

MONTHLY

ISSN 2309-6578

# ENERGY UPDATE

May 2023



THE LIFE GIVING DAMS

SOLARIZATION PLAN OF PDM GOVERNMENT

ENERGY EFFICIENCY AND CONSERVATION INITIATIVES

SINDH'S MOVE TO ESTABLISH POWER REGULATORY AUTHORITY

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
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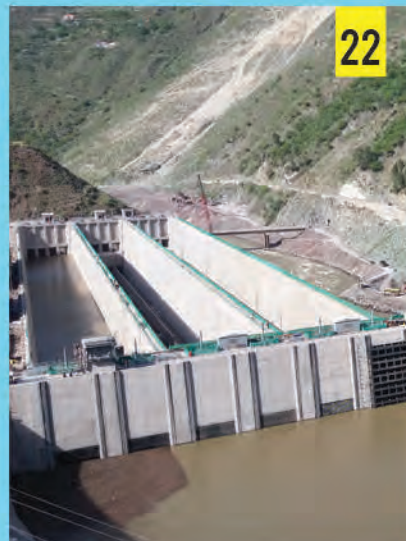
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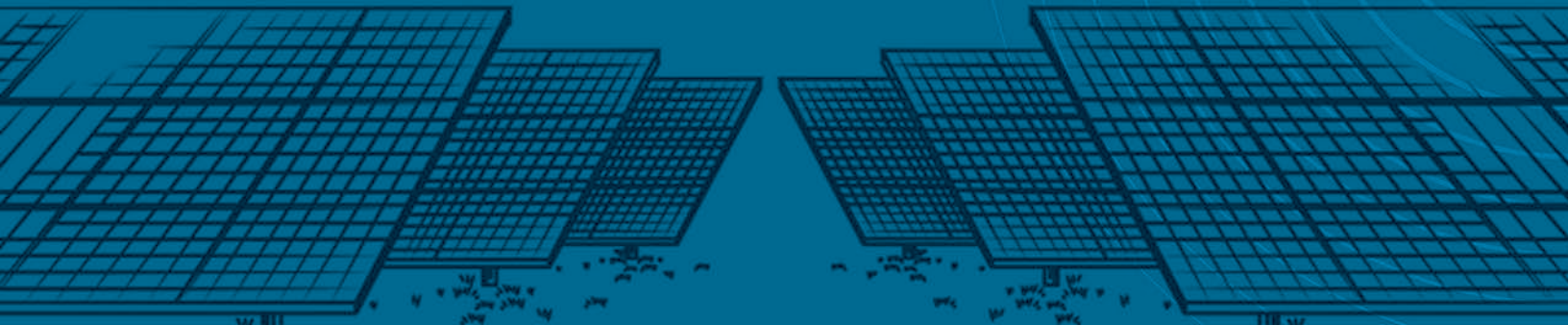


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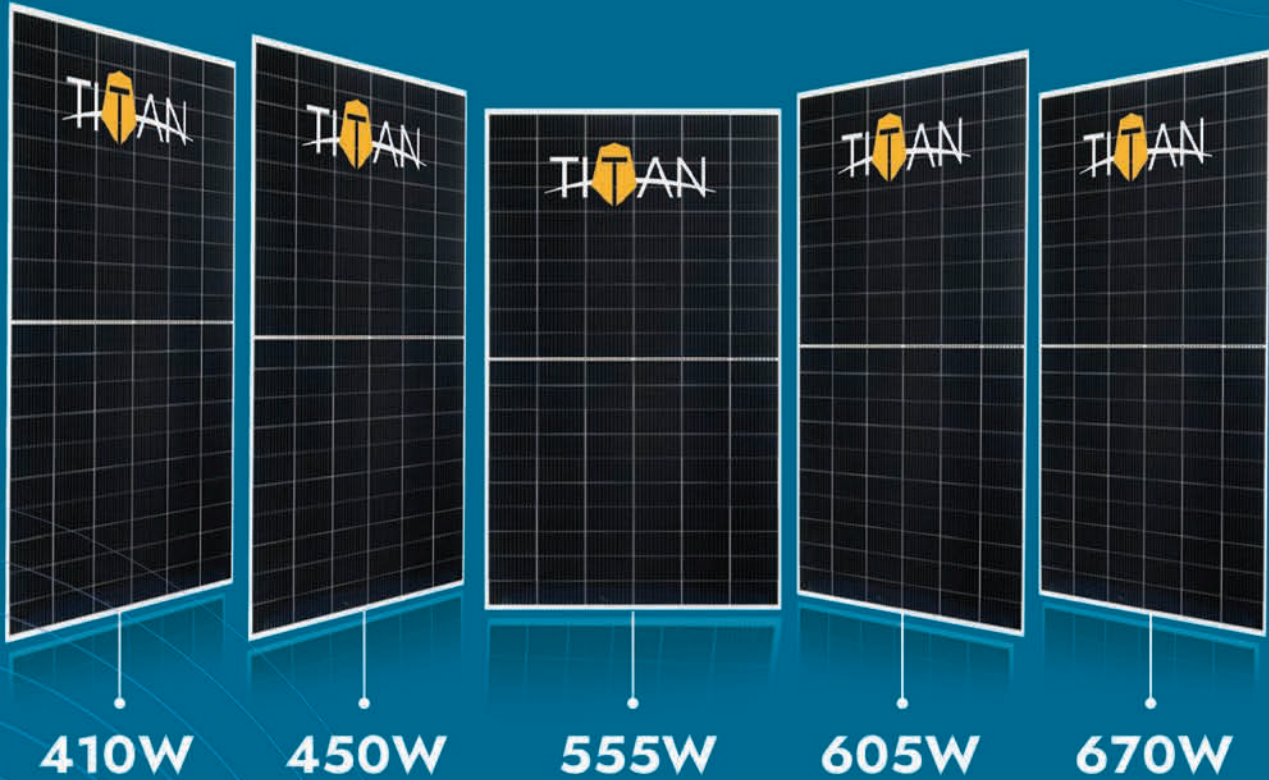
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## Grim Load-shedding: Time to get rid of KE

At a time when K-Electric's licence is about to expire after 20 years, it is a good time for the government to take over the power entity over its prolonged power load-shedding and failures in several areas of the provincial capital, Karachi. It is pertinent to mention here that National Electric Power Regulatory had already imposed Rs200 million penalty against KE which is open proof of its failure.

According to a media report, K-Electric has requested NEPRA to renew the distribution licence for another 20 years as the current term is going to expire on July 20. After receiving the request, NEPRA has asked all stakeholders and citizens for their opinion on the matter about KE service.

Amid the crippling gas crisis and warm weather, K-Electric has brought another misery of prolonged power load-shedding to Karachi-ites. As the citizens desperately await an end to gas load-shedding, the KE has compelled citizens to suffer torments of over six to eight hours of load-shedding in several areas of the city. The power outages have not only affected social life but also hit businesses hard, compelling people to face health and financial losses. The power outages have disrupted communications, Internet services, retail businesses, grocery stores, gas stations, ATMs, banks, and other services, leaving people hapless.

The public economy is rapidly deteriorating, as nothing is being done to address the worsening load-shedding in the megalopolis. This is absolutely intolerable.

The load-shedding might have been taking place on low power generation capacity and high fuel prices, but there is no ground for power cuts in the capital city of Sindh as KE has been raising power tariffs frequently, almost after every two months during the last four years. The citizens must not tolerate such load-sheddings as they pay fuel adjustment charges forcibly slapped in power bills.

Karachi is Pakistan's largest city and is generating 70 percent of Pakistan's total revenue. It does not deserve the government to extend the licence duration of the KE. The warm weather in the city has become a cause of concern for the people, but despite this, severe load-shedding is being carried out daringly in the capital. It seems that there is no authority to rid citizens of load-shedding.

To end load-shedding, the government needs to either provide additional power supply to KE through its national grid or take over it as the power entity has badly failed to deliver uninterrupted service to the capital.



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### MESSAGES & FELICITATIONS

#### Syed Murad Ali Shah

Chief Minister, Sindh

I would like to warmly congratulate the editorial team of the 'Energy Update' publication on completing its 17 years. 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. 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, for a first, 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. I would like to conclude by commending the Energy Update for achieving this milestone and praying for its continuous success. Thank you.



#### Abu Bakar Ahmed

Secretary Energy, Government of Sindh

This Month marks the 17th anniversary of Energy Update, a publication that has been instrumental shaping the energy sector in Sindh. On behalf of the Department of Energy, I would like to extend my congratulations to the team at Energy Update for their tireless efforts to promote and advance the energy industry in our province. Over the past few years, the energy landscape in Sindh has undergone significant transformation. We have made remarkable progress in the development of renewable energy sources, such as wind and solar power, which has resulted in significant reductions in greenhouse gas emissions. Additionally, we have implemented various energy efficiency measures, which have resulted in cost savings for both the government and the public. We must acknowledge that there is still much work to be done. The energy industry is constantly evolving, and we must continue to embrace new technologies and explore innovative approaches to ensure that we meet the growing energy demands of our province. I urge all stakeholders in the energy sector to work together to achieve our goals of a sustainable and reliable energy future for Sindh. We must continue to invest in research and development, while also prioritizing the education and training of our workforce to ensure that we have the necessary expertise to drive progress in the industry. Once again, congratulations to Energy Update on this milestone anniversary, and let us all continue to work together towards a brighter future for the energy sector in Sindh.



#### Tauseef H. Farooqi

Chairman NEPRA

As Energy Update celebrate the 17th anniversary, I would like to extend my warmest congratulations to the entire team for their dedication and commitment to delivering high-quality energy-related news and analysis to the people of Pakistan. Over the past 17 years, Energy Update has become a trusted source of information for policymakers, industry professionals, and the general public. The publication has played an instrumental role in promoting sustainable energy solutions, creating awareness about energy efficiency, and highlighting the challenges facing the energy sector in Pakistan. As the Chairman of the National Electric Power Regulatory Authority (NEPRA), I recognize the vital role that Energy Update has played in shaping the discourse around energy policy in the country. Your coverage of energy-related issues, including policy developments, technological advancements, and industry trends, has helped to inform and educate stakeholders across the board. On behalf of NEPRA, I wish Energy Update continued success in the years to come and look forward to seeing the publication continue to serve as a beacon of journalistic excellence in Pakistan.



#### Dr. Sardar Mohazzam

Managing Director NEECA

Energy Efficiency and Conservation is an issue of urgent concern around the globe. The advent of the 2015 Paris Agreement has changed the importance of climate change from secondary to primary while making it prominent, especially in the global south. This is where we connect the dots between the need to reduce the consumption of fossil fuels as the source of energy and switching to a net zero emissions strategy for a sustainable future. Pakistan is amongst the states which lie at the forefront of extreme climate events and needs to adopt a proactive strategy to fight back against the climate challenge. Here, the National Energy Efficiency & Conservation Authority (NEECA) has the aim to promote energy efficiency and conservation in accordance with Sustainable Development Goal 7 on affordable and clean energy, which is undoubtedly, a broad subject.



## Engr. Asim Murtaza Khan

CEO, Sindh Petroleum Limited

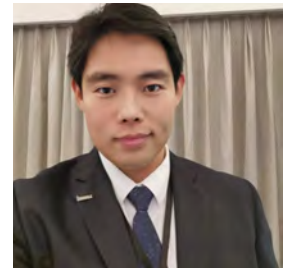
I would like to congratulate Energy Update on the publication of its 17th annual edition. The magazine is widely read as a source of authentic material in the energy spectrum. It is a matter of great pride that Energy Update is the first prime magazine of Pakistan covering all aspects of energy, be it fossil fuels, renewables, climate and economy. It gives me great satisfaction to see renowned experts from within the country and from abroad contributing their valuable knowledge. The magazine provides opportunity to young engineers to benefit from the knowledge of experienced professionals and the technologies they share in their relevant fields. I am confident that Energy Update will continue to play its role to help alleviate the country's energy issues. Energy security demands maximizing a balanced mix of indigenous energy sources in all forms. I hope that Energy Update would bring focus on the unconventional potential in domestic E&P which holds significant potential, with technical and commercial challenges to overcome.



## Alex Li

GM-MEA & CA, LONGi Green Energy Technology Co. Ltd

On behalf of LONGi Solar, I would like to extend my warmest congratulations to you on the occasion of the 17th anniversary of Energy Update Magazine. This is a significant milestone, and it's a testament to your hard work and dedication to delivering high-quality and insightful content to your readers. As we look to the future, the work that Energy Update Magazine is doing is more important than ever. We are facing significant challenges related to climate change and the need to transition to cleaner forms of energy, and your contributions are helping to drive progress and innovation in this area. I am proud to have LONGi Solar associated with Energy Update Magazine, and I look forward to seeing all that you will accomplish in the years to come. Congratulations once again on this important milestone, and please accept my best wishes for continued success.



## Muhammad Zakir Ali

Chief Executive Officer, Inverex Solar Energy

Warm congratulations on your 17th corporate anniversary! It gives me immense pleasure to see your magazine's growth, keeping pace with the industry. It's truly heartening to witness a magazine with such a wide circulation as Energy Update survive and keep us all informed of industry happenings through economic ups and downs. We highly value your contribution to our industry and appreciate your presence. Your continuous efforts to bring insightful news and updates are commendable. We wish you the very best for your future endeavors. Keep up the hard work and enjoy the well-deserved success.



## Muhammad Naeem Khan

CEO Pakhtunkhwa Energy Development Organization (PEDO)

On behalf of our esteemed organization, I extend my warmest congratulations on the completion of 17 remarkable years of Energy Update Magazine. The journey, which commenced in 2006, has been a momentous one, and the magazine has played a crucial role in shaping the energy outlook of the country. Over the years, Energy Update has emerged as a leading platform for policy-makers, developers, investors, and research and development professionals in the energy sector. The magazine has effectively showcased inspiring success stories and discussed solutions to overcome the diverse challenges faced by the energy and power sector through various events, discussions, and publications. Energy Update's publications are not only reliable, uninterrupted, interesting, and innovative but also highly professional, accessible in both hard copies and online editions, catering to readers around the globe. The magazine has organized several events, debates, discussions, and awareness campaigns, making it the only voice of reason in the Energy & Environment sector of the country. This has led to a positive outlook for Pakistan not only amongst the local readers but also the international community. The editorial team's dedication and hard work have undoubtedly contributed to Energy Update's success.



## Saleem Diwan

CEO, Diwan International

Congratulations to the Energy Update team, and in specially, Naeem bhai and Mustafa, on the 17th anniversary of Energy Update Magazine. Your unwavering dedication to promoting solar energy is commendable and has made a significant impact in the industry. Your efforts have not gone unnoticed and are truly appreciated. Keep up the excellent work!



## Leon Chuang

Global Marketing Director

On behalf of Risen Energy, it is with great pleasure we express our sincere and heartfelt congratulations to Energy Update Magazine on its 17th Annual Anniversary. Throughout these years, Energy Update has been a great vehicle in providing regular and consistent updates on the renewable energy related issues and opportunities, and it is an indispensable source of knowledge and guidance on the national economy. We wish it greater success in times to come!



## Amir Iqbal

Chief Executive Officer, Sindh Engro Coal Mining Company (SECMC)



On behalf of Sindh Engro Coal Mining Company (SECMC), I would like to extend my warmest congratulations on your magazine's 17th anniversary. As the CEO of SECMC, I recognize the crucial role that Energy Update has played in the growth and development of the energy sector in Pakistan. Your magazine's comprehensive coverage of the energy industry, including oil & gas, renewable energy, coal, and nuclear energy, has helped to keep the industry informed and up to date. At SECMC, we recognize the importance of addressing Pakistan's energy woes and saving foreign exchange. We are proud to be part of the solution by developing the Thar coal reserves to produce affordable and abundant energy for Pakistan. We hope that our efforts, along with the work of other stakeholders in the industry, can contribute to a brighter future for our country.

## David Ding

Growatt Founder and CEO



With a vision to build a green and sustainable future, a group of pioneers in the global PV industry headed by David Ding came together in 2011 and founded Growatt. The passion to enable everyone to benefit from sustainable energy inspires deep devotion in Team Growatt, who work relentlessly to deliver high-quality products and services to global customers. Within a decade's time, Growatt quickly grows to become a global leading distributed energy solution provider. Today, Growatt is already the global No.1 residential inverter supplier, as well as the largest user side energy storage inverter supplier and the Top 3 PV inverter supplier in the world. Yet, the passion we share with our global partners to create a better world continues to take us forward.

## Mohammed Rajpar

Managing Director  
General Shipping Agencies (Pvt) Ltd



Congratulations on completing 16 years of delivering valuable updates and insights on the energy and environment sector in Pakistan. Your commendable work in filling the niche with this dedicated publication is much appreciated. We are delighted to see that magazine has received such an overwhelming response from the relevant stakeholders of this industry. Your focus on presenting serious analytical content along with important alerts and news updates from all around the world, makes "Energy Update" a valuable resource for people engaging with the energy and environment sector. We wish you all the best as you launch the Special Edition of the magazine in celebration of its 17th Anniversary. We hope that Energy Update continues to be the voice of the energy sector and provides the latest updates and information on a constant basis. We look forward to reading your upcoming work.

## Mr. Waseem Nazir

Managing Director, MM  
Pakistan (Pvt.) Ltd. - MMP



On behalf of MMP, I extend my heartfelt congratulations to Energy Update on its 17th anniversary. Since its inception in 2006, Energy Update has been a valuable source of information and insights for stakeholders in the energy sector. We appreciate the magazine's commitment to promoting sustainable development and facilitating informed decision-making through its analytical content and commentary. As a leading consultancy in the industry, MMP is proud to be associated with Energy Update and value the platform it provides to connect with industry peers and stakeholders. We wish the magazine and its team continued success in their endeavors.

## Engr. Faiz Bhutta

CEO Techfa Consulting and  
Master Trainer & CEO Energy  
Training and Research Center



I am reading Energy Update since its start and now on its 17th Anniversary edition, I would like to congratulate Energy Update and its team under the leadership of Legend Mr. Naeem Qureshi for its continuation without any break. The Energy Update is a very professional magazine covering the whole energy value chain including Renewable Energy. I really appreciate the consistency they maintained and pray for its success.

## Engr. M. Imran Halim

Chief Engineer Renewable Energy Projects, Pakhtunkhwa  
Energy Development Organization (PEDO)



Dear Energy Update Team,  
On behalf of our esteemed organization, I would like to extend my warmest congratulations on the successful completion of 17 years of publication of Energy Update Magazine. Since its inception in 2006, Energy Update has become a leading energy magazine of Pakistan, providing valuable monthly updates on Energy & Power, Environment, and Corporate Social Responsibility (CSR). Your magazine has become a vital forum for bringing together cogent and competent voices from across the local and global energy world, organizing essential events that cover topics necessary for the country's policy-making. Your dedication and hard work have made it possible to become one of the most popular and leading Energy Magazines of the country.



# Solarization plan of PDM government

—◆ Irfan Ahmed ◆—

**T**he plan of PDM government to add 10,000 MW of solar power through indexed IPP mode to attract investments against IGCEP planned 7,000 MW of solar till 2030 seems to have created bad blood among many stakeholders.

The obvious issues against setting up of even the least cost RE projects per IGCEP road map under the new policy are circular debt and the current financial situation of the country. Further, our pipeline of incoming power projects for the next seven years is already stuffed while the imperative of local coal and construction of dams is far more workable due to base load considerations.

The underlying important issues which have not been considered by the PDM government before suddenly declaring its plan are:

1) Existing long-term PPAs and EPAs: The conventional power plants being run on imported fuel and high tariff renewable energy power plants, both on must run basis, in the absence of sufficient and diminishing industrial load are causing huge losses to the economy due to capacity charges and Non-Project Missed Volume (NPMV).

2) High capital insurance costs: Setting up of 600 MW of solar plants would cost around USD 400 million considering the high insurance costs of foreign investments due to circular debt and balance of payment issues.

3) The current electrical system of NTDC/DISCOs is not ready to integrate more intermittent and unpredictable renewable energy. The storage systems required to provide the active and reactive power balance to the network are expensive and therefore not affordable. Substantial investments are required to upgrade NTDC and DISCOs networks so that the renewable energy can be suitably integrated into the system. The T&D and Commercial losses of DISCOs contribute substantially to the negative equity of Public Sector Companies which is also driving the investors away.

4) Renewable energy by nature is a Distributed Generation Resource and should therefore be handled locally – at the most by the provinces. The provincial agencies such as the



Energy Departments should have a major role from planning to commercial operation of a Renewable Energy Project. The point should also be one of the mainstays of GoP energy policies.

Under the current circumstances and in the absence of the necessary foreign currency component, the best solution for the GoP is to invest in the local energy industry so that RE components/systems are manufactured locally and the business is done in PKR. A local value addition of at least 70% should be planned and achieved for RE Systems so that a degree of technical and financial sustainability is possible. The GoP must avoid showcase projects based on expensive borrowed money the brunt of which will be borne by the next generations.

The exercise of putting up an initial 600 MW of imported PV Solar Plants in the absence of sufficient load, existing weak network, and in the presence of long-term energy contracts on must run basis, seems to be futile and can easily be proven wrong if the GoP plan is available in some more detail. Uptill now the feasibility study of this public sector project has not been shared.

Currently, the best way forward for the injection of thousands of megawatts of solar into the energy mix is through wheeling and net metering.

However, the wheeling tariffs required by the DISCOs under CTBCM regime and that

determined by NEPRA are poles apart. Even if the DISCOs and NEPRA meet in the middle, the tariff won't be acceptable to IPPs or Private Bulk Buyers, as setting up their own plants would be much more cheaper and reliable as the DISCOs are very far from meeting even the basic reliability and availability standards set by NEPRA.

