a stark contrast in environmental challenges faced by cities like Dubai and my hometown, Karachi. The heavy rains and subsequent urban flooding I witnessed in Dubai underscored the urgent need for proactive measures to address climate change impacts and enhance infrastructure resilience.

Upon arriving in Dubai, the sight of massive urban flooding was alarming. It became evident that the city, despite its rapid development, lacked adequate drainage systems to cope with heavy rainfall. The situation worsened in Abu Dhabi, where record rainfall led to chaos and disruption, highlighting the vulnerability of major urban centers to extreme weather events.

One striking similarity between Karachi and Dubai was the inundation of roads and highways, disrupting travel and daily life. However, a

notable difference was Dubai's better insurance coverage, which mitigated some of the financial losses compared to Karachi. This emphasizes the importance of robust insurance policies in disaster management.

Despite the financial safety net, both cities faced significant challenges, including property damage, service disruptions, and safety risks for residents. The experiences in Dubai reinforced the importance of proactive urban planning, sustainable infrastructure, and emergency preparedness to mitigate the impact of urban flooding and climate change.

During our return journey from Abu Dhabi to Dubai, my colleague Mr. Nadeem Ashraf from NFEH remarked on the perilous conditions caused by the heavy rains, highlighting the need for improved road infrastructure and safety measures.

In conclusion, the experiences in Dubai and Karachi serve as a wake-up call for cities worldwide to prioritize climate resilience, sustainable infrastructure, and effective disaster management strategies. By learning from these experiences and taking proactive measures, cities can better withstand the challenges of climate change and ensure the well-being of their residents. ■

TEVTA and PSA Sign MOU to Boost Solar Energy Skills

The TEVTA-Pakistan Solar Association MOU signing ceremony took place at TEVTA Secretariat, Lahore. Chairman TEVTA Brig. Muhammad Sajid Khokhar, SI(M) Retd., and Chairman PSA Amir Parvez Chaudhry signed the documents. COO TEVTA Qurat-ul-Ain Memon noted that the collaboration spans two years initially, aiming for further expansion. TEVTA commits to enhancing its ties with the solar industry, updating syllabi, conducting trainer sessions, and arranging paid internships. Chairman TEVTA emphasized expanding solar courses from five to eight institutions, with plans for more based on industry requirements. The event highlighted CM Punjab's directive for industry-aligned courses, emphasizing TEVTA's role in supplying skilled manpower. PSA Chairman Chaudhry lauded TEVTA's effort, emphasizing the industry's need for skilled workers. Notable attendees included TEVTA officers and PSA representatives.

Punjab Govt to Provide 1KV Solar Systems to 50K Homes

Punjab Chief Minister Maryam Nawaz Sharif has announced a groundbreaking initiative to provide 1-kilowatt (1KV) solar systems to 50,000 households across Punjab. This move comes as an alternative to expensive electricity, aiming to alleviate the burden on the common man. The program, titled "Light without Electricity Bill: Chief Minister's Roshan Punjab Program," aims to empower low-income families by offering them solar solutions.

In a special meeting, CM Maryam Nawaz Sharif emphasized the importance of this initiative in freeing the poor from the escalating costs of electricity. The program will initially benefit protected consumers using up to 100 units of electricity in the first phase. Each 1KV solar system includes two solar panels, a battery, inverter, and wires, providing up to 16 hours of backup. The CM stressed the use of the latest technology and high-quality components such as solar panels, inverters, and batteries to ensure optimal performance and longevity. This initiative marks a significant step towards sustainable energy solutions and economic relief for households in Punjab.



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SUNGROW HOSTS “SUNGROW POWER DAY” IN LAHORE AND KARACHI

Report by Amer Malik / Khalid Iqbal

Sungrow, a global leading PV inverter and energy storage system supplier, conducted its “Sungrow Power Day” roadshow in Lahore and on 6th March in Karachi. These events attracted the participation of over 200 clients in each show, showcasing Sungrow’s cutting-edge products and solutions.

Notably, Sungrow’s dependable partners were individually recognized and praised during the occasion. During these events, Sungrow exhibited a diverse array of products tailored to meet specific needs, encompassing its latest residential and C&I On-Grid solutions as well as the liquid-cooled energy storage systems, PowerTitan and PowerStack, that are apt for utility and C&I conceivable scenarios. By furnishing Pakistan with secure, dependable, and highly efficient renewable energy products, the country can embark on a journey towards a fresh era of clean energy generation.

At the scene, Sungrow expressed its heartfelt gratitude to the numerous partners who had supported the company’s journey and chose to trust and work with them. These customers, whether large corporations or small businesses, had all played a crucial role in validating Sungrow’s technology and solutions. Furthermore, at these roadshows & Solar Pakistan Exhibition, achievement of





1.3 GW of imports was celebrated, which is by far the most by any inverter brand operating in the country. In Lahore big EPC & Distribution partners like M.Ramzan, BreT, Sky Electric, Foundation Solar, Nippon Energy, Wateen, EBR, ESL, BEL, Premier Energy, NEEP energy, Nimir Energy, Sympl Energy, Bright Brothers, RS energy, Landmark energy and smart sense.

And in Karachi, partners like EFY, Factor Solar, Reon, Greaves, Allied Engineering, SM Jaffer, K Solar, ACT, Direct Energy, Voltaic Power, Beyond Green, Amica Energy, MaxGreen, EJ Solar, Solwind were recognized for their support and belief in Sungrow Power. Big thanks to our special guests and senior consultants like Engr. Faiz Bhutta, Nabil Bari, Faizan Ali Shah and Saeed Ur Rehman for their continuous support.

Howard Fu, Director of Sungrow Pakistan and Bangladesh, commented, "The event was an excellent platform for customers, partners, and industry experts. Every customer present here is a loyal partner of Sungrow, and Sungrow is deeply appreciating their invaluable contributions and efforts. With Pakistan's energy transformation, we are poised to create a greener and better future for all." ■



Transforming energy landscape with WACOG

Sajid Mehmood Qazi

The writer is a civil servant with deep interest in the oil and gas sector

This initiative aims to address the inefficiencies and distortions plaguing the current gas pricing system

In a move that could reshape the energy landscape of the nation, the government is now seriously considering the implementation of a system-wide WACOG (Weighted Average Cost of Gas). This initiative aims to address the inefficiencies and distortions plaguing the current gas pricing system, which have led to a staggering circular debt of approximately Rs 3 trillion.

With a high-powered committee formed by the Prime Minister's office tasked to explore the feasibility of WACOG within a tight deadline of 07 days, the stage is set for potential transformative change. The Terms of Reference (TORs) set for this committee underscore the urgency of studying WACOG's impact on various sectors, including its potential to alleviate circular debt, reduce electricity and fertilizer prices, and enhance overall economic stability.

In the following paragraphs an attempt has been made to review the TORs and provide a perspective on each one of them with some ideas as a way forward. It is pertinent to mention that the GoP had resorted to the import of LNG in view of gradual but consistent decline in the local gas production and increased demand from all segments of gas consumers in the country. Although the expensive LNG was imported for exclusive consumption in the power sector with its price ring-fenced, lately it has been diverted to other consumers.

It is important to note that LNG is being imported into the country at a steep price of Rs 3700/MMBTU as compared to Average Domestic Sale Price of Rs 1,100. Even the Average Prescribed Price determined by Ogra (oil and gas regulatory authority) is Rs 1,673/MMBTU.

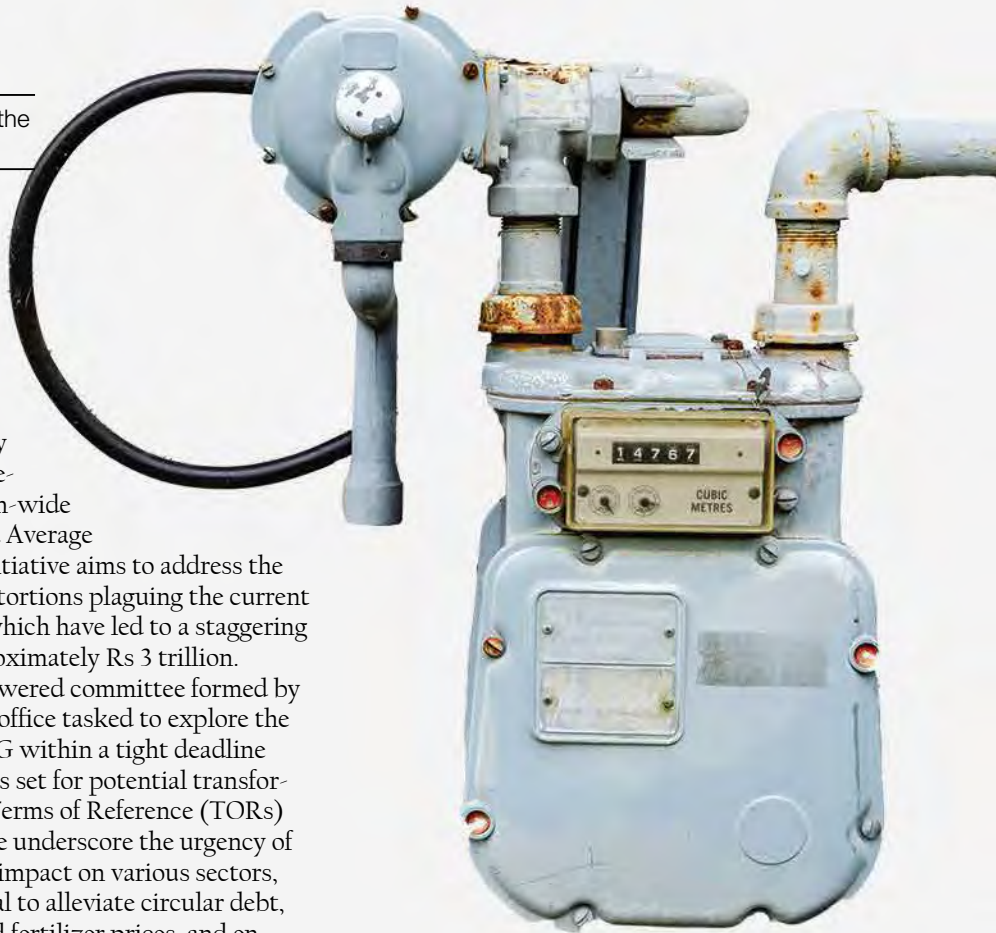
Tariff-related shortfall alone due to delayed revision in Sale price since FY2022-23 is Rs. 423

billion for which no recovery mechanism has been devised as yet. The shortfall in LNG business is Rs. 284 billion upto FY 2022-23, which is also pending recovery.

The current year projected shortfall is likely to exceed Rs. 70 billion despite increase in the Sale Prices by the GOP primarily because of late revision in sale prices from November 2023 instead of July 2023. Hence the total shortfall which is yet to be addressed increases beyond Rs. 750 billion for which no mitigation measures are being taken.

Clearly, this kind of subsidies and diversion of LNG to domestic consumers cannot continue under existing mechanism. Recently GOP has allowed recovery of diversion of LNG from indigenous gas consumers through Revenue Requirement but that also involves a time lag of up to 1 year.

These issues can only be resolved if system-wide WACOG of LNG and system gas is set



up so that no further debt accumulation happens and the gas price continues to change with changes in international prices through an automatic adjustment process like the power sector replacing the current practice of holding public hearings for several months causing considerable delay.

Over 50% of supplies of energy deficient North particularly Punjab comprise of LNG. This expensive imported gas is continuously being diverted to domestic sector for most part of the year. In winter, there is no sufficient indigenous gas to meet domestic demand leading to a huge diversion of LNG.

We must realize that we are getting around 10 LNG cargoes a month, which is around 1 BCF of LNG supplies which comprises of more than 50% supplies for SNGPL. Even in case of SSGC, they are now resorting to supplies containing 20% LNG blend and this situation is likely to deteriorate pretty rapidly in SSGC system while their indigenous gas supplies are going down quickly. It is, therefore, important that the same weighted average cost of gas be applied to all the provinces and all categories of consumers with the objective that the:

a) Provision of WACOG to industry will reenergize the economic activity in the country which can only happen if lower or actual fuel prices are provided to them. All over the world the bulk consumers are provided lower prices compared to individual households while the same is totally lopsided in Pakistan. This is a major disparity that discourages the local industrial production since the imported products continue to be significantly cheaper especially from the neighboring countries.

b) WACOG will ensure timely payments to indigenous gas suppliers and will ensure that the long-term prices of gas in Pakistan particularly in Pak rupees are coming down while reducing the reliance on LNG. The reliance on LNG import not only increased our foreign exchange burden, thereby contributing towards devaluation but it also seriously depressed the indigenous gas productions for which there is still lot of scope in the country.

The recent discoveries from

Mari Petroleum and other exploration & production companies have established that there exists a considerable potential of enhancing the indigenous gas supplies. When we can plan to reduce or suspend imports to reduce electricity prices, the same holds true for reducing the reliance on LNG while diverting all resources to indigenous gas production.

National WACOG is around Rs 2,300/MMBTU. This will increase the domestic prices but they will still be far less than the prices of LNG and LPG. This will resolve market imperfections.

Commercial consumers throughout the country are already charged around Rs 3,900/MMBTU, which is still higher than LNG and doesn't make any sense and thus hampering economic activity and fueling inflation. WACOG will also help this cause.

As far as impact on fertilizers is concerned, the policy of giving subsidized gas to the fertilizer companies' plants has not delivered the desired results, which is very evident from their high profitability and astronomical growth. It is high time that instead of continuing with the current practice, we register our farmers and provide direct subsidies to them through BISP.

Also, currently fertilizer is charged the LNG price while they only pay Rs 1,597/MMBTU while the price differential is supposed to be loaded on to the LNG price again, which is already too expensive to bear due to rapid devaluations in the last 2 years. Introduction of WACOG will reduce the price differential as well.

Introducing system-wide WACOG is not without its challenges, but the potential benefits far outweigh the status quo. By embracing this transformative approach to gas pricing, Pakistan can pave the way for a more resilient and sustainable energy sector that fuels economic prosperity for all. In conclusion, the adoption of system-wide WACOG represents a watershed moment in Pakistan's energy policy.

It's a bold step towards fostering a more transparent, efficient, and equitable gas pricing mechanism that lays the foundation for a brighter energy future. ■

10-year solar panel policy finalised

EU Report

The federal government has finalised a draft of 10 years 'Solar Panel Local Manufacturing and Allied Equipment' policy envisaging incentives to the manufactures, including imposition of tariff on import of finished goods for the period to promote localisation, well-informed sources told Business Recorder. Sharing the details, sources said, the Special Investment Facilitation Council (SIFC) in its 5th Apex Committee meeting held on 8th-9th September 2023 directed to formulate "Solar Panel Local Manufacturing Policy" through consultations in Working Group (WG) meetings. In this regard, several meetings of WG on "Solar Panel Local Manufacturing Policy" were held.

After detailed consultations with the relevant stakeholders, the investment proposal from potential foreign investors for investing in installing requisite solar panels manufacturing capacity within the country for local consumption as well as exports, the "Solar Panel and Allied Equipment Manufacturing Policy 2024" has been formulated. Summary for Economic Coordination Committee (ECC) of the Cabinet titled "Solar Panel & Allied Equipment Manufacturing 2023" was earlier moved by the Industries and Production Division thrice.

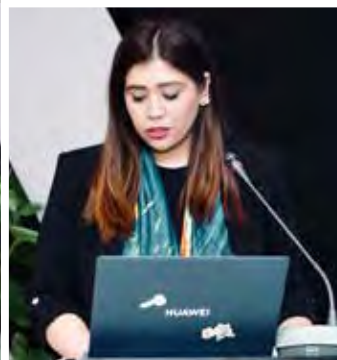
The last Summary was moved on 5th July 2023 regarding the exemption of duty and taxes on the import of parts/components of Solar Inverters, Lithium Ion Batteries, and allied Machinery/Equipment for the Solar assembly/manufacturing industry. However, the matter was deferred. In pursuance of the SIFC's further directions of October 18, 2023 four meetings of the Working Group were also held in the Ministry of Industries and Production on 8th November 2023, 1st January 2024, 26th February 2024 and 27th February 2024 to deliberate upon proposal of a potential foreign investor for establishing a solar manufacturing plant in Pakistan to further refine the subject policy. ■



Huawei Pakistan Digital Week 2024: Unleashing Innovation in Energy and Infrastructure

Islamabad recently hosted Huawei Pakistan Digital Week 2024, a vibrant event that brought together innovation and industry expertise. The showcase highlighted Huawei's latest advancements in digital solutions, with a focus on energy and infrastructure. Attendees were treated to immersive presentations, live demonstrations, and insightful discussions on the latest trends and technologies.

The event spotlighted Huawei's cutting-edge Smart PV & BESS and Data center products, including the groundbreaking Huawei SUN2000-150K-MG0 Smart string inverter, designed for commercial and industrial settings. The guest of honor, Mr. Shah Jahan Mirza, Managing Director of Private Power Infrastructure Board (PPIB), praised Huawei Fusion Solar's pioneering efforts in revolutionizing the energy landscape. He emphasized the critical role of innovative technologies in driving sustainable solutions and meeting Pakistan's evolving energy needs. Industry experts engaged in lively discussions on key topics such as power generation capabilities, proactive security features, long-term reliability, simplified operation and maintenance, efficient deployment strategies, and grid integration. These discussions highlighted the essential aspects of Huawei's cutting-edge offerings and their potential to shape the future of digital transformation in Pakistan's energy and infrastructure sectors. Overall, Huawei Pakistan Digital Week 2024 served as a dynamic platform for fostering collaboration, sharing insights, and driving innovation in the region.





X



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Pakistan's economic reckoning

Dr Abid Qaiyum Suleri

The writer heads the Sustainable Development Policy Institute

The annual and spring meetings of the International Monetary Fund (IMF), and the World Bank (WB) are key events for the global economic community.

These meetings, attended by high-level officials such as finance ministers, central bankers from member countries, and decision-makers of other regional lenders, serve as crucial platforms for discussing transnational issues like macroeconomic stability, climate change, and debt sustainability. The discussions that unfold here play a significant role in shaping decision-making processes and strategies for resource mobilization, particularly for developing nations.

The 2024 Spring Meetings, themed 'Vision to Impact,' are not just another event on the calendar, but an important opportunity to translate broad visions and promises into actionable and impactful realities. These discussions, coinciding with the release of global, regional, and country-wise economic updates, are particularly relevant. For Pakistan, these updates are especially pertinent as they shed light on the persistent challenges its economy faces.

The bad news is that according to the latest reports from the IMF, the World Bank, and the Asian Development Bank (ADB), Pakistan's economy has undergone a significant downturn in the last fiscal year (FY2023), with the real GDP growth rate contracted to negative 0.2 per cent. The agricultural sector's growth was halved to 2.3 per cent, industry contracted by 3.8 per cent, and services growth nearly stagnated at 0.1 per cent. According to the World Bank and ADB, this decline is a consequence of the combined effect of different factors, including devastating floods, political unrest, and ineffective policy measures, which severely impacted investment, consumption, and production.

Inflation in Pakistan has skyrocketed to a historic peak of 29.2 per cent, driven by supply disruptions, currency depreciation, and dramatic increases in food and energy prices. Notably, food prices, which constitute more than half of the overall price index, saw a staggering rise from about 13 per cent to nearly 40 per cent (before taming down to 29 per cent last month).

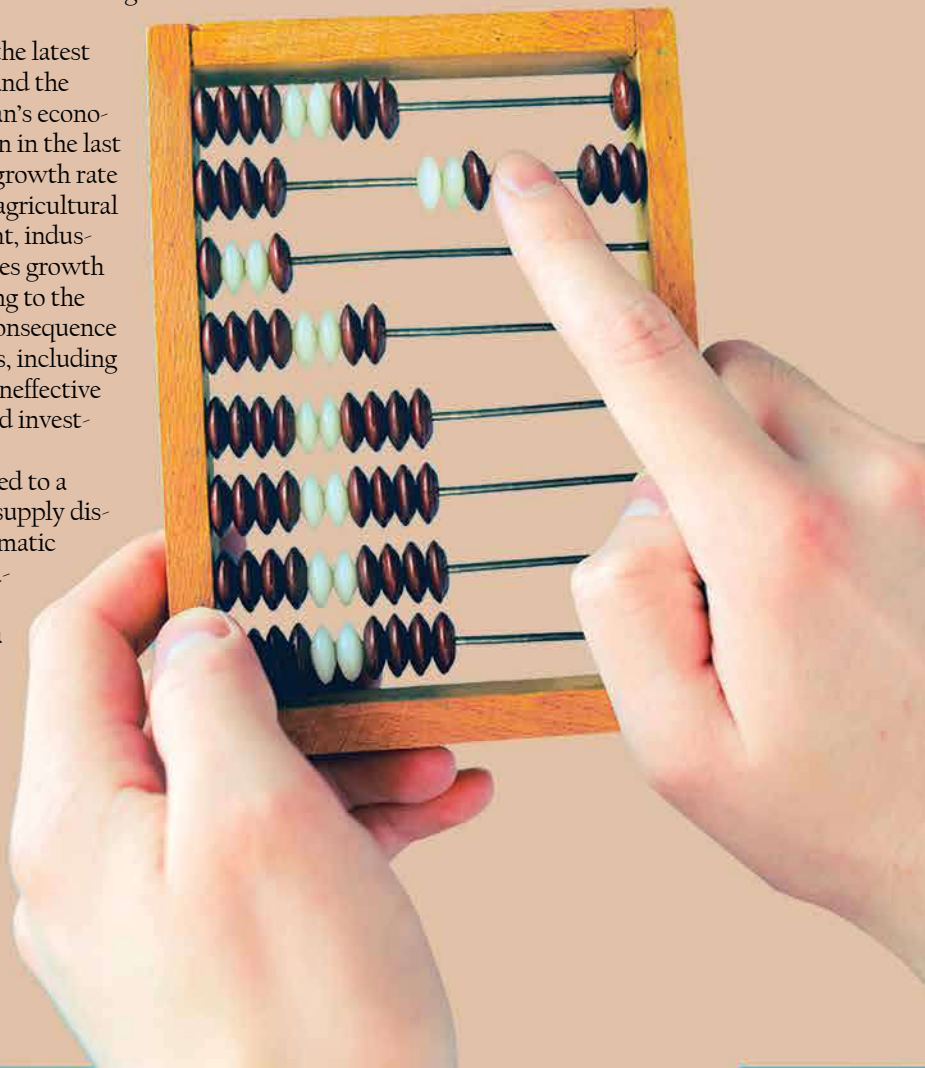
Investment has also taken a severe hit, with public investment dropping by 31.6 per cent and private investment by 14.6 per cent, reflecting a grim economic outlook and constrained fiscal resources. To address

these challenges, the State Bank of Pakistan elevated its policy rate by 700 basis points to 22.0 per cent, aiming to control inflation and manage external imbalances.

These chronic economic challenges have severe implications for human development in Pakistan. The United Nations Development Program (UNDP)'s recently released human development report indicates that Pakistan ranks 164 out of 193 countries on the Human Development Index (HDI), placing it in the 'low' human development category (Afghanistan is the only other South Asian nation in this category).