With GoP agencies, including NEPRA, following Keynesian economic principles with preferred government intervention, the CTBCM based on a free market economy seems to be a paradox. The CTBCM planners seem not to have the capacity and experience to understand field requirements. The ground realities are quite different in every country and require a certain field experience to comprehend them.

DISCOs, at the receiving end and without much input in policy making, have been fulfilling CTBCM requirements only superficially for other internal reasons and are not at all convinced that CTBCM will do them any good. The Ministry, which has already spent millions of rupees on the CTBCM program, is also giving lukewarm support to CTBCM as other more urgent issues have taken over.

Under the circumstances, it is advised that the government should follow the IGCEP least cost plan approved by NEPRA in April 2022, instead of creating waves in the already stressed power sector environment. ■

The gushing, frothy spillways create a tremor – you feel the ground shuddering, absorbing the thrust of the force emanating from the water coming down the sluices. You look at the vast lake-like reservoir, and you realize that this water is life – life to the abounding agricultural plains around, to communities for consumption and energy generation. Most of all, it is a guarantee that in times ahead, life as we know it will continue.

Having inherited only 3 dams; Khushdil Khan Dam, Balochistan 1890; Spin Kariz Balochistan 1945; and Namal Dam Mianwali, Punjab 1945; Pakistan's well-being was greatly dependent on the availability of more of these reservoirs for capacity building.

Construction of dams in Pakistan was initiated in 1955, with the Warsak Dam on the River Kabul, for hydroelectric purposes. Today, we have around 150 dams operating across Pakistan, with irrigation as well as power-generating capacity. The need, however, is much greater.

Pakistan does not have sufficient water storage capacity for the future. Being an agri-economy, the requirement is increasing, and with three eastern rivers – Beas, Ravi, and Sutlej— being blocked by the neighbor as per the Indus Water Basin Treaty 1962 – the pressure is mounting.

Recent flooding brought in excess water, but a lack of storage capacity turned it into a devastating calamity that caused immense loss of life and property, resulting in a socioeconomic collapse.

Pakistan, being a frontline state for climate change, is positioned rather precariously and the challenges are predicted to be more complex.

According to a report published by the Pakistan Institute of Development Economics (PIDE) this year, more than 80 percent of Pakistanis face severe water scarcity for at least one month each year. The report stated that Pakistan ranks 14 out of 17 countries designated as “extremely high water-risk” nations.

We must acknowledge that sufficient water storage capacity is essential for our survival. The World Bank published a report in 2019, stating that Pakistan is well endowed with water but suffers from high wastage and hence low availability for its people, pointing towards weak infrastructure as well as poor water management. This incompetency is estimated (conservatively) to cost us 4 percent of GDP or around USD 12 billion per year.

# The life-giving dams

**Pakistan's water storage capacity is only 30 days as compared to the USA's, which has 900 days**

Alarming, Pakistan's water storage capacity is only 30 days as compared to the USA's, which has 900 days, and Egypt's 700 days. Even India with 5 times more population has 170 days of storage capacity. The least water storage capacity of any country should be 120 days, and Pakistan is not meeting or even close to this criterion.

Reservoirs and dams are the only answer. New dams have been proposed and some have gone into the first stage of construction. The unavailability of funds, however, is an ongoing issue, and one such project impacted by the lack of funds is the under-construction Mohmand Multipurpose Dam in Khyber Pakhtunkhwa.

The Mohmand Multipurpose Dam project will enable Pakistan to deal with three major challenges in this region: flood protection, renewable energy production, and rural development in crisis zones. All three are aligned with the Sustainable Development Goals (SDGs), and the completion of this dam in 2025 is being highly anticipated for its stabilizing and anchoring effect.

The Saudi Development Fund (SDF) is aggressively at work in the SAARC region and has financed 90 projects so far. Reading the news that SDF will provide a USD 240 million loan for the Mohmand Multipurpose Dam is encouraging not only for the continuity of work towards the planned completion of the project but also as an addition to our sinking foreign currency reserves. And for that we are grateful.

In fact, the Kingdom of Saudi Arabia (KSA) has always stood by Pakistan; they have a long history of supporting Pakistan on various international issues and have enjoyed with us, what analysts call a special relationship. KSA's commitment to the progress of Pakistan is one of the sincerest links in our history and present. They are invested in a successful Pakistan and are most trusted partners.

Besides SDF, the project is co-financed by OPEC, Islamic Development Bank, and the Kuwait Fund for Arab Economic Development, and is expected to have a significant impact on Pakistan's energy and water sectors.

The project will generate 800 MW of electricity production capacity, contributing to Pakistan's energy security. In addition, the capacity to store and irrigate will be remarkably enhanced, facilitating agricultural activities in the surrounding areas.

This is a monumental stride towards progress, and I urge Pakistani stakeholders to seriously look into activating the investment portfolio for opportunities that can translate into generation of real wealth, via agri-zones, refineries, and manufacturing industries, and while we look forward to the positive impact of this project and celebrate our ties with KSA for this significant step ahead, it would also be essential to find solutions to the pressing problems of water distribution, outdated irrigation practices, a weak and inadequate water policy framework, lack of synchronization between the federal and provincial approach, and actions to uniformly cater to the water concerns that are not limited to any one specific province or region of Pakistan but constitute a national-level crisis. Viable and sustainable solutions for water infrastructure can expedite Pakistan's progress trajectory. The writer is the founder of Corporate Pakistan Group and former chairman Board of Investment. ■

## Targeted investments, digital transformation must go hand-in-hand: seminar

— EU Report —

**D**igitization is the future and it must be tailored toward addressing the lack of electricity transmission infrastructure to ensure price affordability and accessibility to consumers.

Targeted investments and digital transformation must go hand-in-hand with effective resource management, thoughtful policy development, governance reforms as well as innovation in system planning, highlighted experts during a hybrid seminar on "Powering Progress: Investments and Digitization to Overcome Pakistan's Power Sector Challenges," held at the Institute of Policy Studies (IPS), Islamabad.

The session, chaired by Ashfaq Mahmood, former federal secretary, water & power, was addressed as speakers by Khalid Rahman, chairman IPS, Mirza Hamid Hassan, chairman, IPS' steering committee for energy, water & climate change and former federal secretary, water & power, Mazhar Iqbal Ranjha, registrar, National Electric Power Regulatory Authority (NEPRA), Sadia Dada, CMCO, K-Electric, Salahuddin Rifai, former GM NTDC, and eminent energy experts associated with IPS including Asad Mehmood, Ahmed Ammar Yasser, and Ameena Sohail.

Energy dependency is a major issue and Pakistan needs to escape the vicious cycle through out-of-the-box thinking and win-win solutions at policy and practice level, said Khalid Rahman in his opening remarks.

The power sector must be focused on overcoming the energy trilemma revolving around the availability, accessibility, and affordability of electricity, said Sadia Dada. For that, power industry must integrate new solutions and ensure targeted investments, she added.

While drawing on the modelling of the power system undertaken by

K-Electric (KE), she said that since privatization the company has made a targeted investment of 474 billion rupees – six times more than its profit – across its value chain that has resulted in doubling its customer base from 1.8 million to 3.4 million, increasing its energy supplies from 2,200 MW to 3,380 MW, and reducing its transmission and distribution (T&D) losses from 34.2% to 15.3% which surpasses the target set by NEPRA for the year.

Salahuddin Rifai highlighted that technology and digitization ideas have often been wrongly tackled by the power sector. Consequently, all the costs and expenses are borne by consumers, making the affordability goal futile. He stressed a consumer-oriented power sector and optimization of cost. Also, as effective use of resources and ideas requires energy experts' input, a professional board must be developed to advise the government in planning, he added.

Mirza Hamid said that a major reason for the burden on consumers is because of the obsolete and less efficient power transmission system; therefore, power transmission must be made an investment priority area, along with energy transition and digitization, he added.

As future power planning is important for Pakistan, Ahmed Ammar stressed investments to be done in mobilizing the power policy, along with technology and innovative tools. Moreover, structural and management reforms must be made a priority to address structural issues and deficiencies in the system's planning capacity, he added. ■



# LONGi'S SHIPMENTS TO PAKISTANI MARKETS TO REACH MORE THAN 1 GW THIS YEAR



## Ali Majid

Director ME & CA  
of LONGi

says LONGi  
has been  
actively  
involved in  
development  
of renewable  
energy  
projects in  
Pakistan

— Mustafa Tahir —

**T**he total shipments of LONGi to Pakistani markets to promote the usage of green, renewable energy, in Pakistan will reach 1GW+ by the end of the current year.

This was stated by Director ME & CA of LONGi, Ali Majid, in an exclusive interview with the Energy Update in which he talked at length about his country's drive to promote the latest renewable technologies in Pakistan under the regimes of CPEC and the Belt and Road Initiative of China. Following are the important excerpts from his interview for our readers:

**Energy Update: At present, what is the overall production capacity of LONGi's green energy projects in Pakistan? What is the general picture of employment growth?**

**Ali Majid:** LONGi Green Energy Technology Co. Ltd signed a Memorandum of Understanding with the Government of Pakistan in July 2019 to make an investment in the construction of a 50MW solar power plant in Pakistan. The project is located in Bahawalpur district of

the Punjab province. Regarding employment growth, it is common for renewable energy projects to create employment opportunities in the local community, especially during the construction phase of the project. This could include job opportunities for local workers, engineers, and other skilled professionals.

**EU: Pakistan has long faced the dilemma of low energy utilization efficiency. In your opinion, for a country like Pakistan, how to most effectively improve the current application efficiency of green energy?**

**Mr Majid:** There are several ways in which Pakistan can effectively improve the current application efficiency of green energy, specifically photovoltaics. Pakistan can encourage more investment in renewable energy infrastructure, specifically photovoltaics, to increase the overall capacity of green energy. This can include both government and private investment in large-scale solar farms, as well as smaller rooftop solar installations.

Pakistani government can implement effective policies and regulations to promote the use of green energy, such as providing incentives for renewable energy develop-



ment, setting targets for renewable energy adoption, and implementing net metering policies.

Pakistan can increase awareness and education around the benefits of green energy, specifically photovoltaics, to encourage more widespread adoption. This can include public education campaigns and outreach to businesses, communities, and schools. Developing local manufacturing capabilities for photovoltaic components can help reduce costs and increase the availability of solar panels and other equipment. This can also create job opportunities and support local economic development.

Implementing energy storage solutions, such as batteries, can help increase the reliability and stability of green energy systems. This can help address the intermittent nature of solar energy and increase overall energy efficiency. By taking these steps, Pakistan can effectively improve the application efficiency of green energy, specifically photovoltaics, and address the ongoing challenge of low energy utilization efficiency.

**EU: The newly released government work report of China's two sessions this year involves new green energy. What role do you think LONGi should play in further optimizing the domestic energy structures of China and Pakistan, and at the same time empowering the global green industry pattern?**

**Mr Majid:** I can provide some suggestions on the role that LONGi could play in further optimizing the domestic energy structures of China and Pakistan, and at the same time empowering the global green industry pattern.

LONGi can increase investment in research and development of new photovoltaic technologies, such as improving the efficiency and performance of solar panels, as well as developing new materials and manufacturing processes.

LONGi can continue to expand its production capacity of solar panels and other photovoltaic components, which can support the growth of the renewable energy industry in both China and Pakistan. This can also support the global transition towards a more sustainable energy future.

LONGi can collaborate with governments, other industry players, and research institutions to support the development and implementation of policies and initiatives that promote renewable energy adoption and sustainable development.

LONGi can focus on meeting the specific energy needs of the local markets in China and Pakistan, such as developing solutions that address energy access and reliability challenges in rural areas.

LONGi can promote education and awareness around the benefits of renewable energy and the importance of sustainable development. This can include supporting public education campaigns and working with local communities to promote the adoption of renewable energy. By taking these steps, LONGi can play a significant role in further optimizing the domestic energy structures of China and Pakistan, as well as empowering the global green industry pattern.

**EU: This year marks the 10th anniversary of the Belt and Road Initiative. What do you want to say about the Belt and Road Initiative and the China-Pakistan Economic Corridor? What are your future outlook and expectations?**

**Mr Majid:** The Belt and Road Initiative (BRI) is a massive infrastructure and development initiative launched by the Chinese government in 2013, which aims to connect China with countries in Asia, Europe, and Africa through a network of infrastructure projects, including ports, railways, highways, and energy infrastructure. The CPEC is a flagship project of the BRI, which aims to connect China's western region with the Pakistani port of Gwadar through a network of transportation and energy infrastructure.

LONGi has been actively involved in the development of renewable energy projects in Pakistan, including the construction of solar power plants, and has been successful in contributing to the development of Pakistan's energy sector. The CPEC has provided a favorable environment for LONGi to expand its business in Pakistan, and the initiative has created new opportunities for Chinese companies to invest and engage in sustainable development in the region. ■

## OGDCL announces financial results

—◆ EU Report —◆

The Board of Directors of Oil and Gas Development Company Limited (OGDCL) in its meeting held on April 27, 2023 at Islamabad approved the financial results for nine months ended March 31, 2023 of the financial year 2022-23. The Company's net sales clocked at Rs 309.148 billion translating to a profit after tax of Rs 159.638 billion and earnings per share of Rs 37.12 for the nine months ended March 31, 2023. The Board of Directors also approved the third interim cash dividend @ Rs 1.80 per share i.e.18 percent in addition to earlier interim dividends of Rs 4.00 per share i.e. 40 percent. The Company paid Rs 36.128 billion as royalty which will be ultimately be transferred to the Provinces besides Rs 92.980 billion in the form of taxes during the nine-month period. The above entitlement will be paid to the shareholders whose names will appear in the register of members on May 09, 2023. The share transfer books of the company will be closed from May 10 to May 12, 2023 (both days inclusive). OGDCL continues to be the market leader in the E&P sector and plans to accelerate its exploratory activities, as seismic work in newly awarded blocks will be undertaken in the future.



## NJHP tunnel collapse restored

—◆ EU Report —◆

A significant development at the blockade in the tunnel of 969MW Neelum Jhelum Hydropower Project was achieved on Eid day. The tunnel collapse of 150 ft length has been restored. Chairman WAPDA Engr Lt Gen Sajjad Ghani (Retd) visited Neelum Jhelum Hydropower Project and witnessed construction activities on the remedial works. He appreciated the efforts of Project Team WAPDA, China Gezhouba Group Company (CGGC), and the consultants of the project. The Chairman was briefed that the remedial works for the restoration of the project are underway in light of the report furnished by the International Panel of Experts. A hydraulic lining shutter is being installed inside the tail race tunnel for concrete lining, while the allied works are also continuing side by side. The risk analysis report by the Consultants is expected to be finalized next month. Chairman WAPDA directed Project Authorities to resume electricity generation from the Project by the end of July.



# Neelum-Jhelum Hydropower project

## needs resumption of operation

Building big hydroelectricity projects like the Neelum-Jhelum plant will enable Pakistan to achieve self-sufficiency in the power sector

◆ M. Naeem Qureshi ◆

It is very much imperative that a thorough inquiry should be conducted into the abrupt closure of the Neelum-Jhelum Hydropower project last year and its findings should be made public before the restart of the run-of-the-river hydroelectricity plant likely to happen later this year.

The findings of the probe should be shared with the media and other concerned quarters for expert input from energy experts, civil engineers, and specialists in hydropower generation. This input is very vital to ensure that there shouldn't be a repeat of the mistakes and faults that occurred during the construction of this very important hydroelectricity plant.

The debate and feedback from the relevant experts on the findings of the investigation will make sure that Neelum-Jhelum or any other hydroelectricity plant of such scale shouldn't again face such a failure abruptly halting its power production for the national grid.

The projects like Neelum-Jhelum plant are very vital for Pakistan's vigorous drive that the majority of power needs of the country

are met through indigenous energy sources that too preferably by means of clean electricity. The uninterrupted operation of the Neelum-Jhelum power plant is vital to encourage the building of more such energy projects for the fullest utilization of the hydroelectricity generation potential of Pakistan.

Needless to mention building big hydroelectricity projects like the Neelum-Jhelum plant will enable Pakistan to achieve self-sufficiency in the power sector with achieving the ultimate goal that power consumers in Pakistan are supplied with uninterrupted electricity at the cheapest rates with ensuring that there is the least harm to the environment.

The completion of the Neelum-Jhelum project was firstly unduly delayed and the abrupt shutdown of its plant within four years of it becoming fully operational is highly concerning for everyone who is concerned about Pakistan's energy sector.

The electricity plant was closed during summer of the last year when it was highly difficult for the government to continuously spend fast-depleting foreign exchange reserves for importing fossil fuels for running thermal electricity plants. Everyone knows that the more thermal power plants remain operational the more they create financial problems for the national economy and individually for the

power consumers due to the higher tariff involved. Thermal power plants also accelerate the process of environmental degeneration.

The protection of the environment for slowing down the process of climate change has become all the more important to avoid catastrophic disasters like floods in 2022.

Those who were responsible for the faults during the construction phase of the Neelum-Jhelum project should be duly identified in the investigation report with the recommendation of the penal action that should be taken against them. This will ensure that those involved in spending public money for building more such hydroelectricity plants would work with utmost commitment, dedication, honesty, and integrity.

It is understandable that the construction of large-capacity hydroelectricity generation plants involves a longer duration, spanning several years, and massive capital that is often borrowed from international lenders for the completion of the project. The construction of hydroelectricity projects is also highly problematic due to politics and policy-related issues involved.

In such a situation, the planners, executing agencies, the authorities involved in the construction, the in-charge officials, the project engineers, and their subordinate staff,

should show utmost care and caution while completing the project so to ensure its uninterrupted operations after completion.

Those showing wilful carelessness and negligence in building such energy projects of national importance should face accountability and penal action for avoiding such a dereliction of duty in the future. The continued operation of the Neelum-Jhelum power plant in the summer of the last year and the current year would have gone a long way to reduce the woes of the power consumers across Sindh. Those at the helm of affairs in the Power sector would have taken a sigh of relief had the Neelum-Jhelum project continued its operations this summer. Owing to the weakening state of the Pakistani economy it is utterly unfeasible to keep importing fossil fuels from outside Pakistan for power generation. The Power Ministry, the Wapada, and all other relevant authorities shouldn't show haste in restarting the hydroelectricity plant as the least they should do is hold a media briefing to thoroughly disclose to the media persons the reasons behind the faulty status of the power project.

Transparency, accountability, and fairness are as important in the energy sector for success as important in any other sector.

Amid countrywide electricity shortages, the 969-megawatt Neelum-Jhelum hydropower project, completed at an estimated approved cost of about Rs508bn, was closed due to major cracks in its tailrace tunnel.

"Neelum-Jhelum is unfortunately offline. Details of its suspension or fault have not been concluded yet," Power Minister Khurram Dastgir Khan confirmed at a presser held last year.

He added that thorough investigations were currently underway of all its channels, which are deep and long, some of them under huge mountains.

The project's construction was taken in hand in 2002 after 21 years of delay and completed in April 2018 — again with repeated cost overruns and missed deadlines.

Major construction involving about 58 kilometres of tunnels was done by Chinese contractor CGGC-CMEC (Gezhouba Group), hired in December 2007.

Despite its installed capacity of 969MW, the project has often exceeded its production level, touching 1,040MW. It was providing more than five billion units of electricity, or kilowatt-hours (kWh), to the national grid a year at an average tariff of about Rs9 per unit at no fuel cost.

The Water and Power Development Authority (Wapda), which operates hydro-power stations, later also confirmed that the project's "tailrace tunnel has been blocked and as a result, the power station has been closed for safety reasons".

"The reasons for the closure of the tailrace tunnel are currently being investigated. Steps would be taken to remove the blockade

of the tailrace once the reasons are known," Wapda said in a statement issued in Urdu.

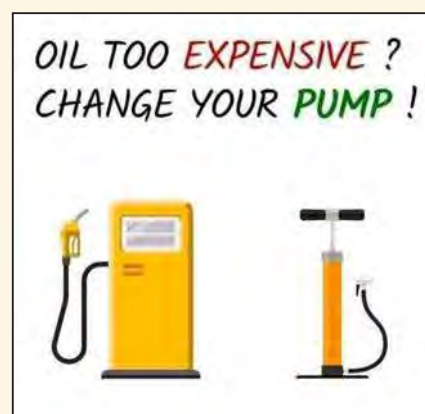
It said all relevant institutions had been informed of the closure of one of the country's top hydropower plants through the Ministry of Water Resources.

A mainstream English newspaper reported last month that after the closure of almost a year, the 969-megawatt Neelum-Jhelum Hydropower Project will restart power generation by the end of July this year.

Power generation from Neelum-Jhelum Hydropower Project had to be discontinued on July 4, 2022, following a malfunction that occurred in the tunnel. Neelum-Jhelum Power Plant has two tunnels and there was a blockage in one of the three and a half kilometers long tunnels.

A spokesman for WAPDA has said that a significant development at the blockade in the tail race tunnel of the 969MW-Neelum-Jhelum Hydropower Project has been achieved on Eid day. "Tunnel collapse of 150 ft length has been restored. Restoration works are continuing during Eid Holidays," the spokesman said. Chairman WAPDA Engr Lt Gen (r) Sajjad Ghani visited Neelum-Jhelum Hydropower Project and witnessed construction activities on the remedial works. He appreciated the efforts of Project Team WAPDA, China Gezhouba Group Company (CGGC), and the consultants of the project, he said.