The economic turmoil has exacerbated inequality and restricted access to essential services like quality education and healthcare, directly affecting the living standards necessary for improving the HDI. A significant 33 per cent decline in Pakistan's inequality-adjusted HDI highlights the considerable internal disparities within the country. In terms of gender inequality, the country's rank remains unchanged at 135 out of 166 countries. The Multidimensional Poverty Index (MPI) score remains unchanged at 0.198, indicating persistent challenges whose resolution requires something beyond doing business as usual.

The good news is that, despite the current economic



and human development challenges, there is a promising pathway forward as outlined by multilaterals such as the UNDP, World Bank, IMF, and ADB. UNDP Pakistan Country Director Samuel Rizk notes that with a new government in place and ambitious reform plans, there is a significant opportunity for prosperity in Pakistan. This vision, which requires substantial mobilization of climate and SDG financing, is not only feasible but also holds the potential to uplift everyone, enhancing the prospects for human development across all societal layers. Likewise, World Bank Pakistan Country Director Najy Benhassine reminds us that Pakistan has enormous untapped development potential, which must now be realized through bold and decisive policy reforms.

Both ADB and the World Bank emphasize the need for structural reforms focused on enhancing fiscal management, rejuvenating the energy sector, and rectifying inefficiencies in state-owned enterprises.

All multilateral partners agree: policy consistency, robust governance, and strategic infrastructure development are the keys to restoring investor confidence and fostering sustainable economic growth. When executed effectively, these reforms are projected to stabilize and gradually stimulate growth, with GDP growth anticipated at around 2.0 per cent (World Bank 1.8 per cent, ADB 1.9 per cent, and IMF 2.0 per cent) in the ongoing fiscal year and 2.8 to 3.5 per cent in FY2025 (the IMF anticipates that it can be 3.5 per cent in FY2025). The IMF also projects that the inflation rate will decrease to 24.8 per cent in 2024 and further down to 12.7 per cent in 2025. There is little room to disagree with the ADB and World Bank's analyses that Pakistan's economy will bounce back by FY2025, provided the above-mentioned reforms are undertaken. Both lack detailed assessments of how the proposed reforms will address the underlying issues and risks highlighted in their reports, such as high inflation, low investment, and sectoral contractions. Additionally, perhaps constrained by their mandate, their reports carry very limited discussion on addressing political instability and its economic ramifications, which are crucial for achieving sustainable growth.

More clarity is also needed on long-term economic strategies, particularly regarding sustainable development, debt sustainability, and diversification of the economy. However, the consensus among multilateral partners provides a solid foundation for these discussions and future actions. By effectively integrating human development goals with economic policies, Pakistan can leverage spring meetings' engagement to catalyze much-needed societal change. Such a comprehensive approach promises not just a positive economic outlook but a reinvention of Pakistan's developmental trajectory, ensuring a higher quality of life for all its citizens. ■

Pakistan's upstream oil & gas sector in crisis



Shiblee Kamal

Pakistan's oil and gas exploration and production (E&P) companies face a severe financial crisis due to massive outstanding payments from state-owned gas companies.

The Pakistan Petroleum Exploration and Production Companies Association (PPEPCA) reports that Sui Southern Gas Company Limited (SS-GCL) and Sui Northern Gas Pipelines Limited (SNGPL) owe a staggering Rs 1.5 trillion (approximately \$8.8 billion) to E&P companies, with over \$600 million owed to multinationals.

These delayed payments are crippling the E&P sector. Companies are struggling to invest in their assets, leading to a decline in domestic oil and gas production. This shortfall forces Pakistan to rely on expensive Liquefied Natural Gas (LNG) imports, which widens the energy deficit. The financial crisis is also impacting investor confidence. The lack of timely payments discourages new investments and hinders access to capital and technology needed for exploration and development activities. This is evident in the recent exodus of international E&P companies from Pakistan. The Pakistan Petroleum Exploration and Production Companies Association (PPEPCA) suggests solutions includ-

ing government grants and foreign exchange allocation to pay foreign companies. The government acknowledges the problem and is working on solutions but offers no concrete timeline. Recently two retired industry professionals gave a misleading and inaccurate assessment by claiming that Balochistan & KPK are unexplored because of no foreign investment, though Pakistani professionals are highly skilled and competent.

However, the fact is E&P sector has underperformed over the last 70 years, failing to meet the country's daily requirements. Consequently, Pakistan has been forced to deplete a significant portion of its foreign reserves through oil and LNG gas imports, leading to severe economic crises.

The responsibility for this dire situation lies squarely with incompetence and poor governance. Pakistan has grappled with a persistent trade deficit since 2003, primarily due to high energy imports. We must accept that Pakistan's E&P potential is significantly lower than that of other countries. Similarly, local service companies are virtually nonexistent. Pakistan must recognize its limited potential and redirect its efforts towards the oil and gas services industry, similar to the European countries. They must realize that oil and gas exploration is more promising overseas and can yield better results. ■

Iran pipeline conundrum: To build or not to build

Zofeen T. Ebrahim

The rooftop of Vaqar Zakaria's home in Islamabad is strewn with photovoltaic panels that he says have lowered his electricity bill to virtually nothing. This is countered by the stark contrast in his rising gas costs. "From a steady Rs800 a month, it has risen to Rs4,000 in the last six months," he says.

Mr Zakaria, head of environmental consulting firm Hagler Bailley Pakistan, is fortunate to have a gas supply at home. His situation highlights a nationwide energy paradox, where advancements in one sector are negated by crises in another. "If only Pakistan had imported Iranian gas back in the late 1990s when there were no sanctions," Mr Zakaria told The Third Pole, recalling a time when prices were far cheaper "at just \$2 per million British thermal units (mmBtu)".

A participant in some of the early discussions, Mr Zakaria remembers strategising over the proposed 2,775km pipeline that promised to link Pakistan's energy supply directly to Iran's abundant gas reserves. Between the threat of US sanctions on one side and possible Iranian penalties on the other, experts question whether the 'Peace Pipeline' will be a pan-

acea for the country's energy crisis

The long-term project, which came to be known as the 'Peace Pipeline', has faced significant delays due to geopolitical pressures, sanctions on Iran and financial hurdles within Pakistan. Iran's proven natural gas reserves, estimated at 1,203 trillion cubic feet (Tcf) as of December 2021, are second only to Russia.

Ten-year wait

In February this year, the caretaker government decided to dust off the 2009 agreement, approving the construction of the first phase or 80km stretch (of the total 780km pipeline) from the Iranian border to Gwadar.

Meanwhile, Tehran has issued a deadline: finish the pipeline segment by March 2024 or incur financial repercussions amounting to nearly \$18bn — a sum that could prompt international arbitration.

"We are very reluctant to take this drastic step," Hassan Nourain, the consul general of Iran in Karachi, told The Third Pole, adding, "but the gas company of Iran is a national company and belongs to the people of Iran. It invested \$1bn years ago. Now, the Iranian parliament is pressuring the government to decide the fate of this project".

Iran had already fulfilled its part of the agreement by completing 1,100km of pipe-

line from the South Pars gas fields to the Pakistan border. Then in 2014, it extended the deadline by an additional decade, on Pakistan's request, he added.

But Islamabad is also feeling the pressure from the US. Last month, Donald Lu, the US assistant secretary of state for South and Central Asia cautioned Pakistan against importing gas from Iran, as it would expose it to US sanctions.

In response, Pakistan's Foreign Office spokesperson Mumtaz Zahra Baloch made a case for national sovereignty; since the pipeline is being built within Pakistani territory, "we do not believe that at this point there is room for any discussion or waiver from a third party", she said.

Waiver favour

While Pakistan grapples with Iran's deadline, the land in Gwadar earmarked for construction has yet to be acquired, according to government insiders.

Micheal Kugelman, director of the Wilson Centre's South Asia Institute in Washington, summarises the pre-



dicament: “Pakistan is seemingly caught between the devil and the deep blue sea — build the pipeline and risk being sanctioned, or don’t build it and get slapped with a massive fine.”

Ahmad Irfan Aslam, the former law minister in the caretaker government that greenlighted construction of the 80km section of the pipeline, points out Pakistan’s reliance on the US for “everything from economic bailouts to its security”. He warned any waiver request would necessitate complex negotiations.

Economic feasibility

Pakistan has around 19.5 Tcf of proven gas reserves, sufficient for just 12 more years, based on current annual consumption levels. “The only advantage to have Iranian gas is if there is a guarantee of firm supply at favourable rates,” said Haneea Isaad, an energy finance specialist at the Institute for Energy Economics and Financial Analysis (IEEFA). Although Khawaja Asif said the government was “looking towards raising funds from international banks”, Mr Zakaria warned that securing investment may prove challenging.

“Neither the development finance institutions nor western and Middle Eastern banks will lend for the project in view of US sanctions placed on Iran, which will also make it difficult for Pakistan to pay for the gas received from Iran,” he said. Pakistan’s best bet may be to build the pipeline with financing from China or some other external source, notes Mr Kugelman.

Among possible funders is Russia. Senator Mushahid Hussain told The Third Pole that, “Russia has offered to fund the initial \$160m for the 80km of Pakistan-Iran pipeline.” Iran, said its consul general, “would be happy to provide technical and engineering support in building the pipeline”.

But Pakistan faces a complex energy transition, marked by growing demand and discussions centred on the immediate challenges of costs, legal action and geopolitical dynamics. As Islamabad prepares to host Iranian President Ebrahim Raisi on an official three-day visit from April 22, Isaad warns against viewing Iranian gas as a panacea for Pakistan’s energy needs, emphasising it is “another imported commodity and subject to geopolitical considerations and linked to global oil prices”. Published in collaboration with The Third Pole at Dialogue Earth. A detailed version of this article can be accessed on their website and Dawn.com ■

Courtesy The Third Pole

ELECTRICITY PROJECT

Empowering Pakistan's Backward Districts: A Vision for Inclusive Development



Mustafa Tahir

In a significant stride towards inclusive development, the Ministry of Planning, Development, and Special Initiatives has unveiled a groundbreaking program aimed at providing off-grid electrification solutions to 20 backward districts across Pakistan. This initiative marks a pivotal shift towards proactive and strategic planning, particularly in addressing the challenges faced by the most vulnerable communities.

The timing of this initiative is crucial, given the economic downturn exacerbated by historic inflation and unemployment, especially affecting the backward districts. By focusing on these areas, the program not only aims to bridge the infrastructure gap but also seeks to uplift communities grappling with poverty, worsened by the aftermath of the Covid-19 pandemic.

The program's comprehensive approach, integrating interventions across multiple sectors such as physical and digital connectivity, productive sectors, livelihoods, social development, and social protection, underscores a holistic strategy for sustainable development. This includes infrastructure development, access to broadband services, value chain enhancement, skill development, and education, laying the foundation for long-term prosperity.

What sets this initiative apart is the meticulous planning and utilization of data-driven insights. Leveraging indicators like the Multidimensional Poverty Index (MPI) for district classification and identification reflects a strategic utilization of resources and a targeted

approach to address specific challenges faced by each district.

However, the success of such ambitious endeavors hinges on the sincerity of purpose and a collaborative effort across sectors and ministries. It requires a commitment beyond routine duties, ensuring that the intended benefits reach the grassroots level effectively.

The youth demographic, often touted as Pakistan's strength, is a focal point of this initiative. With a vast majority below 35 years of age, empowering this segment with skills, education, and opportunities not only mitigates poverty but also unlocks immense potential for economic growth and social progress.

The broader significance of this initiative lies in its potential to transform Pakistan's demographic challenge into a demographic dividend. By investing in the well-being and capabilities of the youth, we pave the way for a brighter future, where they become catalysts for positive change and contributors to the nation's prosperity.

It's imperative for all stakeholders, including political parties, to rally behind such pro-people programs. Ensuring that these initiatives transcend political rhetoric and receive steadfast support is vital for steering Pakistan towards a path of inclusive and sustainable development.

In essence, the program for off-grid electrification in backward districts encapsulates a visionary approach, aligning with global sustainability goals while addressing immediate socio-economic challenges. It's a testament to the nation's commitment to leaving no one behind, forging a path where every Pakistani has the opportunity to thrive and contribute to a prosperous future. ■

Curtailment Challenges in Pakistan's Wind Energy Sector: A Call for Strategic Reforms

EU Report

In recent years, Pakistan's wind energy sector has faced unprecedented challenges, particularly in the form of curtailments that have cast a shadow over the viability and growth of wind energy projects. This issue has garnered attention from industry experts and stakeholders,

prompting calls for strategic reforms to address the root causes and pave the way for a more sustainable energy landscape.

Understanding the Curtailment Scenario

Tanveer Afzal Mirza, Director Operations & Company Secretary at UEP Wind Power Project, highlights the unexpected phenomenon of curtailments in wind energy projects, contrary to the must-run status traditionally associated with such projects. The stark reality is that despite policies favoring wind projects, the market scenario tells a different story.

The primary driver behind these curtailments lies in the misalignment between power production capacity and actual consumption patterns in Pakistan. With a significant gap between installed capacity (42,000 MW) and peak consumption (28,000-29,000 MW), the off-peak season sees a drastic drop in demand to 10,000-12,000 MW. This disparity underscores the need for a comprehensive strategy to balance production and consumption dynamics effectively.

Root Causes and Challenges

Several factors contribute to the curtailment challenges faced by wind energy projects in Pakistan:

Lack of Industrial and Commercial Contribution: The reliance on consumer-driven demand, coupled with limited contributions from industrial and commercial sectors, creates a skewed consumption pattern that exacerbates curtailment issues.

Focus on New Power Projects: Despite existing



challenges, there's a continued emphasis on establishing new power projects, leading to further strain on the grid and potential curtailments for existing projects.

Net Metering Dynamics: The increasing popularity of net metering among consumers has added complexity, as surplus power in the system contributes to curtailments and operational challenges for wind energy projects.

Path to Sustainable Solutions

Zeeshan Ashfaq, CEO of Renewable First, underscores the urgency of addressing curtailment challenges to maintain investor confidence and sustain growth in the renewable energy market. Proposed solutions include:

Policy Reforms: Implementing strategic policy reforms to align power production with consumption patterns, incentivize industrial and commercial contributions, and streamline net metering dynamics.

Financial Support: Providing adequate financial support and mechanisms to offset revenue losses incurred by curtailed wind projects, ensuring their financial viability and attractiveness to investors.

Grid Modernization: Prioritizing grid modernization efforts to improve transmission and distribution efficiency, reduce line losses, and enhance grid stability to accommodate growing wind energy capacities.

Hybrid Models: Exploring hybrid renewable energy models, such as Wind-Solar hybrids, to maximize existing infrastructure, reduce land acquisition challenges, and contribute significantly to carbon emissions reduction goals.

Conclusion

Addressing curtailment challenges in Pakistan's Wind energy sector requires a multi-faceted approach involving policy reforms, financial support, grid modernization, and innovative energy models. By prioritizing these strategic initiatives, Pakistan can unlock the full potential of its renewable energy sector, attract investment, create sustainable energy solutions, and contribute meaningfully to global climate goals. ■



ENERGY NEWS

Thar Coal's multi-Use potential gains support from South Africa

EU Report

Minister for Energy, Planning, and Development Syed Nasir Shah unveiled insights from South African experts regarding the versatile potential of Thar Coal Block-II during a recent meeting.

Experts highlighted the coal's suitability for gasification, fertilizer production, and generating gas and diesel. However, their primary recommendation emphasized using the coal for power generation through gasification.

Shah announced plans to send a delegation from the Sindh Coal Authority to China for firsthand exposure to gasification

technology at the China Modern Gasification plant. This initiative aims to explore technological transfers and effective utilization methods. The research findings affirmed Thar Coal Block-II's versatility, paving the way for its utilization across various sectors. Shah stressed the importance of gasification technology, aligning with efforts to formulate a comprehensive provincial policy.

The minister committed to collaborating with the federal government to promote gas efficiency policies at the provincial level. The meeting also featured detailed briefings from key officers, showcasing stakeholders' readiness to leverage Thar Coal's potential for energy security and sustainable development.

OGDCL Reports Rs171 Billion Profit in First Nine Months

Oil and Gas Development Company Ltd (OGDCL) has announced a notable 7.18% increase in its profit after tax (PAT), reaching Rs171.104 billion with earnings per share at Rs39.78 for the first nine months ending March 31, 2023-24.

According to a statement released on Wednesday, OGDCL's net sales revenue stood at Rs348.164 billion. The board declared an interim cash dividend of Rs2 per share or 20% for the quarter ending March 31, in addition to the earlier interim dividend of Rs4.1 per share paid to shareholders.

1,320MW Thar coal power to be added to national grid

Provincial Minister for Energy, Planning and Development Syed Nasir Hussain Shah on Saturday said 1,320 megawatts electricity will be added to the National Grid after the completion of the first phase of the Thar Coal project. He expressed these views in a meeting held at the office of the Sindh Energy Department. The CEO of Shanghai Power Meng Donghai and CEO-SSRC Jain while Secretary of Energy Sindh Kazim Jatoi and other senior officers of the Energy Department were also present. The minister said the 2,300-megawatt Thar Coal Block-I Power Generation Project will play an important role in meeting the energy requirements. Nasir Shah assured the delegation of the immediate removal of all obstacles in the project.



Powering the Future:

Why battery energy storage is crucial

Enercap Holdings

Omar Masrur & Bilal Sheikh

As the world transitions towards renewable energy sources like solar and wind, a critical challenge emerges – storing this clean energy for use when the sun isn't shining or the wind isn't blowing. This is where Battery Energy Storage Systems (BESS) come into play, acting as a game-changer for a sustainable and reliable electricity grid.

The Importance of Storage: Bridging the Gap Between Supply and Demand

Unlike traditional power plants fueled by coal or gas, renewable energy sources are variable. Solar panels produce electricity during daylight hours, but not at night. Wind turbines rely on wind speed, which can fluctuate significantly. This variability creates a gap between when renewable energy is generated and when it's actually needed.

BESS bridges this gap by storing

excess energy generated during peak production times and discharging it back to the grid when demand is high. This ensures a consistent and reliable supply of electricity, even with a growing dependence on renewables.

Benefits Beyond Grid Integration:

BESS offers a multitude of advantages beyond integrating renewables:

Grid Stability: Renewable energy sources can sometimes cause sudden fluctuations in grid frequency. BESS can quickly inject or absorb energy, maintaining grid stability and preventing blackouts.

- **Peak Shaving:** Electricity demand typically peaks during specific times of the day. BESS can discharge stored energy during these peak periods, reducing dependence on expensive peaker plants and lowering electricity costs for consumers.

- **Improved Efficiency:** BESS can help utilities optimize energy use by storing excess energy during off-peak hours when

it's cheaper, and then releasing it during peak hours when it's more valuable.

- **Renewable Energy Integration:** With increased penetration of renewables, BESS can help manage the intermittency of these sources, facilitating a smoother transition to a clean energy future.

Applications Beyond the Grid:

The benefits of BESS extend beyond large-scale grid applications. Here are some additional uses:

- **Microgrids:** BESS can provide backup power and improve resilience for isolated communities or facilities with their own renewable energy generation (e.g., solar panels on rooftops).

- **Electric Vehicles:** BESS can play a crucial role in supporting the growth of electric vehicles by stabilizing the grid during peak charging periods.

- **Electric Vehicles Charging Infrastructure:** Faster and wider adoption of EVs requires more fast charging stations, but there is limited ability in the current grid to provide the power requirements of fast DC charging, rendering many potential



sites unusable for DC fast charging. With BESS, a site can overcome this limitation and become a viable DC fast charging location.

- **Industrial Applications:** Factories and industrial facilities can utilize BESS to reduce energy costs by taking advantage of off-peak electricity rates or integrated BESS to improve power quality and reliability.

The Future of BESS: Innovation and Cost Reductions

Supercapacitors are now a proven technology for a multitude of applications, including electric vehicles, electric vehicle charging stations, solar plus storage applications, telecom sites, commercial and industrial backup and peak shaving applications, and grid-scale energy storage systems, to name a few. Enercap's technology is unique in that they produce energy storage systems that are a plug-and-play replacement for conventional batteries, whether they are lithium-ion, lead-acid, or other chemistries, while they have more superior performance. For instance, Enercap's energy storage systems can operate between -30 and +70 degrees Celsius, can charge in seconds, have the ability to cycle up to 500,000 times (full charge and discharge), have zero degradation over an estimated lifespan of at least 25 years, can discharge 100% on each cycle, and have a round trip efficiency of 99.1%. This compared to chemical batteries that degrade and/or become very volatile in extreme temperatures, charge over several hours, degrade over their limited life, and waste up to 30% in inefficiencies.

Enercap's range of energy storage devices are about 80% biodegradable and 100% recyclable.

Over the last couple of years, grid-scale energy storage systems have been very significant in enabling utility companies to correct frequency-related issues, optimize time of use, and improve the performance of the grid. It can be noted that large-scale energy storage systems have been deployed en masse throughout the world; however, with conventional chemical batteries, there are several short- and long-term challenges that utility companies are facing, these can be as extreme as systems catching fire and, in the case of lithium-ion, whereby the fire can last a very long time and its effects can be catastrophic both in terms of safety and to the environment.

Enercap's supercapacitor technology, being used in grid-scale energy storage systems, has a number of benefits, which include:

- **High Energy Density:** Enercap has developed supercapacitor cells that have high energy density than current lithium chemistries. As a result, Enercap BESS has high energy density which means large systems require smaller real estate.
- **Rapid Response and High Power Density:** High speed is an inherent physical property of Supercapacitors, enabling them to charge and discharge energy much faster than traditional batteries, This makes Supercapacitors ideal for applications requiring rapid response times and high-power bursts. In grid-scale energy storage systems, supercapacitors can

help stabilize the grid by quickly providing or absorbing large amounts of power to match supply with demand.

- **Long Cycle Life:** Supercapacitors have a longer cycle life compared to many batteries, with some supercapacitors capable of enduring hundreds of thousands to millions of charge-discharge cycles. This longevity makes them a reliable and cost-effective option for grid-scale energy storage systems, as they require less frequent replacement and maintenance.
- **High Efficiency:** Supercapacitors have high charge and discharge efficiencies, typically exceeding 95%. This means that they can store and release energy with minimal losses, making them an efficient option for grid-scale energy storage applications where energy efficiency is crucial.
- **Scalability and Modularity:** Supercapacitors can be easily scaled and combined to meet the specific energy storage requirements of grid-scale applications. Their modular nature allows for flexible deployment and easy integration into existing grid infrastructure.
- **Temperature Tolerance:** Supercapacitors can operate over a wide range of temperatures, making them suitable for deployment in diverse environmental conditions. This versatility makes them a reliable option for grid-scale energy storage systems in various locations and climates.

Enercap's BESS installations are increasing and Enercap's largest, a 20MW/20MWh microgrid-forming BESS, is under construction and will be deployed by mid-year. Enercap is seeing growing interest in the region in BESS use across utilities and large C&I companies.