The chairman was briefed that the remedial works for the restoration of Neelum-Jhelum Hydropower Project are underway in light of the report furnished by the international panel of experts, the spokesman maintained. Hydraulic lining shutter is being installed inside the tail race tunnel for concrete lining, while the allied works are also continuing side by side. Risk analysis report by the consultants is expected to be finalized during the next month. Chairman WAPDA directed project authorities to resume electricity generation from the project by the end of July. The Neelum-Jhelum power plant suffered a fault following the blockage of water in the tunnel area of 3.5 kilometres that led to the shutdown of the plant and the termination of 969MW of cheap electricity to the national grid. ■



## OGDCL eyes production boost, exploration drive

◆ EU Report ◆

Oil and Gas Development Company Limited (OGDCL) is planning to boost oil and gas production from current wells while prioritising exploration efforts in the Zin block of Baluchistan, which holds confirmed reserves of 840 billion cubic feet per day (bcfd), company's top official said on Thursday.

The existing production of oil by OGDCL stands at 32,250 barrels per day (bpd) and gas at 80 million cubic feet per day (mmcf) and LPG at 774mmcf under the optimisation plan from existing wells. The management has decided to increase the oil production to 38000bpd and add more 32-36mmcf gas in the system. This means the gas production would increase up to 837mmcf.

"The management to this effect has established the experts' group to optimise the production of oil and gas. The group consists of experts of the OGDCL which has been exclusively dedicated to increasing the gas flows with timeline targets through modern techniques from the existing wells or the wells which are depleting in terms of oil and gas production," Ahmed Hayat Lak, managing director of OGDCL, told The News.

He informed that members of the group who currently head some departments in the company were asked to fully focus on increasing the flow of oil and gas from the existing wells. "And to optimise the production of oil and gas, new ventures with local and foreign companies would also be initiated."

Lak also revealed that two technical experts from Schlumberger—a US company — would also extend expertise to the OGDCL's experts for enhancement of oil and gas production. Schlumberger will provide one expert from Oman and the other from its local operations. Under the plan, the target of the experts' group for optimisation of oil and gas production has been set till June 2023, and December 2023 on 6 monthly basis for a 36 months period.

Exclusively due to the efforts of the group, the management expects that 1700 barrels per day production of oil and 1mmcf gas will be added to the system by June 2023, and beyond that by December 2023, the incremental oil production will cross the mark of additional production of 3000bpd. ■

# Water pollution: a major threat to public health

—◆ Mansoor —◆

**C**ountry ranks at number 80 among 122 nations regarding drinking water quality; by 2025, there will be very little or no clean water available in the country; authorities need to treat sewerage before discharging into water bodies. Water pollution is one of the major threats to public health in Pakistan. Drinking water quality is poorly managed and monitored. Pakistan ranks at number 80 among 122 nations regarding drinking water quality. Access to safe drinking water is the basic human right. Pakistan Vision 2025 and UN Sustainable Development Goals (SDG's) 2030 impose obligations on Pakistan towards achieving its water and sanitation goals.

Pakistan Council of Research in Water Resources (PCRWR) reports that by 2025, there will be very little or no clean water available in the country. Drinking water sources, both surface and groundwater are contaminated. Various drinking water quality parameters set by WHO are frequently violated.

The mix up of chemicals, waste, certain microorganisms, and other toxic materials in natural water is called water pollution. Water pollution is harmful for the health of humans, animals, birds, plants, land, and environment. It is a major global environmental problem because it can result in the degradation of all aquatic ecosystems. Water pollution is reducing seafood production and is also killing several animals in the oceans. The water pollution is also harming human health and sometimes causes deaths.

According to a UN report, once water is contaminated, it is difficult, costly, and often impossible to remove the pollutants. Still today, 80 per cent of global wastewater goes untreated, containing everything from human waste to highly toxic industrial discharges. The low-income communities are at greater risk because their homes are often closest to the most polluting industries.

Pollution in freshwater ecosystems can include pathogens (largely from human and animal waste). Ships in oceans also cause water

pollution by leaking oil and other toxic gases.

Water is one of the most vital natural resources on earth and has been around for a long time. In fact, the same water which we drink has been around in one form or the other since the time of the dinosaurs. The earth has more than two-thirds of its surface covered with water. Less than 0.3% is accessible for human consumption. As commercialization and industrialization have progressed, that number continues to dwindle down. Furthermore, inefficient and outdated practices, lack of awareness and a plethora of other circumstances have led to water pollution.

According to a report, lack of sanitation is one of the most significant forms of water pollution. About 90% of sewage in developing countries is discharged untreated directly into water bodies. Every day 2 million tonnes of sewage and other effluents drain into the world's water. Industry discharges an estimated 300-400 megatonnes of waste into water bodies every year.

## Causes of water pollution

Water pollution is caused due to flow or mixing of chemicals, waste material, oil and microorganisms into streams, rivers, lakes, oceans, aquifers, ponds, or any other water bod. These included municipal garbage, hospital waste, pathogenic microorganisms, putrescible organic waste, fertilizers, plant nutrients, toxic chemicals, sediments, heat, petroleum (oil), factories chemical waste, sewerage, and radioactive substances. Major water pollution is caused by rapid urbanization, deforestation, transportation, industrialization, and human activities.

## Water pollution causes several diseases

Water pollution has very negative effects on public health. A lot of diseases result from drinking or being in contact with contaminated

water. The diseases caused by water pollution are given below: Cholera, Diarrhoea, Salmonellosis, Shigellosis, Hepatitis, Encephalitis, Polio, Gastroenteritis, Cryptosporidiosis, Galloping amoeba, Giardiasis, and Schistosomiasis.

## Solutions to Control Water Pollution

There are many ways to control water pollution. The authorities should treat sewerage before discharging it into lakes, rivers, oceans, and other water bodies. The drinking water should also be treated before supplying to homes, offices, industries, and other places.

No waste should be thrown into the water bodies instead it should be dumped at designated places in towns, cities, and other places. Most of the dishes leave some sort of fat, oil, or grease residue behind. These substances should never be disposed of down the drain. Dishwashing and laundry should be done with the minimum amount of detergent and bleach.

There is a need to stop discharging scrap of transport and electric-electronic appliances into water bodies. Never pour something that isn't biodegradable down the drain. When it is necessary to use something that's toxic to the water supply, such as paint or ammonia, take care to dispose of it properly. Stop throwing plastic in water bodies.

Wash your car less often or wash it at a car wash shop where they clean and recycle the water. Stop operating ships that leak oil in the sea. Minimize your use of pesticides, herbicides, and fertilizers. Use the minimum amount of laundry detergent. Dispose of medical waste properly. Reduce the use of plastic items, particularly shopping bags. Plant more trees, particularly along banks of water bodies as healthy forests can act as a filter to keep pollution out of water. Cut down on meat consumption and use vegetables. ■







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(Torche is French for Torch)

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Interview with Energy Update

# Thar coal has several properties

observes  
**SECMC CEO**  
**Amir Iqbal**



**Says Thar coal can be used not only for electricity but also for vital industries like cement and ceramics; infrastructure development especially the development of Thar rail link will unleash true potential of Thar; we are ensuring that the communities in Thar have complete trust in our coal mining work**

—◆ Engr. Nadeem Ashraf —◆

**T**har coal possesses several kinds of properties and characteristics that make it valuable beyond electricity generation. Thar coal can be used not only for electricity but also for vital industries like cement and ceramics. Firstly, it is a low-cost and abundant indigenous energy source, which makes it highly attractive for power production. Building and maintaining trust with the local people is a top priority for SECMC. We undertake various confidence-building measures to ensure that the communities in Thar have complete trust in our coal mining work. Infrastructure development especially the development of Thar rail link will unleash the true potential of Thar.

This was stated by SECMC CEO Amir Iqbal in an interview with Energy Update. The details of the interview are given below:

**ENERGY UPDATE: What problems did SECMC initially face as the first entity to start work in the remote area of Thar for coal mining and extraction?**

**Amir Iqbal:** As with all ground-breaking and game-changing projects that initiate, SECMC has its fair share of challenges as the first entity to embark on coal mining and extraction in the remote area of Thar. Firstly, the lack of infrastructure in the region posed a significant hurdle, which was removed at an early stage with the proactive support of the Sindh govern-

ment. Secondly, open pit mining is a new field in Pakistan, so we had to develop our internal capacity and capability. Likewise, the scarcity of skilled labour in Thar was an issue. We had to invest significant resources in training and capacity-building programs to equip our workforce with the necessary skills for coal mining and related operations.

Furthermore, there was no regulatory or investment framework, which we collaborated with GoS, CPEC and Federal bodies to develop.

**EU: What are the salient properties and characteristics of Thar coal, and apart from electricity generation, what could be its other possible uses?**

**Mr Iqbal:** Thar coal possesses several unique properties and characteristics that make it valuable beyond electricity generation. Firstly, it is a low-cost and abundant indigenous energy source, which makes it highly attractive for power production. The coal reserves in Thar are estimated to be one of the largest in the world, providing a long-term and sustainable energy solution for Pakistan.

Apart from electricity generation, Thar coal has the potential for various other applications. In the first step, it can replace the imported coal in industries like cement and ceramics, which will save substantial forex for the country. It can also be used to produce synthetic natural gas.

**EU: Is the work on track to expand the**

### **capacity of Block-II of Thar coal mine for the benefit of the end-consumers of electricity?**

**Mr Iqbal:** Although we have experienced many setbacks like Covid which has hampered our ambition, but we are progressing steadfastly, aligning with our commitment to meet Pakistan's growing electricity demands. After achieving our COD in 2018, we immediately started working on Phase II expansion, which we achieved on time despite the Covid pandemic.

The Phase III expansion of the Block-II Thar coal mine holds immense promise for end-consumers. As it will reduce reliance on imported fuels and ensure a reliable and cost-effective power source. Unfortunately, due to current challenging macroeconomic conditions, this phase has been delayed, and we are trying to find enterprising solutions to mitigate the delay.

### **EU: Is SECMC willing to collaborate with other organizations involved in coal mining and power production in Thar for a joint effort for the welfare of the impoverished people of Thar?**

**Mr Iqbal:** Absolutely. For this purpose, at the very onset of the project, we created Thar Foundation which is financed by all the entities in Block II, with the sole mandate to invest in local community enhancement. Moreover, we believe in the power of partnerships for sustainable impact. We collaborate with stakeholders such as the Government of Sindh, The Citizens Foundation, Indus Hospital, and IUCN. Together, we promote education, healthcare, biodiversity conservation, and socioeconomic development of Thari people. We do all this while protecting and promoting the unique social and cultural diversity of Thar. We actively seek opportunities for collaboration and welcome partnerships with organizations that share our vision of uplifting the people of Thar and creating a sustainable future for the region.

### **EU: What more cooperation from the government does SECMC want for the facilitation of coal mining work in Thar?**

**Mr Iqbal:** We appreciate government support in our coal mining work in Thar, but we seek further cooperation. Infrastructure development especially the development of Thar rail link will unleash the true potential of Thar. Similarly, robust regulations and capacity-building initiatives are crucial for efficient and sustainable mining. Clear policies and a stable investment framework attract private investment and foster industrial growth. Together, we can create a skilled workforce for long-term mining sustainability.

### **EU: Tell us about the salient features of the CSR strategy of SECMC.**

**Mr Iqbal:** Our CSR strategy focuses on ed-

ucation, healthcare, livelihoods, and environmental sustainability in Thar in line with the UN Sustainable Development Goals (SDGs). Thar Foundation (TF) has established 23 school units, benefiting 4,000 students, with over 30% being girls. Our health facilities include Marvi Clinic, Thar Foundation Hospital, Gorano Clinic, and Mobile Health Clinic. We provide vocational training and support entrepreneurship, empowering the community with a business amounting to Rs2 billion through local contractors since the inception of the project. Our environmental initiatives, like Thar Million Tree, promote sustainable mining practices and tree planting for conservation. Overall, our comprehensive strategy aims to foster holistic development and improve lives in Thar.

### **EU: How many job opportunities has SECMC created for local Thari people owing to its core operational work in Thar area?**

**Mr Iqbal:** At SECMC, the local population is at the heart of what we do. We have created significant job opportunities for the local Thari people through our core operational work in the Thar area. Since the inception of the project (mining and power plants), we have provided direct employment to thousands of individuals from the local communities. For skilled and unskilled labour, we are onboarding them, as per need, from the Khushaal Thar's platform, which is a database of local human resources and functions on a first-in, first-out policy.

We prioritize the recruitment and

training of local talent to ensure that the benefits of our operations reach the people of Thar directly. We believe in empowering the local workforce by providing them with skills, knowledge, and sustainable employment opportunities.

Moreover, our commitment to local employment extends beyond direct employment. We also encourage our contractors and suppliers to prioritize the hiring of local Thari people, thereby creating additional indirect job opportunities.

### **EU: What confidence-building measures does SECMC take from time to time to ensure that the local people have complete trust in the coal mining work as they become partners in the project?**

**Mr Iqbal:** Building and maintaining trust with the local people is a top priority for SECMC. We undertake various confidence-building measures to ensure that the communities in Thar have complete trust in our coal mining work. We engage in transparent communication, hold regular community meetings, and actively involve the local people in decision-making processes. Our CSR initiatives prioritize social and economic development, including education, healthcare, and livelihood opportunities. We uphold high environmental standards and minimize environmental impact through stringent practices and monitoring. By actively engaging, addressing concerns, and delivering on our commitments, we aim to foster trust and build a strong partnership with the people of Thar. ■

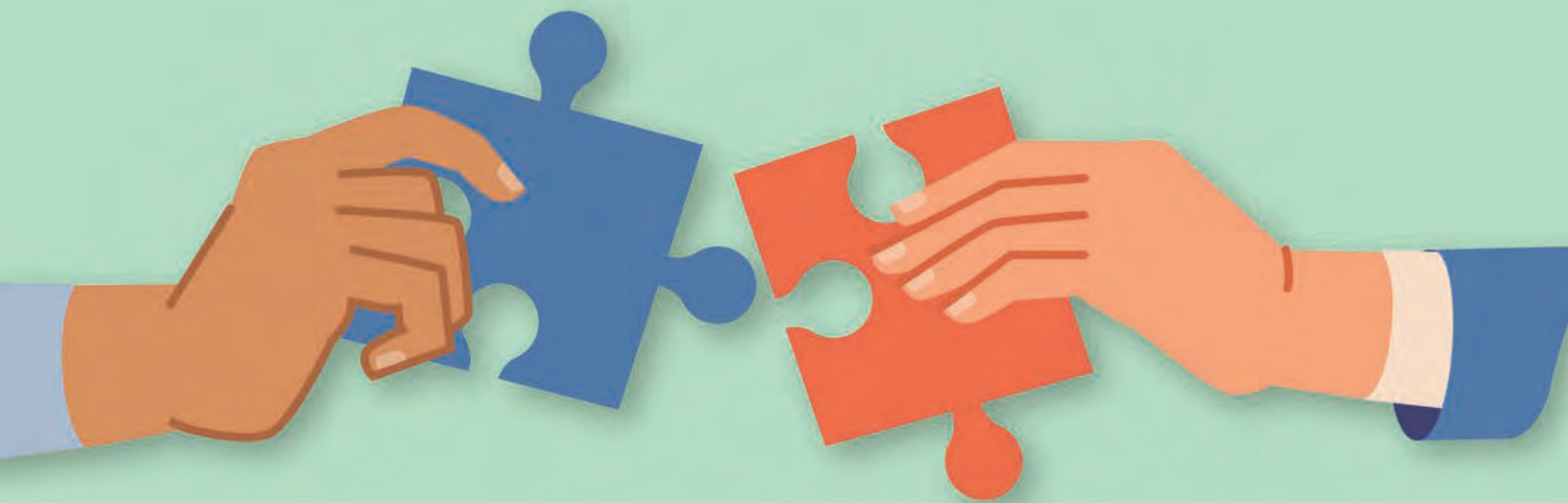
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# Privatize, P3 to vertically integrate or provincialize DISCOs



— Sheikh Imran ul Haque —

If the driver is to immediately create space in NFC for Federal Government, then the current focus to provincialize is an option although that will not deliver efficient customer service, increase productivity, improve billing, reduce technical losses, assure meritocracy or governance; for that Privatization or Private Public Partnership (P3) needs consideration.

The reality depicted above is concerning and remedial measures have not been forthcoming for years and collection and T&D losses over allowance by NEPRA continue due to the failure of privatisation of Discos approved over 10 years ago (CCI in April 2011 and Feb 2014): Although Privatisation Commission Ordinance, 2000 affords several options to structure privatisation transactions. Sec 25 of the ordinance provides for: (a) sale of assets and business; (b) sale of shares through public auction or tender; (c) public offering of shares through a stock exchange; (d) management or employee buyouts by management or employees of a state owned enterprise; and (e) lease, management or concession contracts, etc.

We do have privatization success stories in banking and utility sectors. The successful KE model of vertically integrated generation and distribution has been a game changer in the power sector with its Rs. 474 billion investment since 2005 and now until 2030 has proposed further Rs. 484 billion investment in

transmission and distribution. It has reduced T&D losses by more than half (34% in FY09 to 15.3% in FY22) as well as reduced aggregate transmission and commercial (ATC) losses. It took over 15 years for the change to happen and has now given them confidence to seek a nonexclusive distribution licence, thereby encouraging wire business.

KE model of DISCOs integration with IPPs/GENCOs could be executed in rest of the country under 3P to attract local and international investments in the energy sector under Buy Build Operate (BBO) where government sells a pre-existing project that has already been completed and may have been operated by the government for some time to a private party, who will take it over fully. The private party may need to invest in rehabilitating or expanding the project. The process led by The Public-Private Partnership Authority (P3A) formed in 2017 by GOP to leverage expertise of the private sector to supplement the public sector service delivery replacing the Infrastructure Project Development Facility (IPDF) has between 1990 to 2019 implemented 108 3P projects with investment of approximately \$28.4 billion.

Seemingly, due to poor financial and administrative conditions of the Discos, Federal Government has proposed to shift the financial and administrative responsibility of these companies to the provinces, hoping that they will do a better job in significantly reducing T&D and UFG losses by improving on DISCO collections while driving up system efficiencies

and energy conservation.

The process to transfer DISCOs to Provinces was initiated earlier with Baluchistan declining, Sind now issuing tender for appointing transaction advisory, KP recently suggesting generation of power be handed over to the province along with income from generation of electricity and present review by Punjab highlighting financial risk factors, legal constraints and taking over Discos only to the extent of transfer of assets and not liabilities.

There is argument that debate to provincialize Discos' becomes less important with implementation of Competitive Trading Bilateral Contract Market (CTBCM) under NEPRA Act, wherein a Disco becomes a wire-only business by way of taking electricity marketing and selling out from the scope of a DISCO.

A 10% reduction today in T&D losses means additional 2500 MWs being available or \$2.5bn investment not being required for new generation capacity. A 5% reduction in distribution loss for in gas translates into a USD 1.6bn pa saving of LNG at USD 20/mmmbtu or gas available to generate 1200 MWs. Conservation in 200 mmscf for compressor operations is additional. Undoubtedly, loss reduction justifies economics and investment to reduce losses. Meanwhile, cost of delay in decision making is reflected by increasing Circular Debt (Feb '23 CD: Rs 2600 bn) as tariff increase alone does not decrease CD.

A 14-member Committee now is (i) to review the structure and operations of power distribution companies (Discos) keeping in

view regional differences and to identify areas where the private sector can contribute; (ii) to study international models of private sector participation in energy distribution companies worldwide; (iii) review the existing plans of Power Division to create space for private sector participation in the management of Discos and monitor its implementation; (iv) to develop options for increasing the role of private sector vis-à-vis Discos with the objective of improving their operational efficiency, reducing losses, generating financial resources, enhancing overall technical capacity, transitioning to optimal energy mix, etc. Are we back to the drawing board?

Answers to following will help them devise a doable staged programme with professionals and think tanks engaged to define homegrown “out of box solutions” from within the box.

1. In principle decision of the government to be out of any business in which a competitive market exists/is evolving.

2. Removing barriers e.g. Public Procurement Regulatory Authority (PPRA) rules, NAB reprisals, appointing only experts on Boards and professionals as CEOs and top management and holding them accountable for performance with emoluments better than their counterpart private-sector companies and protected to withstand pressures.

3. Safeguarding/balancing consumer interests with a strong regulator and ensuring focused funded subsidy

4. Onboarding of parliament that restructuring national assets requires sell off of ownership, retaining of only skilled employees, inability of government to finance losses perpetually, and the necessity to increase profitability and economic efficiency gains.

5. NEPRA establish energy conservation targets and audit tariffs applied by DISCOs to all their customers every year. And decision to privatise, provincialize, restructure and manage DISCOs by GOP or Provinces, vertically integrate under 3P, wait till market framework of CTBCM is operational or define a hybrid approach as one size does not fit all DISCOs requires extensive debate with knowledgeable others. And later, learning could be transferred to GDISCOs (gas distribution) once CCI has closure on WACOG and 18th amendment implementation. ■

## COAL DEMAND



# Thar coal supply to industry

## Tax amendments on the cards

—◆ EU Report —◆

**P**rime Minister's Office (PMO) has directed the Federal Board of Revenue (FBR) to alter/ amend Income Tax Ordinance in the next budget in order to start the supply of Thar coal to local industry, well-informed sources said.

These directions were issued at a meeting held in the PM's Office to resolve issues of Sindh Engro Coal Mining Company (SECMC) under the chair of Mohammad Jehanzeb Khan, SAPM on Effective Governance.

National Transmission and Dispatch Company (NTDC) highlighted that progress on transmission lines is on track and already attained 77 percent completion. It highlighted the issue of Right of Way in Tando Allahyar district of Sindh. NTDC officials maintained that if the issue of Right of Way is not resolved it may delay the whole project.

Federal Board of Revenue (FBR) apprised that SECMC may not provide excess

coal to the industry owing to the provision in the Income Tax Ordinance (Section 65) wherein it is stipulated that the said credit shall only be availed if the coal is supplied exclusively for power generation. Representative of FBR observed that the existing provision is restrictive and can be reviewed to harness the potential of Thar coal.