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*Terms & Conditions Apply



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- Wide voltage range, compatible with various power grids
- Compact for easy installation



HIGH RELIABILITY

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- Surge Arrester DC type III / AC type III
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INTELLIGENT MAINTENANCE

- Built-in Bluetooth and Wifi Dongle
- Power consumption monitoring
- Remote configuration and upgrade
- Quick commissioning via mobile app
- Multiple I/O and communication configurations

5 YEAR WARRANTY

Unlimited Replacement & Lifetime Free Service Warranty
*Terms & Conditions Apply



Ingress Protection



Solids (Dust Protection)



Liquids (Water etc)



Wide Range of Solar Inverters



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ORION
ULTRA SERIES

FALCON
ULTRA SERIES

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Renewable electricity revolution

Pakistan has potential to double its electrical power generation per capita

Omar S Cheema

The writer is a freelance contributor

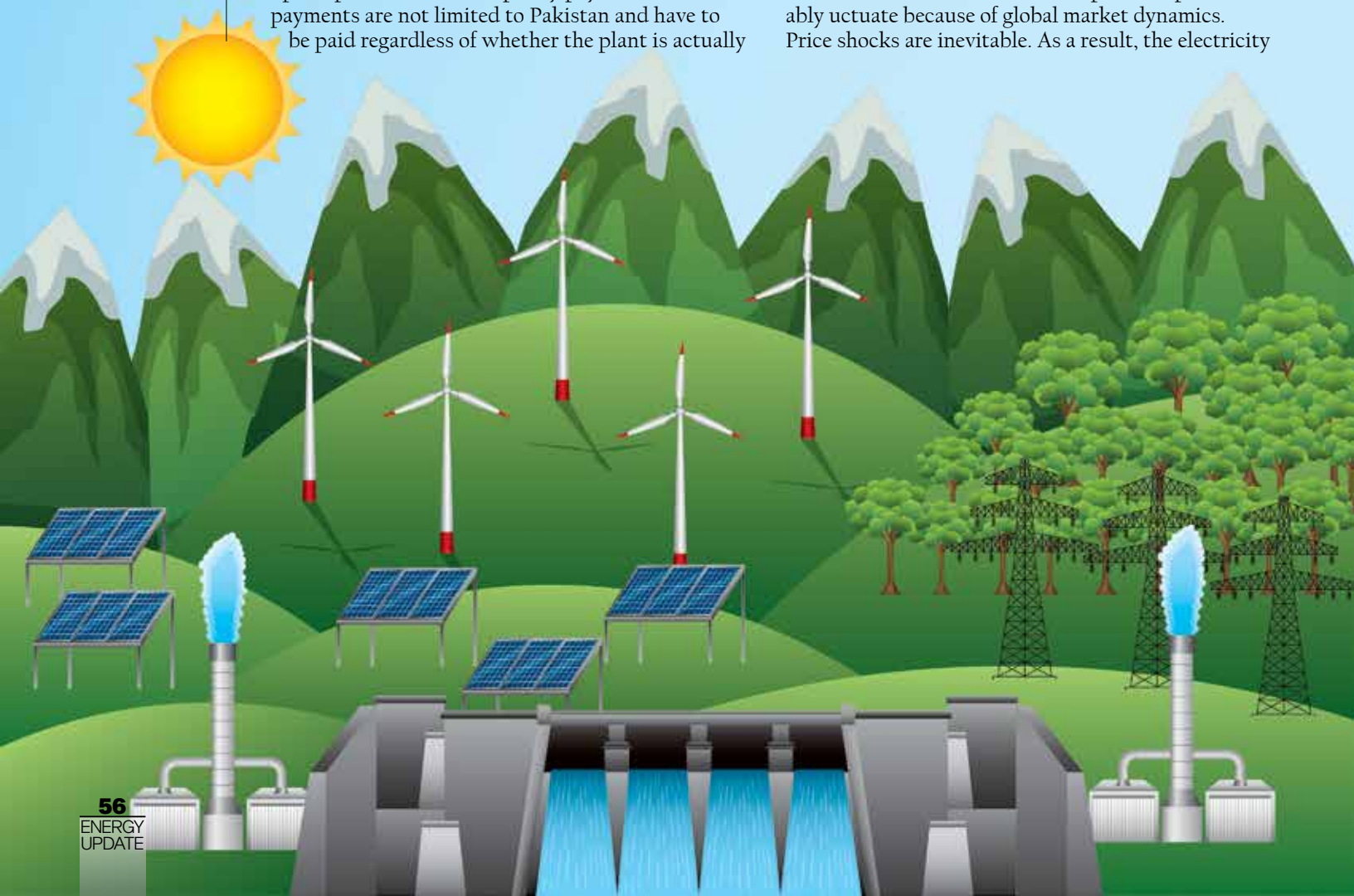
The country's entire national electricity infrastructure is ultimately financed by consumers through their bills – from power generation plants to transmission and distribution lines. This is why the electricity infrastructure expansion must fit the buying power of consumers. There are two basic costs for any power generation asset – the capital cost for building the power capacity (watts) of the asset and the operational cost of power capacity conversion into energy production (measured in watt-hours).

The payment to the plant owner for setting up the plant is called a capacity payment. These payments are not limited to Pakistan and have to be paid regardless of whether the plant is actually

used or not.

Then there is the payment for the operational cost of using the plant to deliver energy. The key concern in financing a power plant is to make sure consumers can afford the operational costs. If the consumer cannot afford this cost, the obligatory capacity payment is money down the drain. The issue is therefore not a policy of offering capacity payments but of financing power plants that are affordable to operate.

All thermal power plants run on fuel – coal, gas or uranium – and freshwater to drive the steam turbine. Over 60 per cent of Pakistan's current electricity generation net consists of such thermal power plants. Fuel is the main operational cost. No one can lock in the buying price of these fuels for the long run; it is impossible. Over the long run, fuel prices tend to increase. In addition, fuel prices unpredictably fluctuate because of global market dynamics. Price shocks are inevitable. As a result, the electricity



prices from thermal power plants are unstable and in ationary.

By contrast, solar, wind, and hydro run on natural renewable resources. Hydro is a bit more complicated, particularly for reservoir-based hydroelectric generation, because there is an opportunity cost of diverting water from rivers and groundwater. The water resource has other urgent competing needs, eg, agriculture and food security.

Hydro is also not climate change resilient because, with increasing droughts from global warming, the renewable water resource becomes scarcer for a swelling population like that of Pakistan. Solar and wind power do not have such constraints. These are drought-proof, fuel-free power sources. The operational fuel cost is zero. The fuel price volatility is zero. The total cost of setting up and operating a solar or wind power plant is its initial capacity payment. The electricity price for the power plants is stable, fixed for the plant's lifetime, and de ationary.

The capacity payment policy can become a problem for thermal power plants, but not for solar and wind power. If the operational fuel cost becomes too expensive, capacity payments still have to be made for idle power plants. This problem cannot occur with solar and wind power.

An overwhelming majority of new electric power additions last year, globally, were solar and wind power. This shift in priorities is not driven by climate change, but by economics. Professional project developers know that the choice of solar and wind power plants is motivated by superior financials – carbon emission credits are not really factored into the business case. nother compelling motive is energy independence for national security. Countries do not have to rely on the geopolitics affecting fuel imports. There is no recurring foreign exchange drainage for the imports, with the consequence of a foreign debt stranglehold.

Last year, Germany produced about 200TWh (one TWh = one billion kWh) of electricity, almost half its total consumption, from solar and wind alone. The total electricity generation of Pakistan from all sources is around 140TWh (~ 600 kWh per capita vs ~ 1,300 kWh for India). Pakistan has a greater natural resource of solar and wind power than Germany. The total cost of installing and operating a solar/wind power plant is now less than the operational fuel cost of thermal

power plants. In addition, it alleviates a worsening water scarcity crisis.

A weak objection against increasing renewables is that it adversely affects the electricity grid network. On the contrary, renewables can improve grid stability by providing a more distributed network of grid support capabilities (called reactive power for AC grid ancillary services). Have the grids of countries like Germany become more unstable by increasing the proportion of renewables? No. Contrary to this, countries like South Africa that rely on indigenous coal for their mainstay electricity are plagued by power outages and loadshedding. Modern power electronic grid interfaces for renewables are technically superior to the inertia of thermal power plant generators.

A timely plan to migrate to renewable electricity sources must be a top priority in negotiations with the IMF and international donors. Foreign exchange drainage and associated debt for fuel imports are a crippling burden on the Pakistani economy.

Electricity market development in every country is heavily regulated. That has always been the case. So-called free market forces have not been responsible for electricity infrastructure development anywhere, whether in the capitalist US or communist China. A critical factor is the certainty of policy direction.

To attract foreign investment and project delivery, there has to be long-range certainty and transparency about the rules of the playing field. Otherwise, there is too much financial risk for foreign or domestic companies to participate in long-range energy infrastructure projects. Even the most financially credit-worthy countries have therefore underpinned their electricity market reforms with robust legislation and ironclad ring-fenced funds.

The policy direction has been insulated from the usual competition between political interests. If the political powers of the country do not rise above their competing group interests in a united policy direction, no one from the outside is going to provide the necessary resolve.

A common refrain against transitioning to renewable power is the yoke of capacity payments for legacy power plants. These capacity payments are a sunk cost. One cannot stop the economic progress of the country on this pretext. Funding the excessive operational cost of thermal power plants to exclude cheaper electricity from solar and wind power

is self- agellation. It is throwing good money after bad. The opportunity cost of trying to sustain past mistakes is too severe. Legacy thermal power plants can, of course, produce electric power, but at a much greater price than the viable alternatives of solar and wind power.

One has lost count of recent electricity price hikes to prop up legacy power generation. Price increases for rising fuel import costs leave the consumer with only fear of more energy in ation to come. The money is spent on burning fuel. The consumer has to wait for another tariff increase for the next fuel price shock.

A price increase in the electricity bill of Rs16/kWh can fund solar power for the corresponding electricity consumption for 30 years. In other words, the additional charge can finance sufficient daytime electricity for the consumer's needs for 30 years. The payback for a solar electricity investment in Pakistani conditions is within 10 years (per kWh payment for the upfront investment, including satisfactory profit).

Pakistan should roll out such a community solar scheme for the entire nation, extending it to all forms of renewable electricity. It is more affordable and sustainable for the consumer than painful price hikes for rising and uncertain fuel prices.

Electricity cooperatives, set up by Roosevelt's New Deal, revolutionized electricity access in the US, especially in rural areas. The industrial breakthrough of renewables enables the unprecedented empowerment of electricity cooperatives. Pakistan can set an example by using renewable electricity in this manner to transform its economy.

The upfront capital investment is not an insurmountable obstacle, provided the policy is backed by robust legislation and transparent rules. The domestic and foreign private sectors, fairly and securely incentivized, will jump on the tremendous growth opportunity.

With recurring foreign exchange drainage on fuel imports for electricity, the persistent devaluation pressure on the Pakistani rupee will be sharply reduced. Renewable electrification will pave the way for all types of sustainable, self-sufficient energy consumption. Energy independence for national security and a prosperous modern economy will be created. There is no financial or technological impediment stopping it. The only hurdle to a renewable electricity revolution is the imagination and determination of policymakers. ■

Solar Project MOU Signing Ceremony between Malik Group, Hanersun and My Energy



Abdul Sami Khan (Chairman Pakistan Petroleum Dealers Association) speaking on the occasion of signing ceremony of Malik Group of Companies, My Energy Co and Hanersun (Chinese company) of manufacturing and distribution of Solar panels across Sindh. He spoke about his long association with Malik Khuda Baksh (CEO of Malik Group of Companies) appreciating his hard work and dedication in oil industry since more than 50 years. He also appreciated the bold step taken by Malik Khuda Baksh to step in the business of solar panels which is definitely going to be beneficial for both Government and local consumers. He added that Malik Group of Companies will do wonders and reach new heights in this sector also.



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Unlocking the Era of Parity: Affordable Energy Storage Takes Center Stage

The fusion of solar photovoltaic (PV) and energy storage technologies is ushering in a transformative era – the Era of Parity in Energy Storage. This paradigm shift, fueled by advancements in supply and demand dynamics alongside the rapid evolution of lithium-ion battery technology, is reshaping the landscape of household energy storage.