Secretary Railways noted that CDWP, in its meeting held on December 22, 2022 proposed cost sharing of “Thar Coal Rail Connectivity” on 50-50 basis between the Federal Government and the Government of Sindh. Since then, coal demand has been firmed up but the Government of Sindh seems to be more interested in the revenue sharing model instead of the provision of loan. After a detailed discussion on the issues and considering the viewpoints of all the participants, the meeting decided that NTDC will complete 100 per cent work on the transmission line by the end of April 2023. NTDC will also submit a weekly report to Prime Minister's Office. ■

## Oil, gas production rises

—◆ EU Report —◆

The country has witnessed an increase in oil and gas production on a daily basis. According to Pakistan Petroleum Information Service (PPIS), the daily production of crude oil was 69,098 barrels in the week that ended on March 31 which was 3.7% more than the previous week. The average production of crude oil was 66,662 barrels this week.

The gas production was recorded at 3,319 million cubic feet per day (MMCFD) this week which was 5.8% more than the previous week. The average production of gas was recorded at 3,139 mmcf this week. The statistics showed that the oil production was recorded at 4,887 barrels by POL on a daily basis last week, 12,154 barrels by PPL, 32,494 barrels by OGDCL and 1,061 barrels by Mari Gas. Moreover, the POL's gas production was 64 mmcf, 647 mmcf by PPL, 701 mmcf by OGDCL and 944 mmcf by Mari.



# Experts welcome Sindh's move to establish power regulatory authority

## Wind corridor in Sindh has potential to generate up to 100,000 MW clean energy

◆ M. Naeem Qureshi ◆

The relevant energy experts have welcomed the move of the Sindh government to establish a provincial electric power regulatory authority and acquire two public sector power distribution companies (DISCOs) in the province while warning that the relevant provincial authorities have to do much hard work involving massive investment to provide relief to the power consumers in Sindh.

The relevant experts expressed the unanimous view that the issues of the energy sector are far too chronic, requiring massive financial input to resolve them, as just the move to acquire two DISCOs and establish a provincial power regulatory agency wouldn't resolve them immediately. They, however, admitted that a province setting up its own power sector regulator is in accordance with the concept of provincial autonomy given in the 18th Constitutional Amendment. But such a move could only prove to be a beneficial step if the provincial government beforehand builds its own capacity to tackle the energy sector issues.

They suggested that the Sindh government would first resolve its inherent capacity issues in handling affairs related to the public sector governance before implementing its decision to establish more provincially owned entities in the energy sector.

Akhtar Ali, who served as a Member Energy of the Planning Commission of Pakistan, said that the move to establish the proposed Sindh Electric Power Regulatory Authority (SEPPRA) could only prove to be successful if the entire energy sector was devolved to the province in line with the 18th Amendment.

He said the bulk purchaser of electricity would still be a federal agency if the Sindh government went ahead with the move as the proposed SEPPRA wouldn't have any authority to regulate the affairs in this domain.

He, however, was hopeful that after establishing SEPPRA, the Sindh government would be

able to accelerate the completion of small power generation projects but this wouldn't change much in terms of the bigger issues of the energy sector. He said that as per the existing scheme of things in the energy sector no matter how much legislation and innovation a province adopted it couldn't deal with the issues related to National Transmission and Dispatch Company.

He advised the concerned provincial authorities to sit and hold talks with the federal government if they wanted that renewable energy projects in Sindh were built at an accelerated pace in the best interest of the power consumers. Establishing a power sector regulator in Sindh doesn't change much the scenario in this regard, he said. The senior energy expert was of the view that much of the service-related issues of the two DISCOs in Sindh causing problems to their consumers wouldn't be changed if the provincial government acquired these two companies. Irfan Ahmed, a clean energy expert who recently served on the board of Hyderabad Electric Supply Company, said he foresaw the biggest benefit of establishing the proposed SEPPRA would be for the pending renewable energy projects in the province.

"Renewable energy is a distributed energy resource as it should best be dealt with in a localised manner as this area needs interventions by the province like setting up SEPPRA," he said.

He said that the wind corridor in Sindh had the potential of generating up to 100,000MW of clean electricity as merely two per cent of this massive renewable resource had been tapped so far. Then Sindh has also ideal conditions for massive electricity generation through solar power as establishing SEPPRA is a step in the right direction in this regard.

"But the main issue is that establishing SEPPRA means Sindh is going to acquire just one per cent of the space in the energy sector as the rest 99 per cent will remain with the federal government as is the case now," he said.

He said that the Sindh government had earlier established its own transmission and dispatch company, but it didn't go beyond laying a transmission line for the Nooriabad power

project showing a lack of capacity.

Ahmed said the agonising issues of the power consumers in the rural areas like hours-long power supply disruptions during peak summers wouldn't be changed much if the two DISCOs in Sindh were acquired by the provincial government.

He said that instead of privatising DISCOs, the same being acquired by the provinces meant that the portion of the circular debt relevant to them would just be parked with the provincial governments.

Yousuf Saeed, head of research at a brokerage house, believed that setting up a provincial power sector regulator seemed a good idea but one should keep in mind that at present, NEPPRA dealt with each and every aspect of the power sector. While the proposed SEPPRA wouldn't be able to do anything about affairs related to transmission and distribution systems as these aspect rest within the federal domain.

He said that as per the studies conducted by the World Bank, the efficiency of the power sector would surely be improved if the province established their own such entities. But one has to keep in mind that it is going to be a very hard task as it involves never-ending issues like circular debt whose responsibility lies with the federal government, he added.

Usama Qureshi, another energy sector expert who served at K-Electric in a key position, however, said that establishing the SEPPRA was a step in the right direction as the authorities sitting in Islamabad didn't have the capacity to manage the power sector in the entire country. Every province has its own needs and by establishing such entities every provincial government would be in a position to manage the power sector within its domain and provide due relief to the electricity consumers, he said.

"Given my experience in the energy sector, it is my firm suggestion that other provinces should also establish such regulators in line with the 18th Amendment while in the next step, the provincial governments should be made in charge of the DISCOs in their respective domains," said Qureshi.

Adil Farooq Qureshi, CFO of Attock Gen Limited, said that as far as the legality of this issue was concerned, the move was very much okay as the provinces were empowered to establish such entities after the devolution of the subject of energy as per the 18th Constitutional Amendment. But practically speaking, this move would further complicate things in the power sector due to the involvement of so many regulators and entities all over Pakistan, whereas the federal power purchasing agency is also rolling out the CTBCM (Competitive Trading Bilateral Contracts Market) regime at the same time in the country.

He said that this move of the Sindh government would also affect the sale and purchase of power between the provinces as other provincial governments still didn't have any such regulator of their own. But overall it is a good move towards decentralization and devolution of the power sector to the provinces as other provincial governments should also adopt it to bring efficiency in the power sector and to protect the legitimate interests of the consumers, he added.

Sindh Energy Minister, Imtiaz Ahmed Sheikh, while recently participating via video-link in a meeting chaired by Defence Minister Khawaja Asif on the issue of handing over DISCOs to the provinces said the move to hand over two distribution companies to the Sindh government would ensure the provision of much-needed relief to the power consumers in the province.

He said the proposed move would improve the electricity distribution system, and reduce the power cuts, while there would also be a phenomenal reduction in electricity tariff for the end-consumers in Sindh.

A recent letter sent by Sindh Energy Minister to Federal Power Minister, Khurram Dastgir, mentioned that the studies conducted by the World Bank had revealed that after a little upgrading of the transmission and distribution networks, 6765 MWs of solar and wind energy could be supplied from the renewable energy projects to be established in Sindh till 2025 while same generation could be enhanced to 10035 MWs till 2030. Sheikh mentioned that cases of proposed wind energy projects of cumulative 1875MW generation capacity and solar power projects of 1400MWs capacity in Sindh had been pending as they were yet to be granted approval by the federal authorities under the competitive bidding regime. He lamented that the federally owned Alternative Energy Development Board recently approved just one out of the proposed 25 solar projects in Sindh for inclusion in the competitive bidding regime. The Sindh Energy Minister also assured the concerned employees of the power sector that the provincial government wouldn't resort to downsizing after acquiring the two DISCOs despite that they had been facing significant losses.

He said that two DISCOs had been facing annual losses of up to 48 per cent as no business could survive with such a massive deficit. He said the Sindh government had been minutely scrutinizing the financial affairs of the two companies before acquiring them as the annual balance sheets of the DISCOs presented a bleak picture of the power sector. He said that certain tough measures had to be taken for preventing power theft in the province in order to ensure uninterrupted electric supply to the consumers of the two DISCOs.

Sheikh hinted that the mode of public-private partnership could be adopted by the Sindh government to successfully operate these companies. ■

# Economy expected to grow steadily by 2030



## CPEC, other projects likely to be productive by this time

— Mustafa Tahir —

**I**t is difficult to predict the exact state of Pakistan's economy in 2030, as economic growth is influenced by various factors, including political stability, social and economic policies, global economic trends, and technological advancements. However, based on current trends and projections, here are some possible scenarios for Pakistan's economy in 2030:

**Economic Growth:** Pakistan's economy is projected to continue to grow steadily, with a projected GDP growth rate of around 5% to 6% per year. This growth is driven by increased investment, higher productivity, and expanding industries, such as agriculture, manufacturing, and services. **Infrastructure Development:** The Pakistani government has launched various initiatives to improve infrastructure development, including the China-Pakistan Economic Corridor (CPEC), which aims to enhance transportation, energy, and telecommunications infrastructure. By 2030, these initiatives are expected to result in better connectivity, enhanced logistics, and more investment opportunities.

**Technology Advancements:** Paki-

stan's technology sector is projected to grow significantly, with more investment in research and development, and increased digitalization across various industries. This growth is expected to create new jobs, improve productivity, and enhance competitiveness.

**Energy Security:** Pakistan is expected to continue to face energy shortages, which could hamper economic growth. However, the government has launched various initiatives to promote renewable energy, including solar and wind power, which are expected to reduce the country's reliance on fossil fuels and enhance energy security.

**Demographic Trends:** Pakistan's population is projected to continue to grow, with a projected population of around 260 million by 2030. This growth is expected to create new opportunities, but also pose challenges in terms of education, health, and employment.

Overall, Pakistan's economy is expected to continue to grow steadily by 2030, driven by infrastructure development, technology advancements, and expanding industries. However, the country also faces challenges, including energy security and demographic trends, which will need to be addressed to ensure sustainable economic growth.

# Energy efficiency and conservation initiatives

— Syed Akhtar Ali —

Two news have been reported in newspapers recently – World Bank's support for energy conservation in Pakistan, and the government's drive to shift consumption from gas to electricity. The issues have a commonality and deserve discussion and suggestions.

Shifting gas consumption to electricity may have been motivated by the continuous decline in gas reserves and supplies. New gas finds have not been there. There is dependency in the gas sector partly due to law and order issues in the potential gas deposit-containing areas.

Liquefied natural gas (LNG) supply was not there as well due to the international situation, where prices have been unstable and increased to unaffordable levels.

The assumption in substituting gas with electricity is that local energy sources like solar, wind, hydro and Thar coal, which are cheaper and abundant, would be used in generating electricity. And if at all, combined-cycle gas-fired power plants would be used, which are efficient and produce cheaper electricity than others.

On the user side, in the industrial sector, the prospects for the conversion of thermal users to electricity are much lesser as gas may continue to be the efficient source for thermal applications. In the case of household users, the rich and well-to-do may be able to shift to electricity much more easily than the lower-income group.

Electrical appliances are expensive. One may think of the high-income group

buying induction cookers for cooking but cannot imagine the low-income group doing so.

For higher-income groups, the options are many such as induction cookers as mentioned earlier, inverter ACs for cooling and heating, roof-top solar and solar water heaters.

Inverter ACs are mostly used for cooling and many owners of ACs continue using gas heaters, although inverter ACs are a clean and good source of heat as well. Perhaps people want options. Comparative prices may incentivise the shift.

There are two options that have been largely neglected by the government and international donors – roof-top solar water heaters (RTSWH) and biogas/bio-CNG.

Private sector and individual users have been installing RTSWH on their own. China and Turkey have substantial installation of these devices. These are imported from China and can be locally manufactured. Lack of after-sales support has discouraged expansion of demand for this equipment.

Gas heaters may literally be banned if sufficient support is not given by the government, Neeca and possibly financial sector. It costs under Rs100,000 and cheaper credit may boost its expansion.

Similarly, bio-CNG has been neglected. Electric vehicles (EVs) may take time to get popularised. CNG stations are already there and many vehicles already converted. Natural gas and LNG are currently used in vehicles.

CNG use has gone down due to irregular availability. Bio-CNG can increase CNG availability and save natural gas supplies. An example for supporting this argument is that India plans to install 5,000 bio-CNG plants in the next five years. One bio-CNG plant can provide gas to several CNG stations.

Similarly, biogas use in rural households can be promoted. Plastic cylinder biogas producers have been developed which are handy, easy to install and much cheaper than the classical earthen ones.

## World Bank's energy conservation project

The World Bank has offered a \$300 million loan to Pakistan for energy conservation, out of which there is grant assistance of \$15 million

for studies and consulting work. Earlier, the loan amount was half of this – \$150 million.

The history of assistance projects in the energy sector has not been very successful. USAID spent \$80 million in the 1980s and onwards. The project helped install Enercon.

However, not much could be achieved, although many studies and paperwork were done. Partly, energy prices and availability issues were not as severe then as these are now. And the associated technologies were not available; things like LED, solar, energy-efficient fans, EVs, etc.

It is hoped that the World Bank will act as a hard task monitor in doling out money. Resources should be directed to end-users than intermediaries.

The situation is really bad, particularly the inefficient building sector, although wall, roof and window insulation technology is available for several decades now.

Posh building areas and designs have evolved tremendously but with hardly any move towards energy conservation. Imagine if building insulation was adopted by the building sector, so many houses and buildings would have opted for it. Similarly, one gets sad seeing diesel engines driving agricultural pumps in an age where solar PV has become so affordable and reliable.

Fortunately, the government has already launched an initiative in solar area. Cheap credit made available through the World Bank project may be very helpful. World Bank resources would be better utilised if interest rate subsidy cost is provided to local banks and leasing agencies. ■







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# Population and climate change

## Growing inequality and pervasive poverty further deepen

— Ali Tauqeer Sheikh —

**G**rowing inequality and pervasive poverty further lock countries into the cycle of higher population growth rates and increasing climate vulnerabilities. Some recent studies have inverted this proposition: without reducing social and economic inequalities, the population growth rate cannot be slowed down nor can climate vulnerabilities be reduced. Climate justice, therefore, rests on inclusion and equity in order to manage the population growth rate, demographic trends, and the sustainability of economic growth — besides achieving net zero emissions.

Dennis Meadows' *The Limits to Growth*, released in 1972 by the Club of Rome, instantly became a controversial and influential book in environmentalism. Based on systems thinking, it drew attention to population and economic growth as the twin global challenges to sustainability. By integrating five elements — population, consumption of non-renewable natural resources, food production, industrialisation and pollution — the book argued that humankind was exceeding Earth's carrying capacity. It espoused a neo-Malthusian agenda of limiting population growth and promoting sustainable economic development for life on the planet beyond 2100.

Since then, per capita GDP and popula-

tion growth have remained the strongest drivers of carbon emissions. The Sixth Assessment Report of IPCC, released in 2022, has specifically identified high population growth as a “key impediment” to reaching the critical target of limiting global warming to 1.5 degrees Celsius above pre-industrial levels. Research examining the effects of different population projections on economic growth and energy use shows that reining in population growth and reducing reliance on fossil fuels can significantly decrease greenhouse gas emissions. Incorporating various population projections in climate models shows that higher population growth rates lead to higher carbon emissions.

It has been projected that slower population growth could lower emissions from 2.5 billion tons to 1.6 billion tons per year by 2050. It has also been argued that by 2100, these reductions could possibly reduce emissions by 37-41 per cent; it would also cost considerably less than the technological investments required to combat climate change.

Reducing the population growth rate alone will not solve the climate problem.

Yet, it must also be recognised that the population growth rate is only one of multiple drivers: reducing the growth rate alone will not solve the climate problem. Multiple factors contribute to climatic changes, and multiple actions are needed to address them. In other words, even if Pakistan were to become a net-zero emitter, it would not become climate-secure

unless twinned with regenerating ecosystems. Population planning can help boost resilience and the effectiveness of other interventions. Above all, a robust population policy can empower people, especially women, and help improve lives that can make other actions far more effective.

Further, temperature rises will adversely impact everyone, as every additional person increases carbon emissions — albeit the rich far more than the poor. It will also increase the number of climate change victims, with the poor far exceeding the rich. A recent Oxfam study based on a survey of 125 billionaires has found that each billionaire was responsible for the annual emission of about three million metric tons of CO<sub>2</sub>; ie, over a million times the amount emitted by 90 per cent of the people. The report also estimated that 50pc-70pc of their emissions stemmed from their investments in 183 corporations, with a combined corporate equity value of \$2.4 trillion. The study posits that “extreme inequality and wealth concentration undermine the ability of humanity to stop climate breakdown”.

Building on the legacy of *Limits to Growth*, the Club of Rome and several European think tanks have developed an intricate model, ‘Earth4All’, to explore two possible scenarios this century. These combine environmental, economic and social factors, including food production, income, taxes, energy and inequality. First, there is the ‘too little too late’ scenario



that represents the current incremental changes. Second is the 'giant leap' scenario, indicating a global population drop to 6bn from the UN-projected 11.2bn if sustained investments are made in education and healthcare, along with transformative policy changes in food and energy security, inequality and gender equity.

With China, India and Bangladesh effectively curbing their population curves, attention is shifting towards Pakistan, a country of an estimated 487m by 2100. As Afghanistan and Pakistan are holding the world hostage on polio, Pakistan may become the ultimate road-blocker on curbing the global population growth rate.

Fifty years after Limits to Growth was printed, Pakistan has emerged as a textbook case on all five elements that were at the heart of the study. The population has increased four times from 62m in 1972 to 234m today. The rate of return on agricultural inputs has been declining, making several crops less viable. Plateauing soil productivity, loss of nutritional yield value and depletion of groundwater, forests and other resources have adversely affected the physical environment, eroded the carrying capacity of ecosystems and increased exposure to climate-induced disasters. It has also accelerated outward migration to cities, making Pakistan the most urbanised country in South Asia.

Finally, urbanisation and migration are the key drivers of Pakistan's population dynamics and are central to discussions on climate risks, especially in the context of migration to urban and peri-urban areas. People migrate to unwelcoming and ill-prepared urban centres like Karachi, where they can only afford low-lying, flood-prone and marginal land, thus increasing their exposure to urban climate change risks. It is estimated that in Karachi, 64pc of the population lives in informal settlements.

The deficient provision of basic services weakens their capacity to adapt to climate change, resulting in victim-blaming of the poor since internally displaced migrants have a higher carbon footprint in an urban setting than they had in the rural areas before they migrated. Once in cities, their resilience level diminishes as they have fewer resources to cope with the adverse impacts of climate-induced hazards.

The 'giant leap' scenario of 'Earth4All' has lent support to voices from the Global South calling for cancellation of debt, reducing world inequality by raising carbon taxes on richer people and corporations, and decreasing hunger and poverty by respecting the carrying capacity of our ecosystems. The first step, as always, is preparing for equitable local governance. ■

*The writer is an expert on climate change and development.*

## ENERGY REFORMS



# Power sector needs drastic reforms

—◆ Mustafa Tahir ◆—

**P**akistan faces various energy issues including electricity shortages, high fuel costs, and a heavy reliance on imported energy. These issues have significant impacts on the country's economy, social development, and quality of life.

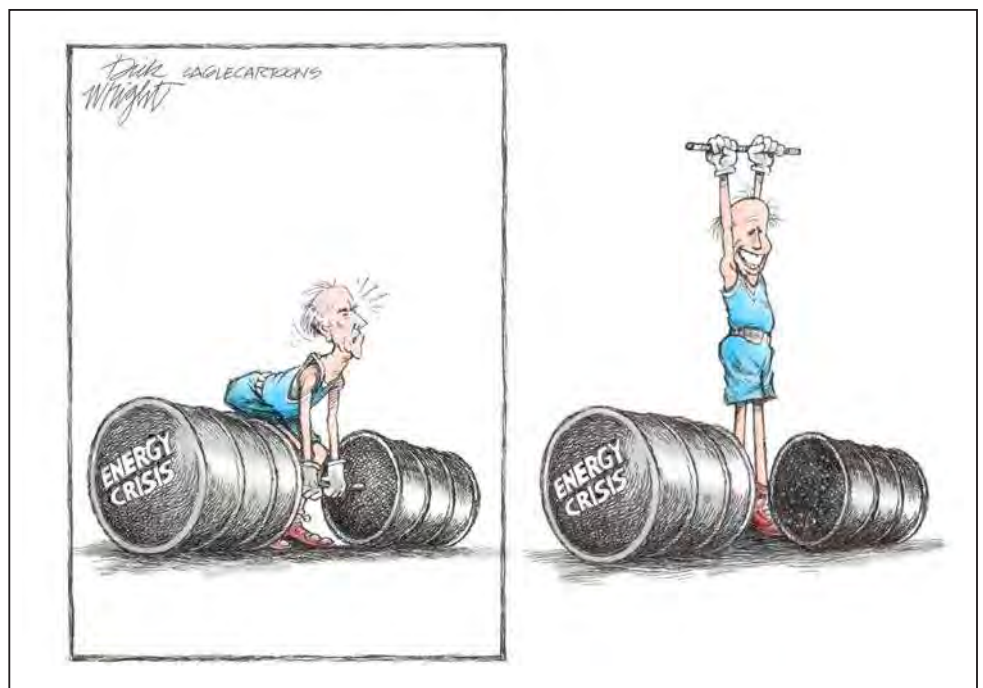
One of the major challenges Pakistan faces presently is a shortfall in electricity production that has led to massive power load shedding. This situation is due to various factors including the use of imported fuel, outdated infrastructure, insufficient investment in the energy sector, dollar value hike, and a lack of diversity in energy sources.

Additionally, Pakistan's energy mix is heavily reliant on imported fossil fuels, such as oil and gas, which make up over 70% of its energy consumption. This dependence on imported

energy sources makes Pakistan vulnerable to price fluctuations in the global energy market.

Furthermore, the country's energy sector suffers from a lack of investment in renewable energy sources, such as wind and solar power. While Pakistan has enormous potential for renewable energy, only a small percentage of its energy comes from these sources.

To address these energy issues, Pakistan has launched various initiatives aimed at increasing energy production, diversifying the energy mix, and promoting the use of renewable energy. These initiatives include the development of new power plants, the construction of renewable energy projects, and the implementation of energy conservation measures, but major challenges still remain. There is a need to make more investments in the energy sector and bring drastic policy reforms to address Pakistan's energy issues in the long term. ■



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# Wateen Energy

## becomes premier provider of renewable energy solutions

### Sohaib Asif Sipra

Vice President at Energy & IOT Solutions at Wateen Telecom Ltd

says our company is wholeheartedly dedicated to the vision of incorporating 30% renewable energy into national grid

—◆ M. Naeem Qureshi ◆—

#### Introduction

Sohaib Asif Sipra is a highly respected figure in the renewable energy sector, with an impressive track record of over 18 years in sales and operations. He has gained extensive experience through his valuable contributions to both public and private organizations.

#### Education and Professional Background:

Sohaib's educational journey has been marked by remarkable achievements. He earned his MPhil in TQM (Total Quality Management) from Punjab University and a Bachelor's (Hons) degree in Agriculture from the prestigious University of Agriculture Faisalabad. To further enhance his expertise, he pursued numerous training opportunities on renewable energy in Germany, China, and Nepal, adding a global perspective to his knowledge.

Presently, Sohaib holds the esteemed position of Vice President at Energy & IOT Solutions at Wateen Telecom Ltd. Within this role, he spearheads the strategic planning, development, and implementation of renewable energy and IOT solutions not only in Pakistan but also at the international level.



## Past Professional Roles:

Prior to his tenure at Wateen, Sohaib gained extensive experience through his roles in distinguished organizations. Here are his notable accomplishments in each role:

### 1. SkyElectric Pvt. Ltd.

Served as Regional Director for a duration of four and a half years.

### 2. REON Energy

Senior Manager of Sales for Solar and Business Unit Head for Bioenergy for nearly five years.

### 3. Pakistan Dairy Development, Ministry of Special Initiatives, Govt of Pakistan

Served for five years as Team Lead on various projects.

## Q. What inspired you to pursue a career in the energy industry, and how did you get started in this field?

**Ans:** During my tenure at Pakistan Dairy, we embarked on several transformative projects aimed at revolutionizing the dairy sector in Pakistan. Our initiatives focused on technology transfer, facilitated by foreign dairy experts, and encompassed the establishment of model dairy farms, the development of cold chains through the installation of milk chillers, biogas utilization, and capacity building. Our overarching objective was to enhance productivity within the dairy sector by introducing modern farm management techniques, strengthening the dairy value chain, improving processing capabilities, and offering high-quality and affordable dairy products to consumers.

One significant project that captured my attention was the implementation of domestic biogas plants, which we commenced in 2008. Prior to launching the project, we conducted extensive research on plant design and sought guidance from Nepalese experts who introduced us to the successful Nepalese GCC model of biogas plants. Among all the projects undertaken by Pakistan Dairy, the biogas initiative stood out as the most fruitful. We successfully installed multiple biogas plants for various purposes, including water pumping, electricity generation, and land fertility enhancement.

The launch and success of the biogas project sparked my passion for the renewable energy industry. It became evident to me that this sector is rapidly expanding globally and is poised for continued growth in the years and decades ahead. Many countries are adopting policies to expedite the transition to a low-carbon economy, opening up substantial employment opportunities in the renewable energy field. Eager to further my career in this domain, I proactively participated in training programs held in China, Nepal, and Germany to facilitate technology transfer and broaden my knowledge.



Working in the renewable energy sector brings me immense satisfaction, as it allows me to, directly and indirectly, serve humanity while safeguarding the environment for future generations. To those contemplating a career in renewable energy, I would encourage them by saying, "If you possess a deep commitment to environmental sustainability and a genuine desire to make a positive impact on the planet, a career in renewable energy could be an ideal choice for you."

## Q. Can you tell us about Wateen Energy's mission and vision, and how it aligns with the broader goals of the energy industry?

**Ans:** Wateen Telecom stands at the forefront of Pakistan's ICT industry, boasting a diverse clientele spanning various sectors. As a trailblazer in the telecommunications field, Wateen takes immense pride in establishing robust connectivity across Pakistan through its rapidly expanding fiber-optic network. By introducing cutting-edge solutions, software, cybersecurity measures, and energy solutions, Wateen is reshaping the communication technology landscape in the country. Supported by the Dhabi Group, Wateen aspires to propel Pakistan into a digitally advanced nation, capable of serving as a regional communication hub.

In today's world, the urgency for sustainable energy solutions has reached new heights. This is where Wateen Energy emerges as Pakistan's premier provider of renewable energy solutions. Our mission is to deliver reliable, cost-effective, and sustainable energy solutions that contribute to creating a better future for generations to come. Our highly skilled team of professionals works tirelessly to ensure that every installation meets the highest quality standards. By providing hassle-free

and eco-friendly savings to our customers, we collaborate closely with world-leading OEMs (Original Equipment Manufacturers) to deliver top-quality equipment, services, and comprehensive after-sales support.

## Q. How do you see the energy industry evolving in the next decade, and what steps is Wateen Energy taking to stay ahead of the curve?

**Ans:** Pakistan is currently grappling with challenges related to its energy mix, largely due to heavy thermal power generation dependence on imported fuels like coal. This reliance has adverse effects on the economy. The energy sector in Pakistan suffers from an inefficient energy mix, prompting the government to set targets of introducing 20% renewable energy by 2025 and 30% by 2030. In the past five years, electricity prices in Pakistan have seen a significant rise of nearly 70%, with this upward trend expected to continue due to the inefficiencies in the current energy mix.

Wateen is wholeheartedly dedicated to the vision of incorporating 30% renewable energy into the national grid. Pakistan boasts an estimated solar potential exceeding 100 GW. The increasing cost of electricity, which has nearly doubled or tripled in the past five years, primarily drives the solar market. Moreover, adjustments in fuel prices further escalate overall costs, making the business case for renewable energy increasingly favorable. As Pakistan heavily relies on imported fuels like oil, gas, and coal for electricity production, we remain susceptible to fluctuating prices beyond our control. Despite the impact of Covid, the renewable energy market continues to experience exponential growth year-on-year. Among all energy sources, solar systems offer the most cost-effective leveled cost of energy.

Within the telecom sector, high electricity prices pose significant concerns in terms of operational expenses, negatively impacting profitability. Pakistan possesses vast potential for solar, wind, and bioenergy, with abundant resources and ample room for growth. In the current industry landscape, renewable power sources provide a cost-effective, reliable, and efficient solution. This solution benefits various sectors, including enterprises, small and medium-sized enterprises (SMEs), and consumers alike.

Wateen's sustainable energy initiatives not only contribute to a more stable power supply but also play a crucial role in bolstering the economy. These initiatives attract cost-effective investments and create opportunities for profitability and growth, fostering the development of underdeveloped regions in the future.

**Q. How does Wateen Energy prioritize sustainability and environmental responsibility in its operations, and what specific initiatives has the company undertaken in this regard?**

**Ans:** The energy solutions market experiences a surge in demand driven by soaring tariffs and the attractive benefits of tax incentives and financing options. Leveraging its extensive network, Wateen possesses the capability to efficiently provide green and highly efficient solar energy solutions to a diverse range of customers.

In Pakistan, a significant portion of the energy supply heavily relies on fossil fuel-based power plants, leading to a severe energy crisis within the country. To overcome this crisis, there is an increasing urgency to explore renewable energy resources. Recognizing this need, the energy division was established last year, marking Pakistan's transition toward more sustainable energy sources while leveraging its indigenous resources. With a widespread presence in over 240 cities across Pakistan, Wateen is excellently positioned to deliver solar and other renewable energy-based solutions to customers spanning the enterprise, SME, carrier, and consumer segments.

Despite facing challenges such as import restrictions, Wateen has achieved significant success by securing over 6MW projects since last year. We remain dedicated to introducing cutting-edge solutions across all sectors, and by incorporating the Internet of Things (IoT), our goal is to provide our customers with the most efficient and advanced solutions available in the market.

**Q. Can you speak about some of the biggest challenges facing the energy industry today, and how Wateen Energy is working to address these challenges?**

**Ans:** In our assessment, the energy sector in Pakistan confronts several daunting challenges, including limited capacity, high generation



costs, heavy reliance on fossil fuels, mounting import bills and circular debt, harmful emissions, system and process bottlenecks, electricity theft, financial constraints, low awareness and education regarding appropriate equipment and products, technical complexities, and grid limitations due to an aging and inefficient distribution network.

At Wateen, we closely monitor these challenges and are actively engaged in addressing them through the following strategies:

**Policy reforms:** We firmly believe that the government of Pakistan holds a pivotal role in fostering favorable policies such as net metering (for 1MW and above), feed-in-tariffs, and tax incentives. Such measures would stimulate investments in the solar industry and promote its overall growth.

**Awareness campaigns:** Stakeholders within the solar industry can take the lead in launching awareness campaigns to educate the public about the benefits of solar energy and guide them in making informed decisions about the right equipment and solutions. By increasing awareness, we can generate greater demand for solar energy and expand the market for the industry.

**Capacity building:** Both the government and private sector can focus on enhancing the capacity of local solar industry players through comprehensive technical and vocational training programs. This will elevate the quality of solar installations, boost productivity, and reduce overall costs.

**Access to financing:** Collaborative efforts between the government and private sector can foster the development of innovative financing approaches, providing affordable credit facilities to solar industry players. This will facilitate industry growth by ensuring adequate capital for projects. Additionally, the reactivation of the green financing scheme, which has been on hold since last year, is crucial and should be made easily accessible across all sectors.

**Improved regulation and enforcement:** The government should prioritize the enforcement of existing regulations governing the solar industry. This will ensure the delivery of high-quality installations and services while protecting consumers from fraudulent prac-

tices. The presence of seasonal players in the market has a detrimental impact on the sector and should be addressed.

By implementing these measures, alongside others, the solar industry in Pakistan can effectively overcome its challenges and establish itself as a viable alternative to conventional energy sources. This will contribute to providing clean and affordable energy to households and businesses across the country.

**Q. Can you tell us about any notable achievements or milestones that Wateen Energy has reached in recent years, and what you attribute these successes to?**

**Ans:** Wateen, a leading provider of ICT and energy solutions in Pakistan, actively contributes to the promotion of sustainable energy practices in underdeveloped regions of the country. Our noteworthy achievements include the successful completion of over 15 projects spanning across Pakistan, from Karachi to the northernmost areas. These projects have yielded tangible benefits such as improved business operations, cost-effectiveness, and the emergence of new opportunities for entrepreneurship and economic growth. The implementation of Wateen's solar energy solutions has brought about a positive transformation in underdeveloped regions of Pakistan.

Looking ahead, Wateen Energy has ambitious plans to expand its solar operations to more remote areas throughout the country. Our aim is to empower small, medium, and large enterprises to operate efficiently while fostering sustainable business practices. We take pride in tailoring our offerings to meet the specific requirements of each client, providing a wide range of products and services. Through strategic partnerships with global technology giants, we ensure the delivery of cutting-edge products without compromising on quality. Our experienced team meticulously plans and oversees end-to-end installations, customized to suit the unique needs of each organization. With advanced design tools and a robust 24/7 after-sales support infrastructure, we guarantee optimum performance and deliver value-added services to our clients. ■



# Solar grids bring relief to Sindh

## 19KW mini-grids have transformed lives of people

—◆ EU Report —◆

**I**ndus Earth Trust (IET), an organisation promoting green energy, has provided a life-changing solution for residents of Ishaq Jokio, a small settlement in the Sindh province of Pakistan.

The 19-kilowatt mini-grids powered by solar energy have transformed the lives of people, who have been accustomed to enduring long hours of power cuts during peak consumption in summer.

“Villages were selected according to a needs assessment survey, while the villagers provided the land where the 19-kilowatt mini-grids were installed. In this hamlet caressed by the sea breeze from the Arabian Sea, panels bred prosperity,” reported the China Economic Net.

According to the State of Industry reports from the National Electric Power Regulatory Authority (NEPRA), homes consume 50% of the total electricity delivered, and this demand is largely driven by cooling and lighting. The demand is estimated to increase from 106 terawatt-hour (TWh) in 2020 to 234 TWh in 2030, representing a 121% increase due to the rise in temperatures from climate change.

Pakistan’s energy problems have been exacerbated manifold by the Russia-Ukraine conflict and the global supply crisis. Pakistan’s fuel import bill surged to \$23 billion in FY2021-22, a 105% increase from the previous financial year. The country’s per capita annual electricity consumption of 644 kilowatt-hour (kWh) is among the lowest in the world, which is only 18% of the world average, 7% of the developed countries’ average.

However, Pakistan’s efforts to embrace photovoltaics at all levels have started to pay off. Pakistan imported about \$1.2 billion in photovoltaic modules in the last fiscal year, and in 2022, China’s photovoltaic module exports to Pakistan reached approximately \$870 million, with a total installed capacity of 3.2GW, a year-on-year increase of 54% and 37%, respectively, said Liu Yiyang, Deputy Secretary-General and Press Spokesperson of China Photovoltaic Industry Association (CPIA). The Pakistan Solar Association (PSA) forecasted that the country’s import demand for photovoltaic products this year will be around \$1.8 billion.

“Pakistan’s Solar Energy Market is expected to record a CAGR of 2.5% during

the period from 2022 to 2027, with Net Metering-Based Solar Installations and Power Generation growing by 102% and 108% respectively,” said a KTrade Securities analyst.

A World Bank study in 2020 urged Pakistan to urgently expand solar and wind “to at least 30% of electricity generation capacity by 2030, equivalent to around 24,000 MW.” This provides huge opportunities for growth as currently, as of December 2022, Pakistan’s total domestic installed power capacity is 43,775 MW, of which photovoltaic installed capacity is 630 MW, accounting for about 1.4% only.

China’s efforts are also reaching millions of households in remote areas in the form of micro-power plants. Out of the \$144 million foreign investment in PV plants in Pakistan, \$125 million is from China, accounting for nearly 87% of the total.

“Pakistan and China are a perfect match for collaboration on renewable energy (solar PV) as China is a globally known giant when it comes to renewable energy technology, while Pakistan needs to move away from thermal to renewable for power generation,” stated a KTrade Securities solar PV industry report.

Recently, the Pakistan Solar Association (PSA) sent an official letter adjuring the federal government to ask SBP and other commercial banks to help in the solar imports through an annual limit of USD 800 million at a time when Pakistan is facing a renewable energy sector that is growing rapidly. The letter also urged the government to take steps to promote local manufacturing of solar panels to reduce reliance on imports and create job opportunities for the local population.

The success of the Indus Earth Trust project in Ishaq Jokio serves as a testament to the potential of renewable energy in Pakistan. With the increasing demand for electricity and the urgent need to address the impacts of climate change, the adoption of renewable energy sources such as solar and wind power is becoming more critical than ever.

By embracing green energy, Pakistan can not only meet its energy demands sustainably but also reduce its dependence on fossil fuels, mitigate the impacts of climate change, and create new job opportunities. The journey towards a greener future may be challenging, but with organisations like the Indus Earth Trust and the support of the government and the private sector, Pakistan is on the path to a brighter and more sustainable future. ■

# Pakistan-German Renewable Energy Forum organized a study tour to Berlin for Pakistani professionals working on smart city topics and renewable energy

(mobility, sustainable city planning and decarbonization)



## — EU Report —

**A** 15-member delegation from Pakistan comprising professionals, academics, senior public officials and NGOs in the urban planning and mobility sector was hosted in Berlin for a week-long study tour. The delegation attended the Berlin Energy Transition Dialogue 2023, an international high-level political event at the German Federal Foreign Office, along with the Urban Innovation Forum.

Additionally, there were multiple meetings with the German private sector for match-making and cooperation in EV storage technologies, concentrated solar thermal technologies for industrial process heat in Pakistan's textile sector as well as meetings with large solar developers for utility-scale project development. Some site visits for demonstration and inspiration included a tour of the BSR (Berlin waste management company) biogas and waste to energy plant, the European Renewable Energy Forum (EUREF) Campus, the Berlin Energy Agency (BEA) and the Urban Tech Republic at the former Tegel Airport in Berlin.

The participants were given presentations and walk-throughs of the ongoing work for energy transition and sustainable urban mobility in Berlin. The Alternate Energy Development Board was also able to use BETD to present the Pakistani government's Solar Initiative to German Solar-PV developers and associations. AEDB will also be promoting the Pakistani Solar Initiative at Intersolar Europe in Munich in June 2023.

## Details of activities

Key activities under the Study Tour Berlin 2023:

- Urban Tech Republic Tegel Airport & visits: The delegation visited and experienced the presentation of the innovative community at Urban Tech Republic which brings innovative solutions for designing sustainable cities of the future.
- Berlin Energy Transition Dialogue: The members were able to listen to experts and policymakers from around the world explaining the actual challenges and opportunities in the global energy transition.
- BSR (Berlin waste management company) Biogas visit: A site visit with a thorough walkthrough of the BSR biogas and waste-to-energy plant to understand the potential of this resource in Pakistan. BSR collects organic waste from all residential and commercial establishments in Berlin and produces biogas from this waste. This gas is then supplied to the natural gas grid while also fueling the plant's own collection fleet.
- Urban Innovation Forum: An event full of leaders, innovators, and entrepreneurs where Pakistani members were able to network and engage in meaningful discourse.
- The European Renewable Energy Forum (EUREF) Campus: The delegation went on a tour around the installations of the campus learning about its history and participating in the GASAG workshop, discovering the implementation of the energy transition.
- BMZ: An inspiring meeting with Antonia Peters, where topics about cooperation in Public Transport, and climate action, among others were discussed.

The study tour is expected to result in multiple new avenues for cooperation between Pakistan and Germany's energy and mobility sectors in the form of joint B2B ventures for electric mobility, industrial process heat

decarbonization, and academic collaboration between universities in the two countries for technical energy education in Pakistan. For more details, visit: [www.pgref.org](http://www.pgref.org) or our LinkedIn Channel



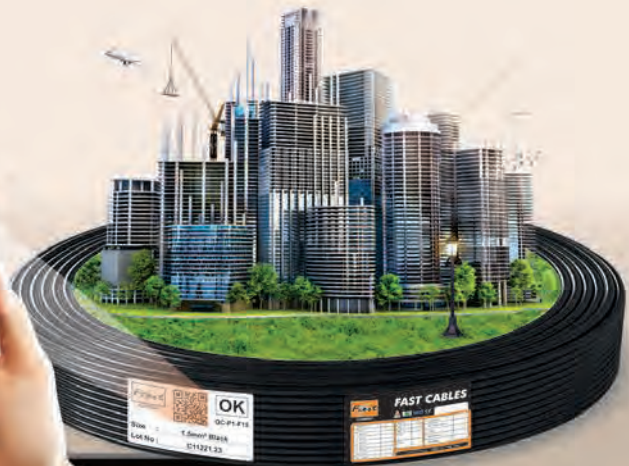
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# Pakistan blessed with enormous renewable sources

Wind energy sources could produce 43,000MW power; hydropower sector has potential of 60GW; Biomass is estimated to generate 50,000 Gwh per year locally; govt has planned to launch about 14,000MW solar projects

—◆— Mian Fahad —◆—

The power sector is the largest producer of greenhouse gases in Pakistan. Energy demand in the country is estimated to reach 108-126 million tons of oil equivalent (TOE) by 2030. Along with increasing unsustainable energy demand management, Pakistan's continued dependence on imported fossil fuels and outdated coal technology has impacted the country's energy security and compliance with global energy efficiency and decarbonization requirements.

However, the government's recent move towards increasing the country's renewable energy (RE) consumption capacity represents a major legislative and policy advance. The

updated National Climate Change Policy, 2021 places a strong emphasis on achieving climate change mitigation targets through energy efficiency and carbon reduction.

It aims to seek technological advances to harness the country's renewable energy potential and says 60 percent of all energy produced in the country by 2030 will be clean through renewable sources, and Pakistan will no longer follow imported coal-fired power plants.

In addition, Pakistan's Nationally Determined Contributions (NDC) 2021, updated, support the government's energy policy interventions and identified the integration of renewable energy sources across key sectors as a priority area. The updated Renewable Energy Policy 2019 focuses more on green energy and aims to reduce GHG emissions using the Kyoto Protocol.

Pakistan has tremendous potential to meet its growing demand for energy from renewable sources, including solar, wind, hydro, geothermal, and biomass, as these sources are widely available in the country. Solar, for example, is the most attractive alternative energy solution that has received considerable attention recently.

The southwestern region of Pakistan receives the most radiation. "The annual global horizontal radiation in the Himalayas and

Karakoram is 2300 kWh/m<sup>2</sup>, which is the highest of any region on Earth."

Wind energy sources have the potential to produce 43,000MW of electricity. Furthermore, the International

Renewable Energy Agency (IRENA) estimates that Pakistan's hydropower sector has a potential of 60GW and remains the cheapest source of energy in the country. Biomass is estimated to generate 50,000 Gwh/year locally. Finally, geothermal energy sources are present in all provinces, which can be used to generate electricity, heat, and cool buildings, and provide hot water.