On the supply side, relentless progress in energy storage technology has driven a sustained decrease in the unit price of energy storage systems. This cost reduction has democratized energy storage, making it more accessible and economically feasible for households worldwide. Simultaneously, escalating energy prices and the widening gap in time-of-use electricity tariffs have propelled residential PV + energy storage systems into economic parity, responding to the urgent need for stable electricity in countries like the United States and Japan.

The statistics paint a vivid picture of this burgeoning market. In Europe, cumulative household energy storage installations reached 3047 MWh in 2020, boasting an 8% battery penetration rate. Similarly, the United States saw the addition of 4.9 GW of residential PV in-



Tiger Yan
Regional Sales Director

stallations in 2021, with an energy storage penetration rate nearing 9%. Despite these impressive numbers, global household energy storage penetration remains relatively low, at around 5% of new residential PV installations. However, the industry's trajectory is clear – rapid and sustained growth is on the horizon. Projections indi-

cate a soaring global shipment volume of household energy storage systems, reaching 11.2/15.6/21.5 GWh in 2022/2023/2024, with an estimated compound annual growth rate of approximately 49%.

Amidst declining energy storage costs and rising energy prices, Germany shines as a beacon of success in household energy storage. With a leveled cost of electricity for PV + energy storage at 14.7 euro cents/kWh in 2021, compared to a residential electricity price of 31.9 euro cents/kWh, the economic viability of energy storage solutions has become palpable. Germany's rise to becoming the world's largest household energy storage market in 2020, surpassing Japan, underscores the transformative potential of this technology.

The Era of Parity in Energy Storage marks a pivotal moment in the global energy landscape. As solar PV and energy storage technologies converge, households worldwide can expect accessible, reliable, and economically viable energy solutions. Each day brings us closer to a sustainable energy future powered by solar and storage. ■

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Pakistan needs electric transportation

Ammar Habib Khan

The writer is an independent macroeconomist

Next policy framework must be incentivize, encourage manufacturing of electric vehicles

More than one-third of Pakistan's imports is essential transportation fuel. Almost \$5 billion of fuel is used by two-wheelers, and three-wheelers for transportation.

There are more than 30 million two-wheelers in the country, making up more than 40 per cent of the total adult male labour force – estimated to be 70 million. External price shocks continue to affect household budgets, while economic growth remains constrained by the availability of foreign currency that can be used to finance consumption-oriented growth.

On the flipside, Pakistan has a surplus energy generation capacity and continues to struggle with ramping up electricity consumption due to high tariffs. A negative feedback loop through which higher prices (determined through a cost-plus mechanism) result in lower consumption further increases tariffs, as the fixed costs of capacity payments are spread over a shrinking base of electricity units consumed.

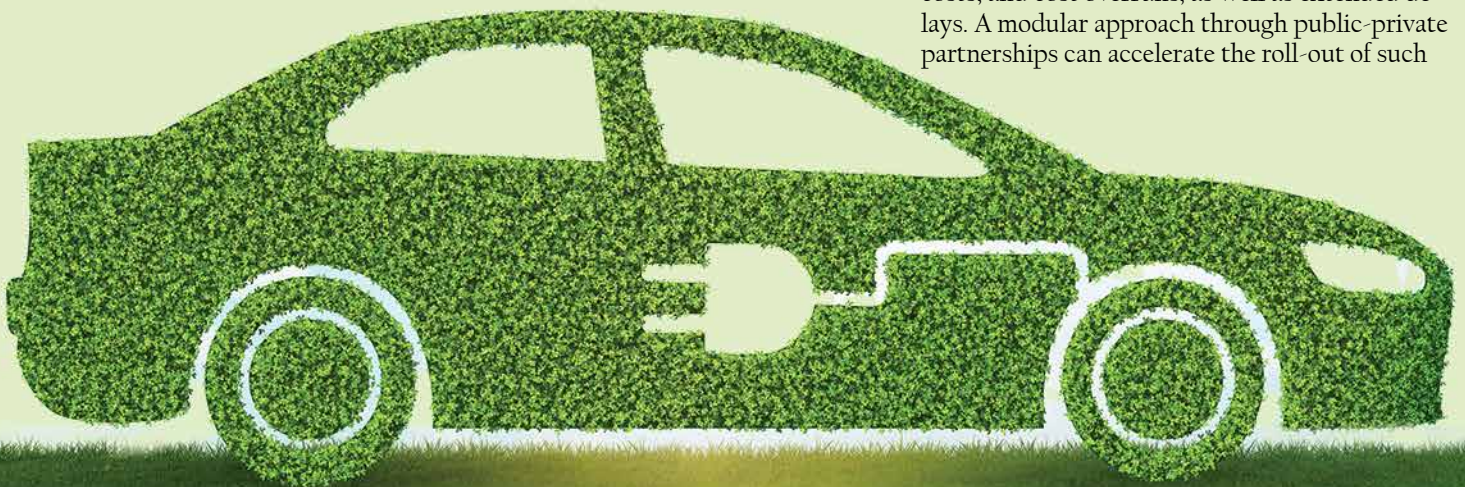
In the first instance, we are importing energy, and burning precious foreign currency reserves for this. In contrast, in the second instance, we have surplus electricity generation

capacity, but cannot think beyond cost-plus tariff determination to increase energy consumption through electricity. To reduce the reliance on imported fuel for transportation, there exists a strong case for accelerated roll-out of electric mobility options, which can utilize excess electricity generation capacity.

Public transportation options exclusively relying on electric, or electric-hybrid vehicles can significantly reduce private consumption of fuel while enhancing mobility for the people. The availability of affordable public transportation not only reduces reliance on imported fuel, but also enhances the ability of people to seek better employment opportunities, and higher wages since the cost of transportation is reduced.

The availability of public transportation has a net positive impact on household income, as a mix of both increased wages (through better mobility) and reduced spending on fuel. Rolling out such projects exclusively through electric buses can also partially solve the overcapacity problem in the case of electricity – albeit a lot more structural changes will be required for that to be successful.

Such transportation projects must be executed in a modular manner. Mega public transportation projects rolled out in the country over the last decade entailed ripping up existing infrastructure, and replacing it with new infrastructure, eventually leading to significant capital costs, and cost overruns, as well as extended delays. A modular approach through public-private partnerships can accelerate the roll-out of such



projects, wherein the government can set parameters for service delivery, and auction routes to private parties which can then bid for routes.

There may be cases where certain routes may not be viable – in those cases, the government can provide the necessary subsidies to make the project feasible. It is important to note here that the subsidies rolled out must be compared with the potential fuel savings, as well as improvement in household income – rather than be viewed in isolation. Through such a structure, the government can roll out public transportation projects running on electric vehicles in a fairly short period, providing valuable relief to the people at the same time.

The government of Punjab has recently launched a scheme for subsidizing motorcycles, of which only a small percentage are electric motorcycles. It makes little economic sense to subsidize petrol-fueled motorcycles when a completely new market can be carved out for electric motorcycles.

A compelling case exists to create an electric mobility emergency, which targets both public transportation and private mobility solutions. Any such policy actions earlier were largely restricted to reducing duties on electric vehicles exclusively for the ultra-rich in the country. For a change, the government may actually formulate policies for the vast majority of the country that continues to struggle with reducing purchasing power, amidst the increasing cost of transportation.

A two-tiered approach can be taken for mobilizing capital, and support for it, a policy framework for public-private transportation projects, with clear service delivery parameters, and a route auction mechanism. Rolling this out to the provinces can further accelerate the process. The government has been charging a Petroleum Development Levy on the sale of petrol, and diesel for the longest time. Reallocating it for incentivizing public transportation would align with the spirit of the levy, rather than it being a vanilla source of revenue for federal budgetary support. The government needs to make budgetary allocations for the people, rather than friends and family.

The next policy framework is to incentivize and encourage the manufacturing of electric buses, two-wheelers, and three-wheelers in the country. Incentives can be provided for the manufacturing of such vehicles. ■



MPCL makes another oil discovery in Sindh

Mari Petroleum Company Limited (MPCL) has announced an oil discovery resulting from its exploratory efforts at Shawal-1 Well, drilled in Mari Development & Production Lease (Mari D&PL) site, located in Sindh Province.

MPCL is the operator of Mari D&PL with 100% working interest. Shawal-1 well was spud in on January 27, 2024 and successfully drilled down to the total depth of 1,136 meters into the Ghazij Formation.

The well produced 1,040 barrels of - 30 deg API oil with 12% BS&W along with 2.5 MMSCFD of associated gas during the test with WHFP of 953 Psi at 32/64 inch choke size.

Faheem Haider, MD/CEO MPCL, has termed this discovery a remarkable success for the company's geoscientists and engineers who achieved this milestone by combining exploration efforts. He said that the company now plans to appraise this discovery to prove its extent and evaluate its development options.

MPCL's aim is to contribute to arresting the declining hydrocarbon production in the country through a combination of maximizing production from current fields and discovering new resources via a fast-paced exploration program targeting high-grade prospects within the company's portfolio.



Pakistan's Budget Burnout: Fossil Fuel Subsidies

Fossil Fuel Subsidies, Selected Asian Countries 2022

Pakistan spent around 7% of its GDP on fossil fuel subsidies, considerably higher than Asian peers. The per capita spending stood at approximately \$150, in stark contrast to India's mere \$20.



Source: IEA Fossil Fuel Subsidies Database 2022

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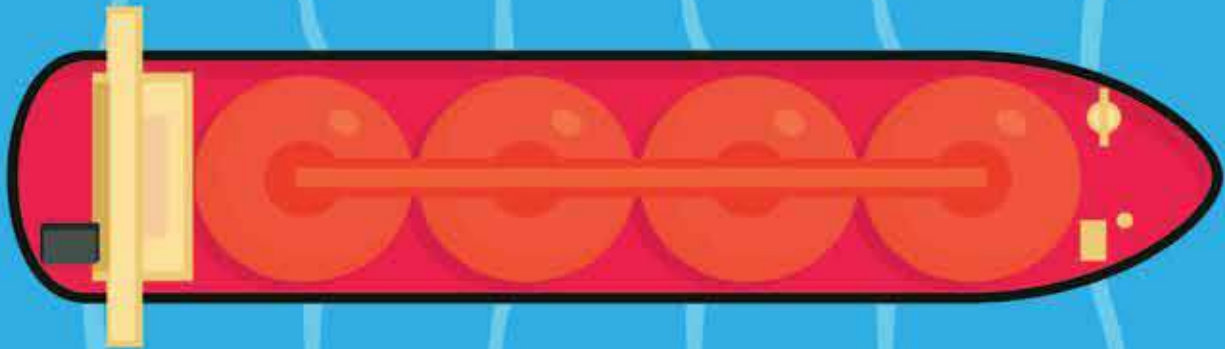
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Huawei FusionSolar leads innovation

at 2nd Solar Show in Multan

Multan witnessed a groundbreaking display of solar energy innovation at the 2nd Solar Show, where Huawei FusionSolar emerged as a frontrunner in the industry. Collaborating with partners Bahum and Diwan, Huawei FusionSolar showcased a range of cutting-edge inverters that not only captured the attention of attendees but also set new standards in functionality and efficiency.

The exhibition featured a diverse array of Huawei FusionSolar's latest products, highlighting their technological prowess and commitment to sustainable energy solutions. Attendees were particularly impressed by the inverters' advanced features, including smart monitoring systems, enhanced reliability, and seamless integration with solar panels.

Throughout the event, Huawei FusionSolar emphasized the importance of collaboration and knowledge-sharing in advancing solar energy adoption. Interactive sessions and demonstrations allowed visitors to gain insights into the latest trends and best practices in solar technology. Overall, the 2nd Solar Show in Multan served as a platform for Huawei FusionSolar to showcase its leadership in solar innovation and reinforce its commitment to driving sustainable energy solutions across Pakistan.