If Pakistan harnesses this untapped potential across key sectors by implementing exemplary policy reforms in spirit and expanding RE, massive weaning of growth from conventional energy sources such as fossil fuels could add to existing resilience efforts of the climate. Expanding RE will make electricity cheaper, increase energy security and save Pakistan up to \$5 billion over the next 20 years, according to a World Bank report.

Pakistan's textile industry is a key sector that

can massively benefit from the RE resources available in the country by

providing green energy. The current net metering scheme limit for industrial solar power systems is 1MW, which should be expanded to 5MW – “especially when large-scale manufacturing industry demand is between 1.5MW and 5MW.

This increase has the potential to add 5,000MW of solar energy without any prior investment by the Government of Albania in the country's energy mix. In addition, this will enable EOUs to become competitive in the international market (with lower energy costs) and increase the share of renewable sources in the total energy mix, as committed to in the updated NDCs of 2021.

Further, the government has planned to launch about 14,000MW of solar projects, which will not only “reduce the import bill of expensive fuel, but also help generate cheap and green electricity”. These solar systems will be offered at reduced prices and benefit from tax incentives. However, to support the industry to improve its energy efficiency in a sustainable and independent manner, it should be allowed to install its own solar power structures with the extension of the solar net metering scheme from 1 MW to 5 MW.

The case on wheels shows that Pakistan needs to move towards free market models with multiple buyers and sellers to revitalize the energy sector but also to make it transparent. Wheeled transport regulations should include the wheeled transport of renewable energy and the associated operating cost should be reduced for any industrial off-site installation of renewable energy infrastructure.

These legislative burdens, along with the withdrawal of competitive regional energy tariffs, are pushing the industry into an unexpected financial zone where it is operating at lower capacity utilization due to working capital issues, loss of market competitiveness internationally, and issues related to raw production.

In conclusion, the Government of Pakistan should address the existing limitations of the solar net metering scheme, feed-in tariffs, and continue to offer competitive regional power tariffs for the industry to regain sustainability progress and transition to RE. This will support the industry to make the most of the country's current RE potential, reduce dependence on fossil fuels and increase competitiveness in the global export market. Otherwise, the government's recent NCCPs and NDCs that place extreme emphasis on RE will be limited to paper, without implementation in spirit. ■

*The writer is eco expert and Country Head of Growatt, Pakistan*

## CLIMATE LOSSES

# Climate Conference rollout Summit sets ball rolling for discussions on finance, loss, damage and mitigation issues

—◆ Aisha Khan ◆—

**W**ith the Copenhagen Climate Ministerial and the release of the IPCC Synthesis Report (AR6), the stage is set for negotiations at COP28.

The first major climate summit of the year, hosted by Denmark and the Egyptian COP27 and UAE COP28 presidencies in March, has set the ball rolling for discussions on key issues linked to finance, loss and damage and mitigation and the interplay with the Global Stocktake (GST) that will culminate at COP28 in Dubai.

The period between now and then and how this time is used to steer the process will determine the outcome in December. The key messages from the AR6 and how they are leveraged at ministerials and reflected in the GST outcome will play a vital role in identifying the lack of adequate progress made towards delivering the Paris Agreement.

The AR6 provides clear indication for the need to respond with accelerated action. This is the time for defining diplomatic pathways ahead to ensure that COP28 is ready to course correct. The next three years are most likely the last chance for giving meaningful shape to policy for defining emissions and resilience pathways this decade. The COP28 presidency can set out an actionable plan that puts the world on an emergency footing to meet the Paris Agreement goals.

## COP28 presidency can set out an actionable plan

Moving from Sharm El Sheikh to the UAE and beyond will require a quantum leap in political will to address multiple issues. High benchmarks must be set for the oil and gas sector to play a credible role in flipping investment ratios in favour of renewables over fossils, ending investments in new production, and setting net zero transition plans including Scope 3 emissions.

Going into the COP, the presidency must caution against engineered carbon dioxide removal such as Bio Energy with Carbon Capture and Storage and Direct Air Carbon Capture and Storage as substitutes for deep emission cuts and risk of delaying phase-out of fossil fuels as reliance on these technologies carries major risks of overshoot in emissions. As host and president of the upcoming COP, UAE needs to provide more clarity on how they are viewing the final GST outcome, including their vision on a GST declaration, a COP28 cover decision and technical annexes to help set unambiguous expectations. The Petersburg Dialogue in July can be used to test core elements of GST outcomes and build champion groups ready to share aligned high ambition expectations at the subsidiary bodies. The UN summit can raise the bar on ambition by widening a leader-level champion group to inject momentum into ministerial dialogue from pre-COP to COP28. ■

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



# Hidden threats to energy sector

## Disaster Risk Reduction in Pakistan need of the hour

—◆— Dr Basharat —◆—

Pakistan is one of the most disaster-prone countries in the world, with a history of frequent natural disasters such as floods, earthquakes, and droughts. The energy sector of Pakistan is one of the most vulnerable sectors to these disasters. The sector includes generation, transmission, and distribution of electricity, oil, and gas. Any disruption in the energy sector can cause significant damage to the economy and livelihoods of people. Therefore, it is essential to reduce the disaster risk in the energy sector of Pakistan.

This article will discuss the disaster risk reduction measures that can be taken in the energy sector of Pakistan. The article will cover the potential risks faced by the sector, the existing disaster risk reduction policies, and the measures that need to be taken to reduce disaster risks.

### Potential Risks

Pakistan's energy sector is vulnerable to various risks, both natural and man-made. The following are the potential risks faced by the energy sector of Pakistan:

**Natural Disasters:** Pakistan is prone to natural disasters such as floods, earthquakes, and droughts. These disasters can cause significant damage to the energy sector, including power plants, transmission lines, and distribution networks.

**Terrorism:** Pakistan is also prone to terrorist attacks, which can disrupt the energy sector. Terrorist attacks on gas pipelines, power plants, and transmission lines can cause significant damage to the sector.

**Cyber-Attacks:** The energy sector of Pakistan is also vulnerable to cyber-attacks. Cyber-attacks on power plants, transmission lines, and distribution networks can disrupt the sector and cause significant damage.

**Human Error:** Human error is another potential risk faced by the energy sector of Pakistan. Errors in maintenance, operation,



and management of energy facilities can cause significant damage to the sector.

### Existing Disaster Risk Reduction Policies

Pakistan has developed several disaster risk reduction policies to reduce the impact of disasters on the energy sector. The following are the existing disaster risk reduction policies in Pakistan: National Disaster Management Plan: The National Disaster Management Plan is a

comprehensive plan developed by the National Disaster Management Authority (NDMA) to reduce the impact of disasters on the country. The plan includes measures to reduce disaster risk in the energy sector, such as the development of disaster-resistant infrastructure and the establishment of emergency response teams.

**National Disaster Management Ordinance:** The National Disaster Management Ordinance provides legal and institutional

arrangements for the prevention and management of disasters in Pakistan. The ordinance includes provisions for the establishment of disaster management committees, the development of disaster risk reduction plans, and the allocation of funds for disaster risk reduction measures.

**National Disaster Risk Reduction Policy:** The National Disaster Risk Reduction Policy provides a framework for disaster risk reduction in Pakistan. The policy includes measures to reduce disaster risk in the energy sector, such as the development of disaster-resistant infrastructure and the establishment of emergency response teams.

### Measures to Reduce Disaster Risk

The following are the measures that need to be taken to reduce disaster risk in the energy sector of Pakistan:

**Disaster-Resistant Infrastructure:** The energy sector of Pakistan needs to develop disaster-resistant infrastructure to reduce the impact of disasters. The infrastructure should be designed to withstand natural disasters such as floods, earthquakes, and droughts. The infrastructure should also be designed to withstand man-made disasters such as terrorist attacks and cyber-attacks.

**Early Warning Systems:** Early warning systems can help reduce disaster risk in the energy sector. The systems can provide advance warning of natural disasters such as floods, earthquakes, and droughts. The systems can also provide advance warning of man-made disasters such as terrorist attacks and cyber-attacks.

**Emergency Response Teams:** Emergency response teams can help reduce the impact of disasters on the energy sector. The teams should be trained and equipped to respond to disasters such as floods, earthquakes, and droughts. The teams should also be trained and equipped to respond to man-made disasters such as terrorist attacks and cyber-attacks.

**Business Continuity Plans:** Business continuity plans can help reduce the impact of disasters on the energy sector. The plans should outline procedures for restoring operations after a disaster. The plans should also include measures to prevent future disasters and reduce the impact of disasters.

**Regular Maintenance and Upgrades:** Regular maintenance and upgrades can help reduce the risk of disasters in the energy sector. The facilities should be regularly inspected and maintained to ensure that they are in good working condition. Upgrades should be made to the facilities to improve their safety and resilience.

**Public Awareness and Education:** Public awareness and education can help reduce the impact of disasters on the energy sector. The public should be informed about the risks of disasters and the measures that can be taken to reduce the risk. The public should also be educated about the importance of energy

conservation to reduce the impact of disasters on the energy sector.

**Risk Assessment and Mitigation:** Risk assessment and mitigation can help reduce the impact of disasters on the energy sector. The sector should conduct a risk assessment to identify potential risks and develop a mitigation plan to reduce the impact of disasters.

### SWOT analysis of disaster risk reduction

**Strengths:** Disaster-resistant infrastructure: Pakistan has the potential to build infrastructure that can withstand natural disasters such as floods, earthquakes, and cyclones.

**Early warning systems:** Pakistan has the ability to develop systems that can provide early warning of potential disasters.

**Emergency response teams:** Pakistan has the capacity to train and equip teams to respond to disasters such as floods, earthquakes, and droughts.

**Business continuity plans:** Pakistan can develop plans to restore operations after a disaster and prevent future disasters.

**Weaknesses:** Lack of resources: Pakistan may not have sufficient resources to implement disaster risk reduction measures effectively.

**Limited public awareness and education:** The public may not be aware of the risks of disasters and the measures that can be taken to reduce the risk.

**Insufficient risk assessment and mitigation:** The sector may not be able to identify potential risks and develop a mitigation plan to reduce the impact of disasters.

**Opportunities:** Collaboration with international organizations: Pakistan can collaborate with international organizations to access resources and expertise in disaster risk

reduction.

**Technology advancements:** Advancements in technology can provide new opportunities to reduce disaster risk in the energy sector. Increased public awareness and education: The sector can increase public awareness and education to reduce disaster risk and build resilience.

**Threats:** Climate change: The impact of climate change may increase the frequency and severity of natural disasters in Pakistan.

**Political instability:** Political instability may hinder the sector's ability to implement disaster risk reduction measures effectively.

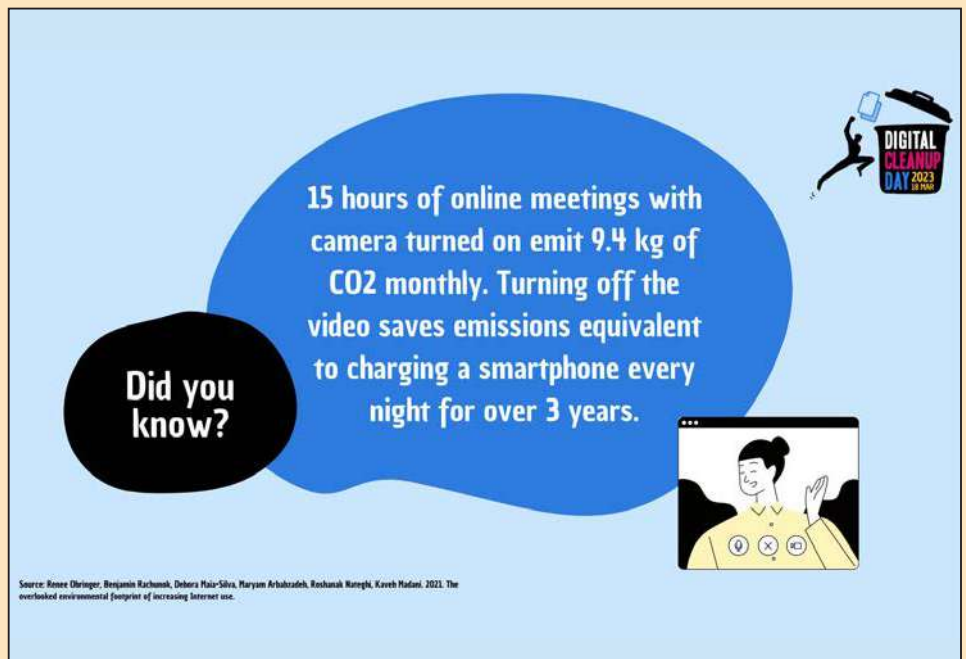
**Lack of coordination:** Lack of coordination among stakeholders may hinder the sector's ability to reduce disaster risk effectively.

Overall, the disaster risk reduction in the energy sector of Pakistan has both strengths and weaknesses, as well as opportunities and threats. By leveraging its strengths and opportunities while mitigating its weaknesses and threats, the sector can enhance its resilience and reduce the impact of disasters.

In conclusion, the energy sector of Pakistan is vulnerable to various risks, both natural and man-made. It is essential to reduce the disaster risk in the energy sector to ensure that the sector continues to provide uninterrupted energy supply to the people of Pakistan.

The measures that need to be taken to reduce disaster risk in the energy sector include developing disaster-resistant infrastructure, early warning systems, emergency response teams, business continuity plans, regular maintenance and upgrades, public awareness and education, and risk assessment and mitigation.

By implementing these measures, the energy sector of Pakistan can reduce the impact of disasters and ensure that the sector continues to provide uninterrupted energy supply to the people of Pakistan. ■



# Renewable energy is the future

Use of renewable energy creates far lower emissions than burning fossil fuels

◆ Zarak Mahmood Babar ◆

**E**nergy resources of the world have always shaped global policies, economics and businesses. Renewable energy is derived from natural sources replenished at a higher rate than they are consumed. Fossil fuels — coal, oil and gas — on the other hand, are non-renewable resources that take hundreds of millions of years to accumulate.

Use of renewable energy creates far lower emissions than burning fossil fuels. Transitioning from fossil fuels, which currently account for the lion's share of emissions, to renewable energy is key to addressing the climate crisis. Renewables are now cheaper in most countries and generate three times more jobs than fossil fuels. The three main options for using renewable energy resources are the following:

**On-Site Renewable Energy Generation:** These include installing photovoltaic (PV) solar energy panels on a building or home, implementing a small residential wind turbine and using geothermal heat pumps or biomass-fuelled power and heat.

**Renewable Energy Certificates (RECs):** RECs can be used to purchase green energy power. People also refer to them as tradable renewable certificates, green tags or green energy certificates.

**Green Marketing or Green Pricing Programmes:** Participating in a green energy programme allows consumers to pay a small premium to an energy provider that uses local green power sources for power generation.

The industrial revolution and use of automobiles increased the consumption of energy resources at unsustainable rates. We can now use biomass energy for the generation of electricity, thermal energy and biofuels. Bio-gas, biodiesel and bio-ethanol, help reduce the demand for traditional gasoline products while also reducing the amount of transportation-related greenhouse gases emitted.

Ethanol is made from corn and sugarcane. Biodiesel is made from rapeseed, soy,



and jatropha and palm oil. Biomass feedstock becomes bio-based products, electric power, heat and liquid fuels, making it extremely versatile. Although burning biomass produces carbon dioxide emissions, plant regeneration consumes an equal amount of carbon dioxide, which we believe balances the atmosphere.

Since animals or plants can live virtually anywhere, bio-energy is a form of renewable energy that we can incorporate worldwide. Most biomass is used in rural areas for cooking, lighting and space heating, generally by poorer populations in developing countries.

Modern biomass systems include dedicated crops or trees, residues from agriculture and forestry and various organic waste streams. Energy created by burning biomass creates greenhouse gas emissions, but at lower levels than burning fossil fuels like coal, oil or gas. However, bio-energy should only be used in limited applications, given potential negative environmental impacts related to large-scale increases in forest and bio-energy plantations, and resulting deforestation and land-use change.

Biomass energy gives us two benefits: first, it requires almost no switching cost and second, the source of biomass is mostly agricultural waste. It requires some waiting time but overall the system helps improve energy efficiency of the farm and natural manure helps improve agriculture produce.

Artificial intelligence is opening new avenues in the energy sector. It has been deployed for predictive asset maintenance in pilot projects.

The process of producing biomass energy

is climate-friendly. Thus, biomass energy can help in on-site energy generation, produce renewable energy certificates and improve green pricing programmes. Increasing political challenges around fossil fuel and rising prices will make clean energy more attractive.

Artificial intelligence is opening new avenues in the energy sector. It has been deployed for predictive asset maintenance in pilot projects, according to a recent report from the World Economic Forum (WEF). Data collection and processing have been continuously improving.

Various deployments of AI could help accelerate the global energy transition by “optimising and efficiently integrating variable renewable energy resources into the power grid, supporting a proactive and autonomous electricity distribution system and opening up new revenue streams for demand-side flexibility,” the WEF report says.

Smart grids and blockchain technology have the potential to induce AI into the grid system and improve energy utilisation and generation. Development of electric cars will transform community/self-power generation trends. AI will likely fill the gap between power producers and power users, by utilising and improving connectivity and efficiency of the existing grid system.

With solar PV technology adoption, the need for battery storage has increased by leaps and bounds. In 2023 and beyond, both short- and long-duration battery storage technology will see improvement. With power production through solar PV, storage in batteries has become indispensable. ■





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EMC Pakistan Private Limited is a consulting company offering services in Environmental Engineering and Health & Safety Management. The services we provide encompass the environment, health and safety aspects to public & private sector organizations. EMC is registered with Pakistan Engineering Council (PEC) and its professional expertise draws together a wide range of public and private sector experience, with environmental engineering and management specialists.



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# Beyond Batteries

—◆ Waseem Qureshi —◆

It was once said by the famous Thomas Edison that “Genius is one percent inspiration and ninety nine percent perspiration.” No one personifies Edison’s quote more than the outstandingly talented Waseem Ashraf Qureshi, the founder, inventor, CEO and CTO of Enercap Holdings. Qureshi hails from a very simple background, yet his

inventions and innovations are not only groundbreaking, world changing technologies but also testimony to the hard work he has put in all his life. This year Qureshi unveiled ENCAP to the world, an advancement from his previous patented Sirius Supercap Energy Storage (Sirius), world’s first supercap based energy storage. Qureshi took the world by storm back in 2016 when he launched Sirius in a multitude of capacities and voltages for storage applications. in Solar plus storage, telecom, street lighting, forklift, club car, generator hybridization and optimization, UPS backup, EV charging, and containerized solutions to name a few. His latest invention, ENCAP- Beyond Batteries has been almost 2 years in the making and, like Sirius, operates with consistent and predictable capacity, in a wide temperature range between minus 30 and plus 60 °C , cycles up to 500,000 times at cell level, high charge and discharge rates (currently 2C with a 5C model coming soon), depth of discharge of 100% enabling the entire capacity of the energy storage system to be used, all combining to yield a jaw dropping 99% DC to DC round trip efficiency. ENCAP has a cell level n energy density of 250Wh/kg, comparable to Li Ion. It also comes

with Bluetooth, WIFI and CANBUS communication protocols, a touch screen OLED display for engineers to configure on-site, and a new software developed by ENERCAP in house called EN CONNECT which integrates with the end user’s Application Programming Interface (API).

The global energy landscape is rapidly evolving and energy storage is at the forefront of this transformation. According to a report by NREL, by 2030, the energy storage market is estimated to grow to 2,500 – 4,000 GWh annually, a significant increase from the current deployed capacity. This growth is driven by the increasing adoption of electrified transportation, de- carbonization of the power sector, declining battery storage costs, regulatory mandates, and improved technology.

While chemical battery technology has made significant progress over the past decade, capacitor technology has made significant progress over the past decade, especially in the area of electrification and de-

carbonization use cases are placing increasing demands on a battery’s performance. Chemical batteries function electrochemically: a chemical reaction takes place each time a battery is charged or discharged, and once charged, the battery stores energy in an electrolyte. Chemical reactions and use of electrolytes are the reasons batteries are limited in their usage and performance, especially in demanding operating conditions. For example, chemical batteries cannot charge or discharge quickly because of the risk of fire from overheating. Furthermore, battery performance is also affected by hot or cold temperatures as these conditions affect the chemical reactions within the battery. Finally, each usage of the battery depletes the liquid electrolyte which causes ongoing loss of capacity (kWh) till the battery is not fit for use. Battery manufacturers are improving these limitations, but can never eliminate them. Today, chemical battery performance is reaching the upper limits of scientific performance.

To combat climate change that can meet the complex demands of electrification and renewable based systems, our world needs a new storage paradigm that can be quickly deployed at scale. Failure is not an option and catastrophic consequences may be unleashed for the planet if we are not able to manage energy transition to renewables.

Today’s capacitor energy storage technology meets the complex demands of the renewable energy transition. Capacitor cells, which were invented in 1746, fifty-four years before the chemical cell, store and discharge energy electrostatically, which means these cells charge and discharge without a chemical reaction and store the electricity on the surface of the cell and not in a chemical electrolyte. Since there is no chemical reaction and no electrolyte present, capacitor storage does not have the weaknesses inherent in chemical battery storage, and therefore are safer, last much longer, have a very wide operating temperature, can be charged faster and don’t have cycling restrictions.

Developed by Enercap Holdings Pte. Ltd., ENCAP capacitor storage technology is electrostatic and delivers meaningful performance advantages over chemical batteries – 3x longer life, 10x charge / discharge speeds, higher operating temperature range, negligi-



ble degradation, safety, nonignitable, environmental sustainability – all of which lead to expanded storage options that are otherwise not feasible or possible with chemical batteries. ENCAP energy storage delivers this performance predictably and sustainably and is the most economical storage in the market, promoting a fundamental shift in thinking and a real solution to advance the usability of renewable energy. Hence ENCAP is termed Beyond Batteries.