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Pulling Pakistan's Power Sector Out Of Quagmire

Dr Shahid Rahim

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

Poor governance is the root cause behind the present mess in the power sector; Changing it around, however, will not be easy because part of it lies in the structural arrangement and part in the managerial approaches

Whenever a new government takes charge in Pakistan, it starts by reinventing the wheel on what it believes are dysfunctional sectors. Professing new (or renewed in the case of second-time elected) zeal and vows to revolutionise the country within days and months rather than years. High intents aimed at cornering the electorate are invariably coupled with even idyllic-sounding slogans and phrases such as "Turnaround Pakistan", "Make it the Asian Tiger", a "jobs paradise for foreigners", and the list goes on. Taskforces are formed overnight to work on "war footing" and "fast-track", mostly comprising the same old hands, hoping they will somehow discover the "treasure" their eyes had missed previously.

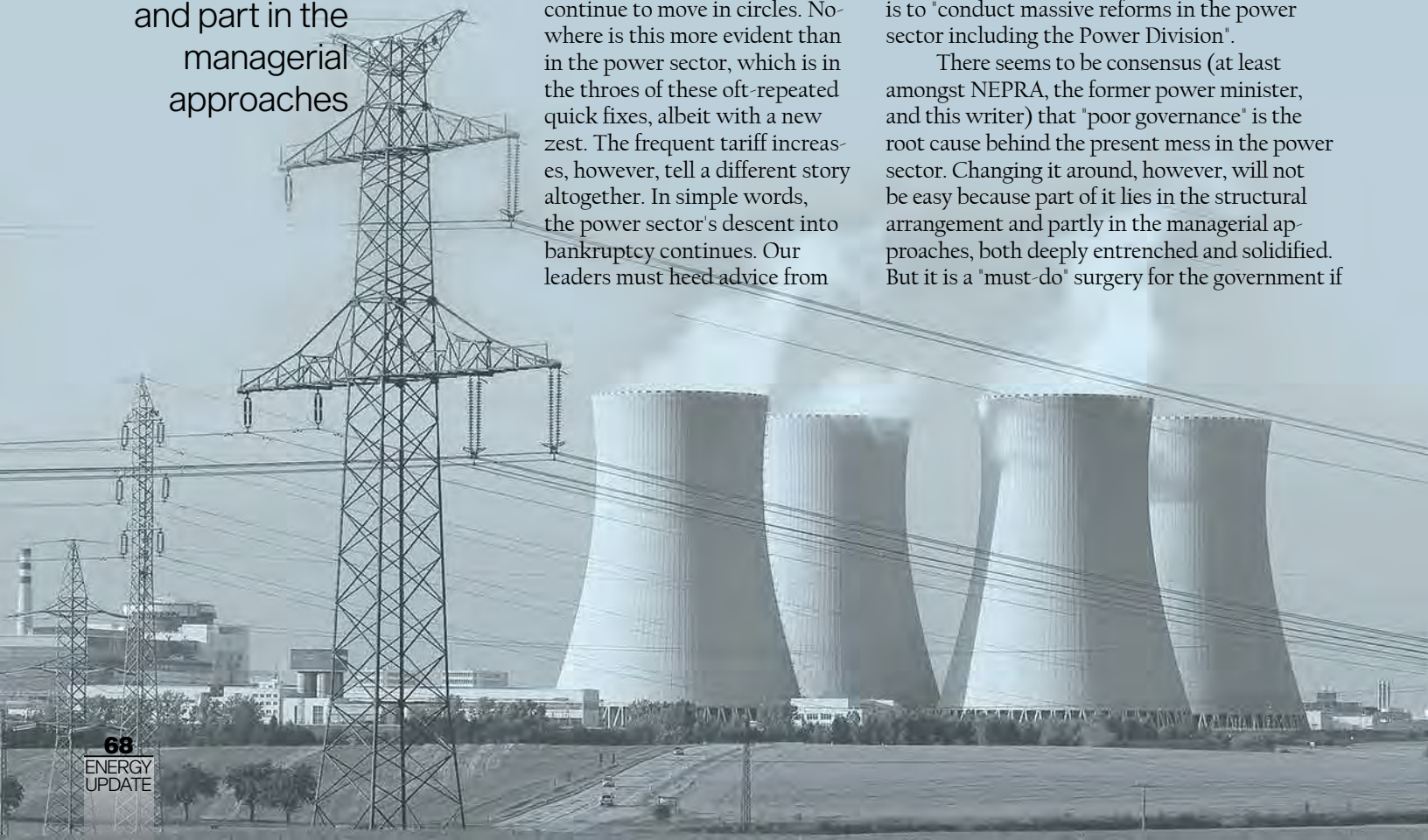
Our history shows that we continue to move in circles. Nowhere is this more evident than in the throes of these oft-repeated quick fixes, albeit with a new zest. The frequent tariff increases, however, tell a different story altogether. In simple words, the power sector's descent into bankruptcy continues. Our leaders must heed advice from

the ancient Chinese sage, Confucius: "When it is obvious that the goals cannot be reached, don't adjust the goals, adjust the action steps."

Pakistan's power sector is undoubtedly in a quagmire. Its circular debt has crossed the Rs2.7 trillion mark and shows no sign of relenting. The National Electric Power Regulatory Authority (NEPRA), in its State of Industry Report 2023, observes that this sector is causing huge financial losses to the country which exceeded Rs530 billion last year. Around 75% of these losses were caused by heavy system losses and lack of full revenue recovery. In NEPRA's words: "The primary driver of the power sector's stress is poor governance, spanning from planning to execution and subsequent operation, coupled with lack of accountability."

Sharing his frustration (in a national daily) for not being able to make any headway, Khurram Dastgir-Khan (KDK), the power minister in the previous coalition government, laments, "Pakistanis demand cheap and plentiful electricity – everywhere all at once – and it is nowhere in sight." He also offers some suggestions for the new government, the most important of which is to "conduct massive reforms in the power sector including the Power Division".

There seems to be consensus (at least amongst NEPRA, the former power minister, and this writer) that "poor governance" is the root cause behind the present mess in the power sector. Changing it around, however, will not be easy because part of it lies in the structural arrangement and partly in the managerial approaches, both deeply entrenched and solidified. But it is a "must-do" surgery for the government if



it hopes to perform and if it seriously wants to save this sector and, with it, our economy.

The main barrier to Pakistan's transition to a sustainable energy future is the mindset of the high priests in the federal bureaucracy and the managers of the entities downstream. The former are adamant about keeping tight control over the power sector come what may; the latter still considers consumers captive to their grid and for central-station generation to be the only way to serve them. Their deep and extended association with fossil fuels, perhaps, has fossilised their minds also.

The world, meanwhile, has gone topsy-turvy, shaking up the very foundation of the energy business. It is on course to eliminate its dependence on fossil fuels by switching to electricity derived from renewable and sustainable resources. Multiple options now exist, both on the supply and demand sides. Small and distributed generation technologies have become competitive, and consumers have other options to control and serve their demands.

These alternatives offer many advantages to the country as well. Their use can reduce capital and operating costs by reducing generation reserves, transmission and distribution (T&D) losses, and minimise T&D needs. Their small, distributed, and labour-intensive nature makes them preferable and a means to spur industrial growth and employment. They also enhance the diversity, sustainability, and security of the grid and other infrastructures.

Pakistan's energy sector entities and their managers, however, remain stuck in history. Consequently, the present setup has become anachronous and dysfunctional. It's divided into compartments that function mostly in silos, lacking the cohesion, harmony, and coordination essential for handling the new challenges.

Effective handling of new challenges demands close coordination among energy sector entities, not just in letter but also in spirit. For example, fuel and power sectors were brought under the new Ministry of Energy to improve coordination. Both remain separate without any noteworthy mutual coordination. Each is headed by a separate minister, whereas a single minister should lead the energy sector.

As the environment around them changes, organisations must adjust, realign, and reposition to remain profitable. Monolithic and bureaucratic organisations with multiple vertical hierarchies and centralised managerial control are not viable anymore because they impede flexibility and adaptability. Smaller organisations with fewer and lateral hierarchies are far more capable

of creativity, innovation, and agility.

We need a setup that can steer the country through turbulent times via a vision-led, holistic, and unified effort. The plethora of existing entities and functions, within and without the ministry, have lost their rationale. The situation seems ripe for establishing a new entity in the energy sector that has the requisite attributes.

This new entity (let's call it generically, "National Energy Commission") should be carved out of the existing entities after trimming and reorganising their roles and functions afresh. This commission should be entrusted with the responsibility of strategy development, policy formulation, devising legal, regulatory, and financial frameworks, and other issues with a holistic vision and from a single platform.

The new entity should take guidance from the ministry on strategic priorities and liaise with the Ministry of Planning and Development in setting a strategic energy agenda for the country and developing the most suitable strategic and five-year plans from the perspectives of security, affordability, and sustainability. It should also guide other energy sector activities and functions downstream using a soft, arm's length, and strictly non-interventionist approach.

Our leaders have a lot of catching up to do in the energy sector. Its existing setup is a classic example of having too many cooks in the kitchen. We need holistic thinking, integrated planning, and close coordination within this sector to deal with the vexing challenges of the constantly shifting global energy landscape. This makes recasting of the energy sector's institutions and their governance imperative. The sooner, the better. ■



Refiners warn of potential \$6 billion upgrades at risk due to fuel price deregulation plan

Top refiners in Pakistan have raised concerns over the country's plans to deregulate fuel prices, warning that this move could jeopardize planned upgrades worth up to \$6 billion and even lead to the closure of some refineries. The refiners, including state-run Pakistan Refinery and private domestic refiners Pak Arab Refinery, Attock Refinery, Cinergyco, and National Refinery, expressed their apprehensions in a letter to the country's oil regulator, the Oil & Gas Regulatory Authority (OGRA).

The proposed deregulation by OGRA would allow oil marketers and refineries to set fuel prices independently, shifting away from government-set prices. Additionally, OGRA has suggested reconsidering or scrapping a rule that mandates fuel buyers to procure supply from local refineries, a move that the refiners argue could have "disastrous consequences." The refiners highlighted their current challenges in operating at full capacity and urged OGRA to consult with them before implementing any "irrational recommendations." They emphasized the need for OGRA's support through pragmatic and supportive measures instead of measures that could potentially lead to permanent closure of refineries.

OGRA defended the deregulation as a means to boost competition and protect public interest but acknowledged the need to carefully assess its impact on refinery upgrades. Refiners emphasized in their letter that these upgrades, estimated at \$5 to \$6 billion, would not only result in cleaner, environment-friendly fuels but also contribute to saving precious foreign exchange for the country. The debate between deregulation and its potential impact on the refining sector underscores the complexities and challenges faced by Pakistan's energy industry as it navigates efforts to balance consumer affordability, industry viability, and environmental considerations. ■

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PAKISTAN'S PLASTIC PARADOX

Country stands at forefront of this crisis, generating a staggering 3.3 million tonnes of plastic waste annually



Zainab Naeem

The writer heads the SDPI's ecological sustainability and circular economy programme and is also associated with the UN Living Indus Initiative as a consultant on plastic pollution

“Only we humans make waste that nature can't digest,” says American oceanographer Charles Moore, who is famous for bringing the world's attention to the Great Garbage Patch – a vast expanse of the floating plastic debris in the North Pacific Ocean.

This year's Earth Day's (April 22) theme 'Plastics versus Planet' resonates louder than ever, encouraging nations to confront the existential threat posed by plastic pollution. In Pakistan, with the highest percentage of mismanaged plastic waste (3.3 million tonnes) in South Asia, it is crucial to heed this call and commit to robust measures to tackle plastic pollution.