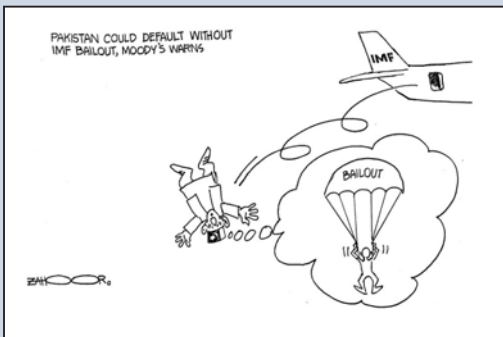
Many notable customers are successfully deploying the technology in the US, Europe, Africa, Asia and Oceania in grid connected, off-grid, residential, commercial, industrial, telecom, and microgrid applications. These deployments cover standard as well as extreme temperature conditions, from Alaskan and Alpine cold to Saudi and Abu Dhabi desert heat.

For EV use, Enercap has also launched Batterix, an advanced capacitor cell technology, with the highest energy and power densities achieved to date, enabling rapid charging in minutes and longer driving range, thereby eliminating range anxiety and accelerating the transition to transport electrification.

The UN Sustainable Development Goal (SDG) 7 calls for affordable, reliable, sustainable, and modern energy for all. Achieving this goal requires a swift and efficient transformation to renewable energy sources. Energy storage is a critical ingredient in this transformation, ensuring renewable-based energy availability 24-hours a day. While chemical batteries have dominated the energy storage market in recent years, capacitor energy storage offers a promising alternative that addresses the inherent weaknesses of chemical battery storage solutions, delivering better safety, longevity, and limited cycling capabilities.

The future vision for energy storage is one where capacitor energy storage plays a significant role in promoting a sustainable and renewable energy future. By leveraging the advantages of capacitor energy storage, including its safety, longevity, temperature resilience, and predictable capacity, we can accelerate the transition to renewable energy sources and achieve the UN Sustainable Development Goal of affordable, reliable, sustainable, and modern energy for all. With the rapid growth of the energy storage market in the coming years, the adoption of capacitor energy storage will become increasingly important in ensuring a sustainable and resilient energy future.

ENCAP is capacitor energy storage. ENCAP takes us Beyond Batteries. ■



## INDUSTRIAL OIL



# Importance of Lubricating Oil

◆ EU Report ◆

**L**ubricating oil plays a vital role in the optimal functioning of screw air compressors. It provides numerous benefits that contribute to the overall performance and longevity of these machines.

Firstly, lubricating oil reduces friction between moving parts within the compressor, minimizing wear and tear and extending the lifespan of components. This friction reduction not only enhances the efficiency of the compressor but also reduces the risk of mechanical failures, leading to improved reliability and reduced maintenance costs.

Secondly, lubricating oil helps dissipate heat generated during the compression process. As screw air compressors operate, they generate significant amounts of heat that can negatively impact performance and lead to component failure. The lubricating oil absorbs and carries away this excess heat, preventing overheating and ensuring that the compressor operates at optimal temperature levels. By effectively managing heat dissipation, the lubricating oil

contributes to the overall efficiency of the compressor, resulting in energy savings and increased productivity.

### Don't Overpay

Why spend more on proprietary oil for compressor maintenance when there are plenty of reliable alternatives available? These alternate sources offer efficient, dependable, and competitively priced compressor oils. It is crucial to explore these options to ensure cost-effective maintenance for your compressors. One such trusted source is BlueEnergy 3000, a compressor oil used by numerous industries, delivering guaranteed performance and unmatched quality.

BlueEnergy 3000 Oil has the best lubricating function, cooling the compressor element and removing the heat from the compression process with the below properties.

High-temperature resistance (cold and heat), high oxidation stability, flame retardancy, low evaporation tendency, low varnish formation (deposit formation), longer oil change intervals, and lower maintenance costs.

# ABBAS ALI MIRZA

a key member in establishing

# RELACOM PAKISTAN



Mirza says in an interview with Energy Update that Relacom has a wide range of client base in IT and Telecom sector; tells limiting of LCs use and rapid rupee devaluation have really dented our industry as a whole

—◆— Mustafa Tahir —◆—

**A**bbas Ali Mirza brings an outstanding track record of playing a pivotal role in starting, developing, and operating successful companies in Pakistan. Having an extensive background in Telecoms and IT, Abbas has been a key member in establishing Relacom Pakistan and is serving as the Country's General Manager and CEO since last 18 years. The Energy Updated had an interview with him the excerpts of which are below:

**Q1. Tell us about the range of services provided by your company both for the public and private sector organizations**

Relacom has been serving its clients in Pakistan for over 18 years. Being a tech company, we have a wide range of client base including all the Telecom Operators in Pakistan along with Telecom Equipment Manufacturers such as Ericsson, ZTE, Nokia, and Huawei to name a few.

As for our IT/Enterprise Solution portfolio, we are deeply engaged in the educational sector along with the deployment and management of data centers for KAPCO, Sindh Police, UET Jalozaï etc. Lastly, for BPO and facility management services, we are engaged with the likes of Nordex, Gul Ahmed, General Electric, and Sindh Nooriabad Power Company etc to name a few.

**Q2. What problems do you generally face while providing services in the IT and telecom sector of Pakistan and what steps the government should take to resolve these issues?**

Being in the local market for about two decades, we have seen a few highs and lows in the economic and business outlook in Pakistan. I feel we are at a low point at this time for the businesses in Pakistan, especially in those industries which are import based. We, being a system integrator dealing

with IT equipment, are also bearing the brunt of the economic situation. The government's decision to limit the use of Letter of Credits (LCs) and the rapid devaluation of the Pakistani rupee has really dented our industry as a whole.

This has resulted in the cancellation of a lot of orders due to import hindrances and the inability of the client to bear the cost differential due to high dollar rates.

I believe it's nothing that can't be fixed. The solution lies in having long-term stable economic and financial policies to encounter the clouds of uncertainty and to give a clear direction to the business community.

### **Q3. What steps the government should take to promote the IT and telecom sector in Pakistan?**

I believe all governments over the globe have tried to leverage on the IT and Tech boom by giving incentives to the Technology sector in particular. The same is the case with our government. One thing where I think the government should be focusing more is the skill development of our workforce, especially the youth. We are competing with the Philippine, Indian, and Eastern European markets. We might have a cost advantage on our side due to the depreciation of the rupee but if we are unable to deliver according to the world standards then we will be left out of the race.

### **Q4. Is there any plan for your organization to create IT training opportunities for the youth in Pakistan?**

This is definitely an area that we are looking at. We strongly believe in continuous growth through learning and training. We follow a training calendar for our employees but we feel it's equally important to train the new graduates and undergraduates who are adding to the IT workforce of Pakistan. For this, we are in touch with a few training institutes who we are planning to collaborate with and come up with a workable model for IT and software training for the youth.

### **Q5. Is there any plan for your company to expand the scope of its services?**

We are absolutely in a growth mode, and we see a huge potential not only locally but also globally. We have already signed a few contracts with international clients and are in the process of setting up offices in the Middle East, Canada, America, New Zealand, and Australia regions.

### **Q6: What is your advice for the students enrolled in the universities who in practical life want to join the field of IT and telecom?**

It's of utmost importance to equip our youth studying in various universities to be prepared for their professional life. My advice to the youth is 'learning never stops'. Your worth as an IT professional will lie in your abilities, professionalism, and the hard work you will put in. It's a very competitive market locally and even more so globally. Believe in yourselves and never shy away from hard work.

## SERVICE RECOGNITION



## Service to Thar Coal, other sectors CM Murad wins National Excellence Award

In view of Sindh Chief Minister Engr Syed Murad Ali Shah's contribution to the cause of Engineering as a whole and specific to the Infrastructure Development Projects and also to the public at large in the province, the Institution of Engineers Pakistan (IEP) in collaboration with UNESCO and World Federation of Engineering Organization (WEFO) bestowed on him National Engineering Excellence Award. A delegation from the Institute of Engineer Pakistan comprising Engineer Farhat Adil, Chairman Sohail Bashir, Vice President Engr Ayaz Mirza, General Secretary Ameer Zameer, and Dr Sarosh Hashmat Lodi held a simple ceremony at CM House to bestow on him the National Engineering Excellence Award.

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# Chaos is a Ladder: Integrate Energy and Environment into Economic Policy

—◆ Dr Khalid Waleed ◆—

**P**etyr Baelish in 'Game of Thrones' famously defined chaos in the following way: "Chaos isn't a pit. Chaos is a ladder. Many who try to climb it fail and never get to try it again. The fall breaks them. And some are given a chance to climb".

Physics defines chaos as "the property of a complex system whose behavior is so unpredictable as to appear random, owing to great sensitivity to small changes in conditions." Chaos in Pakistan is exceedingly intricate and multifaceted. The nature of multifaceted chaos revolves around 3Es.

These 3Es are (Political) Economy, Energy, and Environment. The relationship among these 3Es is such that we are stuck in a vicious cycle, where economic turmoil refrains us from making long-term sustainable decisions, which results in inefficient planning in energy and the environment.

This ineffective planning in energy and the environment makes us vulnerable in terms of the economy, and the cycle continues. Currently, Pakistan is facing dollar outflow, rising debt, and chances of economic default as many prominent credit agencies like Finch and Moody's have downgraded our credit ratings.

Consequently, we cannot play with the Ponzi schemes anymore. The debts are expensive for us, and finding creditors is getting tougher and tougher. Thus, the time is ripe or, I would say, it is do or die for us to steer the ship out of these chaotic waters.

In Lord Baelish's words, "some are given

a chance to climb". Pakistan is also given a chance to climb the ladder and escape this chaos. This article explores two conventional ways to enhance the energy transition and increase the dollar's inflow in the economy, which is the lynchpin to the solution to our economic problems. So, that energy transition can be made part of economic policy.

One is the supply-side solution through climate diplomacy, and the second is demand-side management in the transport sector for green development and energy transition. Firstly, in climate diplomacy, our foreign corps is required to promote the global drive to address the issue of climate injustice, whereby some countries are facing disproportionate adversities due to climate change.

Pakistan has recently faced floods caused by changing weather patterns, resulting in thousands of deaths and billions of dollars in damage. Effective diplomatic efforts can leverage climate financing initiatives such as the Green Climate Fund (GCF), established by the United Nations Framework Convention on Climate (UNFCCC), Just Energy Transition Partnerships (JETPs), the Asian Development Bank's Energy Transition Mechanism (ETM), and the Bridgetown initiative.

These initiatives provide financially constrained nations with a "big push" to break the vicious cycle of energy poverty and a struggling economy. The initial JETP was established during COP 26 in Glasgow, where France, Germany, the United Kingdom, the United States, and the European Union pledged USD 8.5 billion in funding to South Africa for an energy transition to renewable sources from fossil fuels. Secondly, there is a need to understand the

long-term viability and sustainability of energy transition through the transformation of the transport sector in Pakistan in terms of changing the behavior of the public. About 86% of the total petroleum products are consumed in the transportation sector, which amounts to around \$1 billion per month. If we save about 30% each month, we can save \$300 million per month and \$3.6 billion annually.

To achieve this, we can implement the following practical steps:

**Short-term Solutions:** The first and foremost solution in this regard is the effective and efficient use of the Mass Transit System. Transit trains are the most efficient mode of transportation. Mass transit systems can increase efficiency by 280% compared to cars. The second one is to encourage the culture of carpooling. Carpooling calls for optimal use of seating capacity in cars, so, one person in one car is discouraged. Carpooling can increase fuel efficiency from 18 PKML for a car with a single person to 57 PKML.

The third solution to reduce the fuel demand is to comply with fuel economy standards. Simply, complying with fuel economy standards can potentially increase fuel efficiency by 10%, which needs regular and proper maintenance of engines. The fourth solution as short-run solution to effectively manage demand is to slow down the vehicles on highways. For instance, cars running at 120 km per hour consume almost 20% more fuel than cars running at 100 km per hour.

Lastly, work-from-home policy: The COVID-19 lockdowns reduced the demand for transportation fuels, which resulted in a significant reduction in import bills. The work-



## Pakistan buys its first cargo of discounted Russian crude oil

—◆ EU Report —◆

Pakistan has made its first order for discounted Russian crude oil and a shipment is scheduled to arrive at Karachi port in May, according to a new agreement between Islamabad and Moscow.

In addition China and India, Russia now has a new market for its crude this allows Moscow to divert volume from western markets where its oil has been prohibited following the crisis in Ukraine. Discounted crude provides Pakistan, which is already struggling financially due to a balance of payments problem and dangerously low foreign exchange reserves, with much-needed relief. The vast majority of the country's foreign payments are made for energy imports. According to statistics from analytics company Kpler, Pakistan imported 154,000 barrels of oil per day in 2022, which was essentially flat from the previous year. Saudi Arabia, the biggest exporter in the world, and the United Arab Emirates provided the majority of the crude.

There may be a significant decline in Middle East suppliers to Pakistan if Russian crude production were to hit 100,000 barrels per day.

## Fossil fuel consumption subsidies worldwide soar

—◆ EU Report —◆

Fossil fuel consumption subsidies worldwide soared in 2022, rising above USD 1 trillion for the first time, according to new IEA estimates, as turmoil in energy markets sent fuel prices in international markets well above what was actually paid by many consumers. Last year's record subsidies – amid the global energy crisis triggered by Russia's invasion of Ukraine – were double their 2021 levels, which were already almost five times those seen in 2020.

These escalating outlays were in sharp contrast with the Glasgow Climate Pact, which in November 2021 called on countries to “phase-out inefficient fossil fuel subsidies, while providing targeted support to the poorest and most vulnerable”. Our analysis shows that many of these government measures were not well targeted, and while they may have partially protected customers from skyrocketing costs, they artificially maintained fossil fuels' competitiveness versus low-emissions alternatives.

For many years, the IEA has monitored subsidies for fossil fuels, evaluating situations in which consumers pay less than the market price of the fuel itself. According to our preliminary estimates for 2022, oil subsidies increased by around 85% while natural gas and electricity consumption subsidies more than doubled. As noted in the World Energy Outlook, high fossil fuel prices were the main reason for upward pressure on global electricity prices, accounting for 90% of the rise in the average costs of electricity generation worldwide (natural gas alone for more than 50%).

from-home policy can be a beneficial option. The short-term solution can positively provide much-needed relief to the economy and will also provide the much-needed financial space so that we can aim for long-term solutions in terms of the energy transition. These long-term initiatives include the introduction of electric vehicles (EVs). EVs can effectively replace fossil-fuel-powered vehicles and help reduce import bills.

Furthermore, alternative transportation fuels such as green hydrogen can be explored. Hydrogen is acquired by renewable electricity through the process of electrolysis of water. Globally, there is a renewed focus on the development of hydrogen-powered vehicles. Green hydrogen can be a more sustainable solution for the transportation sector. Hydrogen requires a combustion engine and provides a longer range than EVs. However, there are infrastructural limitations, technology transfer, and financial bottlenecks associated with hydrogen vehicles.

Although there are positive developments in China in terms of hydrogen vehicle production, this option seems more futuristic than EVs. There is a huge potential in Pakistan to learn from the best practices in this regard from China to develop hydrogen as a heating and transportation fuel in Pakistan. The concept of chaos is multifaceted, and while it may be defined differently by various disciplines, it remains a challenging phenomenon to deal with.

In the context of Pakistan, chaos can be defined through the 3Es - Political Economy, Energy, and Environment - and the interrelationship among them that puts the country in a vicious cycle. This cycle continues with economic turmoil

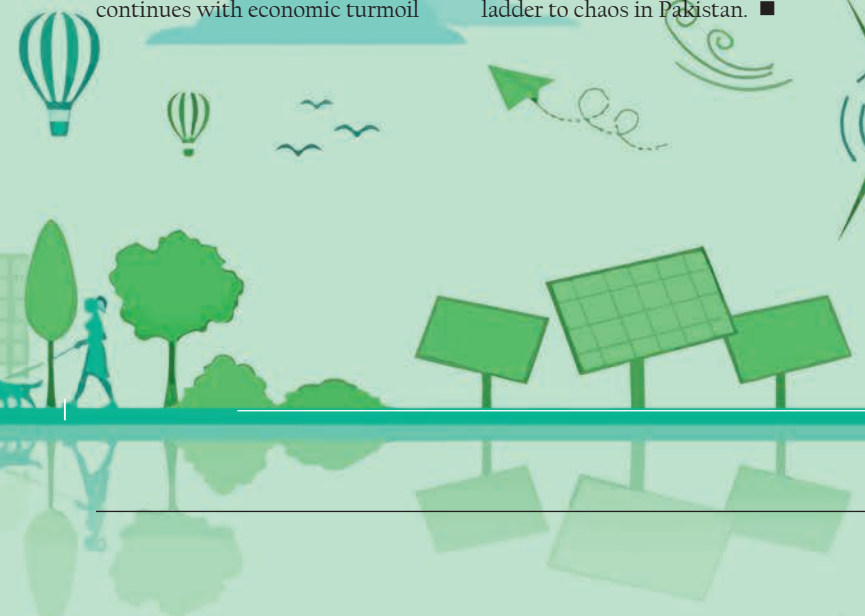
leading to inefficient planning in energy and environment, which in turn makes the economy more vulnerable. To steer out of this chaos, Pakistan needs to enhance its energy transition and increase the inflow of dollars into the economy.

Two conventional ways of achieving this are through climate diplomacy and demand-side management in the transport sector for green development and energy transition. Climate diplomacy can leverage climate financing initiatives to provide financially constrained nations with a big push for energy poverty and a bad economy.

On the other hand, demand-side management in the transport sector involves practical steps, such as the effective and efficient use of mass transit systems, encouraging the culture of carpooling, complying with fuel economy standards, and slowing down vehicles on highways.

With these steps, Pakistan can make energy transition a part of its economic policy and eventually break the vicious cycle of energy poverty and a bad economy. The current time is favorable for Pakistan to do so, given the world's increased attention to climate change and the need for a sustainable energy transition.

By taking advantage of this opportunity, Pakistan can climb the ladder out of the chaos and achieve economic recovery through an energy transition. Moreover, demand-side management may be a more effective measure than the announcement of the provision of subsidies to fuels for poor segments. Although subsidies will provide a cushion in the long run, effective demand-side management and financing of renewable energy will help us in finding a sustainable ladder to chaos in Pakistan. ■



# Economics of Carbon Credits – Booster shot for Pakistan

— Farheen Irfan —

Lately, the buzz of carbon credits is making waves within the energy sector of Pakistan. While the chants have been louder, there seems to be a disconnect between policy makers and project developers partially due to very little information available on the internet. However, as the mantra for ESG reporting is gaining momentum, export companies and manufacturing sector are moving more from voluntary reporting to conforming with full standards. Complying with the carbon emission quota is one of the core objectives of these firms locally as well as internationally.

Pakistan has a unique opportunity to tap into this revenue generating grind as the country currently has a carbon neutral status. According to World Bank, Pakistan has 0.85 metric tons per capita of CO<sub>2</sub> emissions in 2019 compared to India's 1.78 and China's 7.61. This means that the country's internal CO<sub>2</sub> emissions are within the given targets and hence places it in a sweet spot to capture international markets by selling excessive carbon credits to high GHG emitting countries.

Currently, there are two trading mechanisms available to achieve carbon offsets. One is through Carbon Credits (CC) and the other is through Renewable Energy Certificate (RECs). Carbon credits offer reduction to your carbon footprint when the buyer can no longer control its energy supply options. By purchasing carbon credits, you're essentially investing in other projects that are reducing greenhouse gas emissions. In other words, you're offsetting your greenhouse gas emissions. The unit of measure for Carbon Emission Reductions (CERs) is metric ton.

The alternate way to help reduce a carbon footprint is via purchase of renewable energy certificates. The certificate verifies that 1 MWh of energy was generated from a renewable source, such as solar or wind plant. The main difference between renewable energy certificates vs. carbon credits is what they offset. Where carbon credits help reduce greenhouse gas emissions, renewable energy certificates offset electricity use from non-renewable sources. The unit of measure for RECs is MWh.

## Current Standards for Carbon Credits Trading:

Currently there are four standards eligible under

the Carbon Offsetting and Reduction Scheme for International Aviation (CORSA) market:

- Global Carbon Council (GCC)
- Clean Development Mechanism (CDM)
- Voluntary Carbon Standards (VCS)
- Gold Standard (GS)

All of the above standards are considered under voluntary market except CDM which is considered under voluntary and compliance both markets.

From the above list, VCS has removed Pakistan from its approved host country list.

For GS, the condition for any project to be eligible is having EPC work order within the last one year from the project start date.

For GCC, the condition to become eligible is a project must be registered after 1st Jan 2016 and before 31st Dec 2020

The last standard is CDM (voluntary and compliance market). The condition to become eligible under this standard is joining hands with an institute having Program of Activities (PoA).

The other non-famous or rather standards exclusively made for some markets like North America include: 1) American Carbon Registry (ACR), 2) The CarbonFix Standard, 3) Plan Vivo, 4) Social Carbon and 5) Climate, Community & Biodiversity Standards (CCB Standards):

## Current Standards for Renewable Energy Certificates Trading:

International Renewable Energy Certificate Standard (I-REC): I-REC is a global standard that tracks and verifies the generation of renewable electricity. The standard provides a transparent and reliable system for tracking renewable energy certificates (RECs) and ensuring that the environmental benefits of renewable energy are accurately reflected in the market.