Plastic waste is not just an eyesore; it is a grave threat to our ecosystem and health. From the depths of the Mariana Trench to the placenta of expectant mothers, microplastics pervade every corner of our planet, leaving no refuge untouched.

The annual production of plastic is on an alarming trajectory, with projections indicating a staggering 500 million tonnes by 2050. Single-use plastics dominate this consumption, exacerbating the already dire situation. The climate crisis further amplifies the urgency of addressing plastic pollution, as highlighted by a recent report by GRID-Arendal-UNEP on the climate impacts of plastics.

Plastics contribute substantially to greenhouse gas emissions, accounting for approximately 4.0 per cent of all global emissions annually. This impact spans every stage of the plastic lifecycle, from extraction to disposal, underscoring the critical need to manage plastic waste efficiently in the fight against climate change.

Pakistan stands at the forefront of this crisis, generating a staggering 3.3 million tonnes of plastic waste annually. With inadequate infrastructure for waste collection, reuse, and recycling, much of this waste ends up in landfills, dumpsites, and water bodies, perpetuating a cycle of environmental degradation.

The consequences are dire, threatening not only our natural resources but also the wellbeing of present and future generations. The most prevalent single-use plastic waste polluting the environment, includes drinking bottles, bottle caps, food wrappers, grocery bags, lids, straws, stirrers, and foam takeout containers.

Pakistan's most plastic waste ends up in landfills, dumping sites and water bodies, thus causing serious concerns to the environment and human health.

This concentration has contributed to a surge in microplastic contamination in waterways, posing grave hazards to human

and aquatic life. Rejected industrial fractions, urban solid waste, and agricultural residues emerge as primary sources of plastic pollution in Pakistan, perpetuating an environmental crisis with far-reaching consequences.

Despite efforts through policies like the Single Use Plastic Prohibition Regulations 2023, challenges in enforcement persist, hindering the effectiveness of regulatory measures. The Punjab Plastic Strategy, though well-intentioned, requires reconsideration because rushing into policies like extended producer responsibility (EPR) within an impractical six-month timeframe may not yield the desired outcomes.

This strategy mandates producers to establish a system for the collection of plastic waste generated by their products, accompanied by financial and physical liability. However, this compressed timeline may not offer an adequate opportunity for producers to develop a functional system, particularly given the requisite investment and infrastructure needs.

While the SRO to ban single-use plastic bags in Islamabad is a step in the right direction, its efficacy in addressing alternatives to plastic bags and municipal solid waste pollution remains limited.

Besides the plastic waste management crisis, the lack of investments in recycling infrastructure poses a significant challenge in Pakistan. The recycling industry, heavily dependent on the informal sector and labour provided by Afghan migrants, faces considerable obstacles following the government's decision to repatriate Afghan refugees. With a considerable portion of plastic collection and recycling operations relying on Afghan waste pickers, the recycling sector has experienced a notable decline.

The departure of Afghan labourers has also led to heightened labour costs, further straining the already fragile recycling industry. This interplay of factors has created a precarious situation, underscoring the interconnectedness of migration policies, labour dynamics, and environmental sustainability efforts.

Amidst these challenges, initiatives like the Living Indus Initiative offer a beacon of hope. One of the interventions proposed by the Living Indus Initiative is the establishment of 'zero plastic waste cities' within the Indus Basin which presents a tangible pathway towards sustainable urban development.

This initiative aligns directly with Pakistan's commitment to the Global

Plastic Action Plan (GPAP), which seeks to foster a circular economy for plastics. By leveraging multi-pronged approaches encompassing regulatory regimes, technological innovation, economic incentives, and institutional capacity-building, the Living Indus Initiative seeks to catalyze transformative change in plastic waste management in Pakistan.

The plastic crisis in Pakistan is not insurmountable. Many developing countries like Thailand, Malaysia, Bolivia, and some neighbouring South Asian countries have successfully addressed their plastic waste challenges, offering valuable lessons for Pakistan. These efforts highlight the importance of eco-friendly packaging, education campaigns, incentivized engagement, and decentralized systems in tackling plastic waste and promoting the conversion of waste to resources globally.

One of the primary reasons for extensive mismanagement of plastic waste in Pakistan stems from behavioural challenges. People tend to favour plastic products due to their easy availability and affordability. However, amidst these challenges lie opportunities for meaningful change.

There are many approaches which can be adopted for effective strategies for plastic waste management. For example, deposit refund schemes, as exemplified in countries like Germany and the Netherlands, incentivize recycling by reimbursing consumers for returning plastic beverage bottles. A few decades ago, this scheme was practiced for returning glass bottles in Pakistan, however, it was discontinued when PET bottles became common. Such schemes not only reduce littering but also promote a circular economy for plastics, ensuring that valuable resources are recovered and reused.

Similarly, green public procurement (GPP) initiatives harness the purchasing power of governments to drive sustainability in plastic usage. By integrating environmental criteria into procurement processes, public authorities can incentivize the adoption of eco-friendly alternatives and promote responsible waste management practices. This approach, as evidenced in the European Union, has the potential to catalyze market demand for sustainable products and foster innovation in plastic waste management.

Community-level initiatives, backed by collaboration between local governments, waste management companies and the corporate sector, can empower citizens to embrace sustainable practices and reduce their reliance on single-use plastics. By leveraging mass awareness campaigns and educational outreach, Pakistan can instigate a cultural shift towards more responsible consumption habits.

Additionally, the government needs to work on a national waste management strategy to improve basic waste management and establish efficient waste collection and sorting at-source mechanism.

Also as the Intergovernmental Negotiating Committee's fourth session draws near, slated to adopt a comprehensive, legally binding instrument on plastic pollution in Canada this April, Pakistan needs to align its actions regarding plastic waste crises with international commitments.

Pakistan needs to urgently address its national-level plastic management. Only through concerted action at both the federal and provincial levels and private-sector engagement can Pakistan effectively mitigate its plastic waste crisis and contribute to a cleaner, more sustainable future for generations to come. ■



White elephants

By Dr Farrukh Saleem

In Thailand, elephants are extensively trained to fulfill various roles. Traditionally, they have been trained to aid in logging operations, maneuvering through forests to haul felled trees. Additionally, elephants serve as majestic companions for tourists on trekking expeditions, offering unparalleled journeys through lush jungle landscapes. Elephants also participate in revered cultural events, like parades during Buddhist festivals. Moreover, these intelligent creatures astonish spectators with displays of athleticism, playing football or basketball with agility.

In Thai culture, white elephants are a different story altogether. White elephants are considered both sacred and auspicious. They are revered and cannot be utilized for work or labour. Legend has it that a Thai king deliberately presented a white elephant to a prince whom he disliked intensely. The prince had to provide 300 kilograms of grasses, leaves, bark, fruits, and vegetables, alongside 100 liters of water daily but could not use the white elephant for work or labour. Financial ruin loomed for the prince, bankruptcy inevitable.

The government of Pakistan owns more than 200 white elephants. Here's an abridged list: PIA, PSO, Pakistan Railways, Pakistan Steel, Sui Southern, Sui Northern, Faisalabad Electric, Hyderabad Electric, Tribal Electric, HBFC, National Insurance, Jamshoro Power Company, Nandipur Power Project, Northern Power, National Transmission and Dispatch Company, Trading Corporation, Utility Stores, Pakistan Agriculture Storage, National Fertiliser, PTV, Zarai Taraqati Bank, NBP, Pakistan Electric Power Company and the First Women Bank. There's a bloodbath going on in 17 banking entities, seven insur-

ance companies, nine Development Finance Institutions, three trading companies, four aviation companies, 23 ports and shipping companies, five chemical and 15 engineering companies.

Did you know that there is a company called the Pakistan Stone Development Company? Yes – and we have a company called Pakistan Horticulture Development and Export Company. Furniture Pakistan: what does that do? How about the National Industrial Parks Development and Management Company, Pakistan Gems and Jewellery Development Company and Pakistan Hunting and Sporting Arms Development Company?

Over the past five years, these 200 white elephants have accumulated some Rs4 trillion in losses. That means every Pakistani family has lost Rs115,000 in the past five years. That means every Pakistani has lost Rs17,000 in the past five years. It is all our money. Who is losing it and why?

In the 1980s, Vietnam confronted a severe economic crisis, mirroring challenges faced by Pakistan today. Staggering inflation, a trade deficit, and economic stagnation plagued the nation. To address these issues, Vietnam implemented the 'Doi Moi' economic reform programme in 1986. This programme had five key pillars: promoting privatization, attracting foreign direct investment, ending subsidies for state-owned enterprises (SOEs), dismantling domestic monopolies, and encouraging free trade. If Vietnam managed to privatize some 9,000 state-owned enterprises, why can't we privatize 200?

Why does the government want to raise more taxes? Why not get rid of these white elephants? For the record, the figure for 'Defence Affairs and Services' in budget 2023-24 is Rs1.8 trillion. And the government's white elephants have lost Rs4 trillion over the past five years.

Courtesy The News

PEL wins legal battle against Canadian firm

A Pakistani oil firm has won a legal battle against a Bermuda-based company at the International Court of Arbitration, which ruled that Pakistani laws govern the Petroleum Concession Agreements (PCAs) signed in the country. The Bermuda-based company Frontier Holdings Ltd (FHL) faced defeat in a prolonged legal dispute at the International Court of Arbitration against Petroleum Exploration (Pvt) Ltd (PEL). The over 80-page arbitration court ruling also marks a pivotal moment in Pakistan's legal landscape, affirming the country's legal sovereignty over arbitration agreements related to Petroleum Concession Agreements (PCAs) and Joint Operating Agreements (JOAs). The tribunal declared by a majority that it does not have jurisdiction over this dispute, and FHL will bear the arbitration costs, which were fixed at \$250,000. The legal battle was initiated by FHL, a subsidiary of Canadian company JuraEnergy Corporation, after their dispute with a local partner, PEL, in the Badin North and Badin South blocks, in which FHL holds a 27.5pc share. ■

WB to give Dasu project \$1b

The World Bank will provide a \$1 billion loan for the 2,160 megawatts Dasu hydropower project—a crucial initiative aimed at integrating cheaper electricity into Pakistan's energy mix and showcasing the nation's resilience against adversaries. This marks the third major financing by the World Bank for the project, which has faced delays and endured at least two terrorist attacks targeting Chinese nationals involved in its construction. Government sources disclosed that the Board of Directors of the Washington-based lender is set to approve the \$1 billion loan package in June, slightly delayed from the tentative third-week-of-May timeline. China Gezhouba Group Company (CGGC) serves as the contractor for the Dasu Hydropower Project, funded by the World Bank and a consortium of commercial banks. Last month, a terrorist attack claimed the lives of five Chinese nationals and one Pakistani—a second assault on Chinese workers at the project site. ■

SOCIAL AND BUSINESS ROUND UP



Group photo of team Growatt at World Future Energy Summit 2024



Mr. Saleem Diwan CEO Diwan International and his team with Team BYD



At 7th Edition of Leaders in Islamabad of Nutshell Forum federal finance minister Mohammad Aurangzeb Zaib Dr Ishrat Hussain, Chairman Nutshell Azfar Ahsan ,speakers are seen in the group photo



Group photo 16th CSR (Karachi Chapter) Award Winners with Chief Guest and Team NFEH



CEO TDAP Zubair Motiwala Presenting memento to Federal Minister for Marine Affairs Qaiser A Shaikh at Karachi Chamber. President KCCI Iftikhar Shaikh and others are seen in the picture



Group of Solis team at World Future Energy Summit 2024



MOU Signing Ceremony of 9.6 MW wind power project between Power Cement and Burj Solar



Team Longi at their stall at World Future Energy Summit 2024



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