Pakistan Environment Trust is an authorized issuer in Pakistan from I-REC (I-REC Standard and is an internationally recognized platform which authenticates the renewable power plant generation and issues the REC (Renewable Energy Certificate) or EAC against the environmental attributes generated from renewable power plant.)

## Pricing - The best chance

Considering the mishandling of policy makers, government institutions and local bodies – the country is standing at the tipping point of Titanic. With rock bottom reserves, uncertainty with the IMF program, no affirmation from friendly countries and burgeoning import bill

– carbon credits appear to be the chatGPT of Pakistan's economic as well climate problems. As per preliminary research, the ongoing prices under GCC market are \$3/credit and \$6/credit under CDM. Please note these are only trading prices and the final price for the end buyer (i.e. Microsoft, Shell, BP) might vary. And for RECs, 1 REC can be easily tradable between \$1.5 to \$2.

Taking the entire chunk of wind and solar IPPs and selling them in these markets at an average of \$2 would mean per annum revenues of -\$10 million. (Taking installed base of 1,500 MW as per World Bank). This provides respite to the sinking economic ship of Pakistan and brings the country in the limelight showcasing its resilience and commitment to climate change despite being a huge affectee of recent floods and many more expected this year! ■





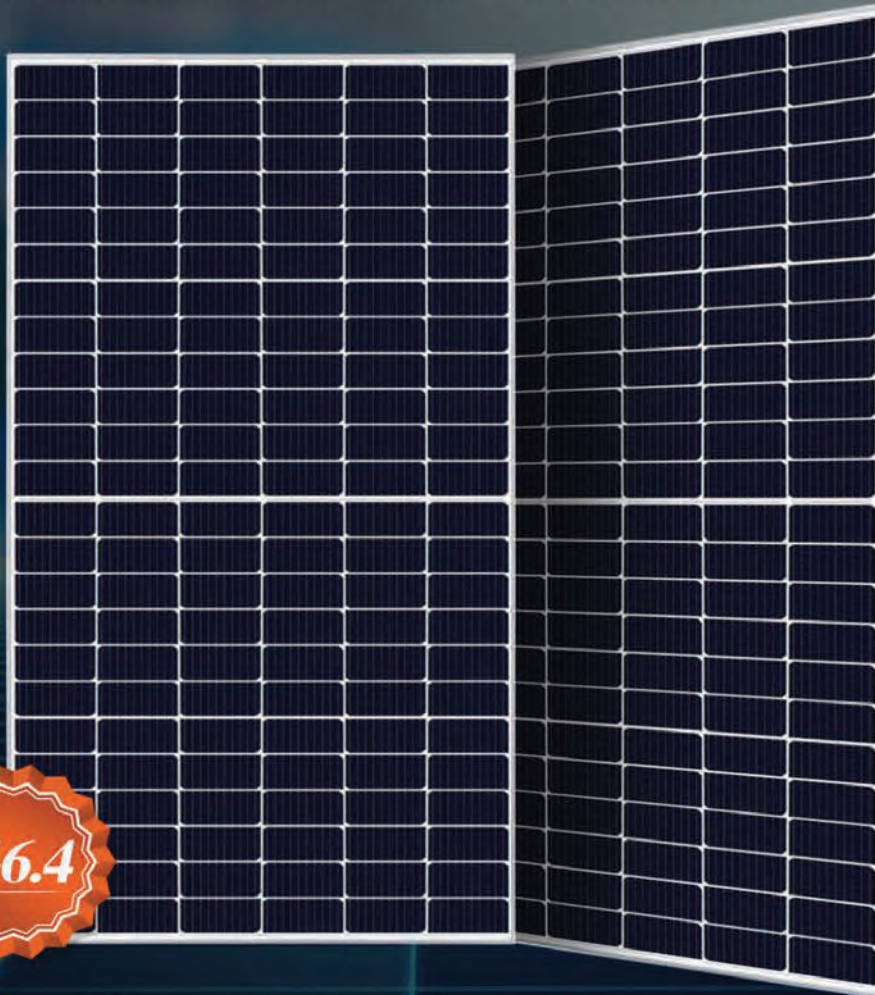
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# Privatize DISCOs

◆ Sardar Ahmad Nawaz Sukhera ◆

Recent statements coming out of the federal government on its stated intention to shift the federally owned electricity distribution companies (DISCOs) to the provinces have generated a lot of interest in the media. This article will attempt to touch upon certain issues that have not been mentioned in most of the articles; these issues will impact any successful attempt to change the ownership structure of these companies as well as the development of the power sector itself.

Shifting the DISCOs from the federal government would not be an advisable policy decision. It would just mean shifting a critical problem from one level of the government to another – albeit one with lesser institutional and financial resources to handle the issues involved. If anything, it is feared that it may further aggravate the problems facing these companies as well as the power sector. This is why the CCI had already rejected this idea earlier.

Converting public monopolies into private monopolies is not always desirable. If it has to be done, it has to be done very carefully in terms of the prerequisites and subsequent implementation scenarios. It is proposed to consider the following steps before finally privatizing them.

To begin with, as regulator Nepra needs to play its role better. While tariff setting remains its primary role, the equally important role of setting KPIs and monitoring and implementing DISCOs' investment and development plans often gets neglected. As DISCOs are government entities, the regulator is usually shy of disciplining them through punitive actions. The result is that consumers pay the cost of these inefficiencies. The job of the regulator is to ensure sectoral development by

balancing the interests of the government, the investors, and the consumers. When the government is the policymaker as well as the investor, as in this case, the regulator finds it hard to always protect the consumer's interest. This needs to change.

The following two aspects pertaining to Nepra are worth a brief discussion. First, the chairman is a power sector expert hired through a competitive process, at a salary prescribed by the MP (market pay)-1 scale, which is about Rs700,000. It's anyone's guess whether a top industry leader of a multi-billion dollar sector would be attracted by this salary structure. The result is that the best are not interested in the job.

Second, the provinces nominate the four members of Nepra, who also head the various important wings of the authority. More often than not, they are neither power sector experts nor have any requisite experience of the sector or of regulatory work. One can recall a particular example of a civil engineer working as a member even though the Nepra Act clearly stipulates that only an electrical engineer can be placed at this position. This leaves the Nepra chairman often at odds with those primarily doing provincial bidding, rather than all of them performing the mandated regulatory roles. The OGRA Act certainly has a much better provision for hiring specific sector experts in the fields of oil and gas; perhaps, Nepra would also be better off if it has members who are specialists in the different fields of electricity generation, transmission, distribution, etc.

There is a major energy crisis in the country every few years. One of the reasons for it is the unsynchronized working of the two energy sector regulators – Nepra and Ogra. Although the energy ministry has two independent divisions – power and petroleum – each with its own regulator, the functions of both are intertwined. It is

# but carefully

## Problems facing these companies and power sector may further aggravate

opined that there should be one regulator for the energy sector: oil and gas as well as electricity. This would be helpful in achieving energy security for the country and development of a robust energy sector.

In a previous article, I had written that the government has no business to do business in any sector for which a competitive market exists. The power sector in Pakistan does not have a competitive market; therefore, it is important to create it before the DISCOs are privatized. Three steps are suggested in this regard.

First, even if the DISCOs are not broken into smaller, more manageable sized companies, privatizing them in their present form must begin by segregating their functions – distribution business and supply business – and then privatizing the distribution business, through one or more private companies. This is where competition will help improve bill recovery, reduction in cost as well as improvement in the quality of service, and improved customer service.

Second, a uniform power tariff policy across the country is untenable. Why should consumers of a more efficient DISCO cross-subsidize those of an inefficient one? If for socio-economic reasons, or even for the sake of political expediency, the government wants to shelter consumers where the cost of electricity provision is higher or the bill recovery is low, the government should pick up the tab, rather than penalizing those who pay their bills.

Third, it is imperative to develop a truly competitive energy market. The present policy allows bulk consumers to buy electricity from any power company, through wheeling, or to make it themselves. In a competitive market, all bulk consumers in any DISCO's territorial jurisdiction should be allowed to procure electricity from any other DISCO offering it cheaper and with better service. For example, if a consumer within the jurisdiction of LESCO

can get cheaper power from MEPCO, it should be allowed. This incentivizes competition between DISCOs, with the consumer and the economy served better. This arrangement would lead towards development of a competitive power market and this needs to be promoted.

A very important factor to be decided before privatization is to determine the extent of market share that a company is to be allowed to own. In order to avoid the complications that monopolies create, it would also be advisable to set this limit not above 20 per cent of the market in terms of consumers. One can imagine the political power a private company can wield by checking how many National Assembly constituencies fall within the territorial jurisdiction of any DISCO. Since electricity is the most basic of required services, any power company can influence the political outcomes by supporting or opposing political players within its territorial jurisdiction through their service delivery to their constituents. Hence, no single business house or holding company should be allowed to have more market share than what is technically required.

For a successful privatization of DISCOs, it is imperative that the future investment and development plans are prepared meticulously for each DISCO, as the one size fits all approach will not succeed here. These KPIs and the yearly monitoring and evaluation system, along with a strong but transparent punitive system need to be determined, and put into the tender documents before bidding. Lessons must be learnt from the privatization of KESC, where a high level Implementation Committee was formed to check implementation of the agreed investment and development plans, but, unfortunately, it never even met once to keep a check on what was subsequently happening. This has to be done by creating a strong institutional arrangement

for the purpose.

Finally, a myth needs to be broken that only one country is interested in partnering with us. During my time at the Privatisation Division (2014-17), all DISCOs were put up for privatization. Road shows were held for marketing the privatization of FESCO in China, Middle East, and Turkey. A power sector investors' conference was also held in Washington, DC, which was attended by all the major US companies. There was serious interest from all over the world. Unfortunately, despite the completion of the due diligence exercise by financial advisors as well as successful roadshows, the entire process was brought to a halt due to national political compulsions.

One final word. The financial advisers, who structure these transactions, as well as the potential investors, are serious entities. It is difficult to attract the best of them if they don't view your intent as serious. DISCOs have been on the privatization programme since 1992, and we have been going on in circles. The cost of this lack of political will to go through with it for 30 years is now visible in the shape of the power sector circular debt and its threat to take down the economy. How long can this indecisiveness be allowed to continue? The writer is a former civil servant. ■





# **SOLA X** POWER launched Low-voltage Hybrid Inverter for Pakistan

◆ EU Report ◆

**S**olaX Power, a global leader in solar inverter manufacturing, recently launched its newest innovation for Pakistan, X1-Hybrid-LV, at a live product launch event held on April 25. Designed to provide high efficiency for low-voltage solar PV systems, X1-Hybrid-LV is a valuable addition to SolaX's solar products portfolio and boasts many impressive features that are sure to impress customers.

As a single-phase low-voltage hybrid inverter for residential applications, X1-Hybrid-LV 3-6kW is able to operate at a much lower voltage compared to traditional inverters. With two MPPTs and a maximum MPPT current of 16A, it supports high-power solar panels. It delivers a 200% PV oversizing input, up to 110% overloading output, and a 200% peak EPS apparent power for up to 10s, making it a reliable backup power solution. Moreover, it can be connected in parallel with up to 10 inverters for both on-grid and off-grid operations.

Another striking feature of X1-Hybrid-LV is its fresh design that comes in various vibrant and eye-catching shell color options, complete with a full-color LCD touchscreen and a user-friendly interface for easy operation and control.

X1-Hybrid-LV is also highly adaptable,

including heat pumps and generators. It can also work efficiently with multiple battery solutions, especially with SolaX batteries, such as T-BAT-SYS-LV R2.5 and T-BAT-SYS-LV R3.6. This enables customers to expand their energy storage capacity and have access to backup power during blackouts or periods of low solar power generation. With SolaX Cloud, customers can achieve smart energy management for one-stop monitoring of PV panels, batteries, generators, etc.

Safety is always a top priority for SolaX, so X1-Hybrid-LV is designed to be robust and secure. Its IP65 protection degree allows it to

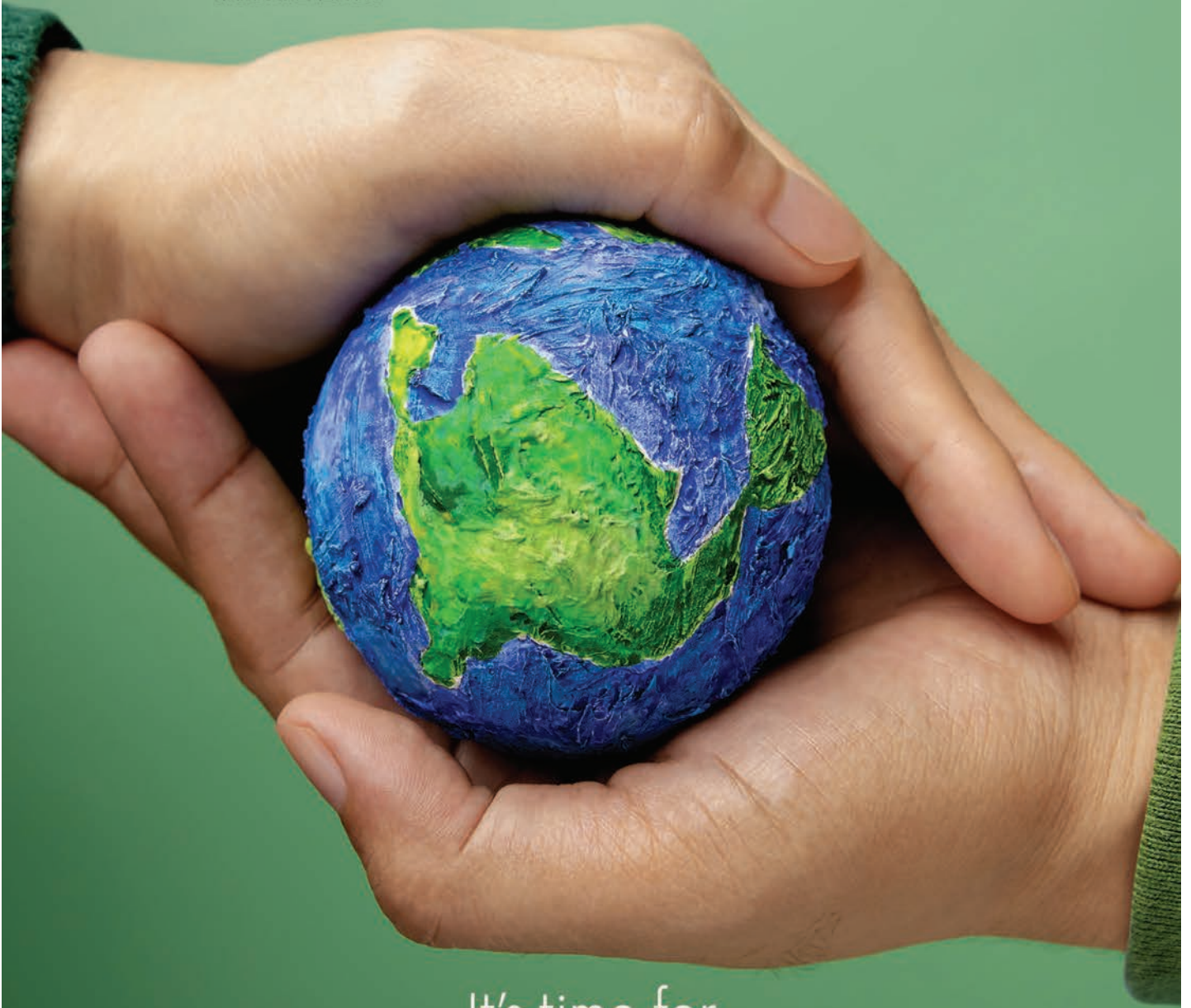
work smoothly even in harsh environments. It is equipped with integrated SPD and optional AFCI protection, ensuring the safety of the system and its users.

SolaX has built a reputation in Pakistan for providing high-quality solar solutions, and the launch of X1-Hybrid-LV emphasizes SolaX's commitment to innovation and continuous improvement to meet the needs of its customers. With its ultra-efficiency, fresh design, flexible adaptability, and solid safety features, X1-Hybrid-LV is sure to be a popular choice for customers looking for an efficient and reliable solar solution. ■



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# Will DISCOS devolution fix energy crisis?

Two-thirds of power plants operating at less than 20pc of utilisation factor

—◆— Jawaid Bokhari —◆—

**W**hile businesses and domestic consumers have been hit hard by the worsening power crisis in Sindh, its solar, coal and wind power projects are unable to dispatch their entire output to the national grid for want of adequate transmission facilities.

The energy crisis has remained unabated though the province is blessed with abundant wind, solar and coal resources with cost-effective access through air, land and sea routes.

The situation has induced Sindh Cabinet to take what is described as a landmark decision to initiate power generation, transmission and distribution within the province. The move aims to provide electricity to consumers at cheaper rates, improve energy equity and eliminate energy poverty in the province.

Sindh Electric Power Regulatory Authority (Septra) will be set up to end the province's dependence on the centre for fixing tariffs and managing loadshedding as provided under 7(4) of the National Electric Power Regulatory Authority (Neptra) Act. The draft Septra law will be presented in the next session of the Sindh Assembly for enactment.

Sindh had earlier decided to form a provincial transmission and distribution company, and a transmission licence was obtained from Neptra on November 5, 2019. For unknown reasons, the initiative remained dormant. Fresh private sector investment needs to be mobilised for new power generation, transmission and distribution projects

Now the inability to convert rupees into dollars by Sindh Engro Coal Mining and Engineering Company (SECMC) has reportedly created a backlog of non-payment worth \$60 million to a Chinese mining operator. The company's output feeds coal power plants in Thar, generating 1,360 megawatts of electricity. China Machinery Engineering Corporation has reportedly cut its output by half and informed SECMC that it might halt production in a month.

SECMC sources said in 2022, the company had made a profit of Rs8.47 billion

and its cash and other assets — which can be converted into cash within a year — stood at Rs104.4bn, up 38 per cent from 2021. Sindh's move to set up Septra follows the federal government's decision to devolve ex-Wapda distribution companies (Discos) to the provinces. Punjab has already completed feasibility studies of a power firm — Punjab Provincial Grid Company — and another for managing solar power supply for district and session courts.

Subject to necessary due diligence by its finance department, Punjab may reportedly consider giving its consent to the centre's proposal to take over Discos located in the province only to the extent of transfer of assets, and not liabilities, along with management control.

The devolution of Discos posting enormous transmission and distribution losses is no less challenging than the stuck-up strategic privatisation of other loss-making state-owned enterprises (SOEs) surviving on oxygen tanks.

Almost two-thirds of the power plants are operating at less than 20pc of the utilisation factor. A World Bank report has estimated the government's support to the 14 largest loss-making SoEs at 0.8pc of GDP and support to all SOEs at 1.4pc of GDP for FY21.

It is time for fresh private sector investment to be mobilised for new power generation, transmission and distribution projects. The professionals and skilled workers in sick units can find jobs and pursue better careers in new enterprises with a future.

The solution to the poly-crisis lies in a bottom-up approach. What can be best managed at the provincial level should be outside the ambit of the federal government. Similarly, what can be managed by district governments should not be in the provincial domain. And the three tiers of autonomous government



must cooperate to promote the common good while being responsible to each other. This calls for a new charter of rights and responsibilities. ■



# China-Pakistan Economic Corridor

## Power sector investment by China reaches \$21bn

— Khalid Mustafa —

The Chinese investment in Pakistan's power sector, under the umbrella of the China-Pakistan Economic Corridor (CPEC), has increased to \$21 billion with the restoration of a powerhouse based on imported coal at Gwadar, a senior official of the Power Division told The News.

“Earlier, the government had almost abandoned the construction of a powerhouse based on imported coal at Gwadar, arguing it would not encourage more electricity generation on imported fuel and made a plan to set up a solar plant in its place. “But, later it suggested to the Chinese government to convert the power plant based on Thar coal. “The feasibility report did not favour employing Thar coal as the cost of transportation from Thar to Gwadar was found on the higher side. More importantly, the Chinese government refused to subscribe to Islamabad's viewpoint and insisted on the restoration of the 300-MW powerhouse based on imported fuel.

“It termed the initiative the most strategic project, as the Gwadar port's operation cannot be made dependent on any weak project, whose fuel transposition may be vulnerable given the law and order situation in the province and imported electricity from Iran as well.”

The official said: “Now we have restored

the 300-MW project on imported coal, which will be made operational by December 2025.”

Given the run-down of the power sector projects, under the CPEC umbrella, the official said that eight projects worth \$11.337 billion had already been commissioned and were injecting 7,320-MW electricity into the national grid.

In addition, under CPEC, one mega transmission line project, the Matiari-Lahore HVDC transmission line, had been completed at the cost of \$1.658 billion to transport 4,000-MW from Sindh to Lahore to cater to the needs of the load centre of Punjab.

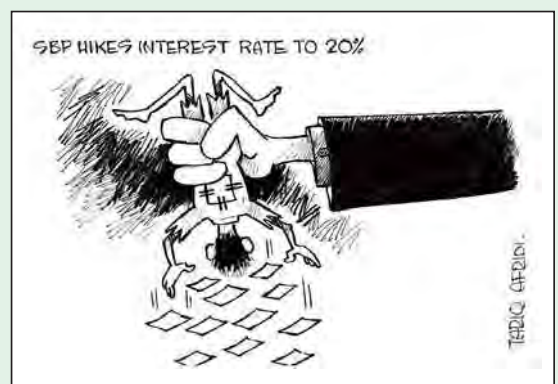
However, five projects worth \$6 billion are under process to generate 4,328-MW power. Of these, the cost of Thar coal electricity project of 1,320-MW, which is part of IGCEP (Indicative Generation Capacity Expansion Plan 2022-31) is yet to be determined. If the estimated cost of the project is included, then the CPEC power sector projects cost would go up to \$21 billion.

Private Power and Infrastructure Board (PIIB) Managing Director Shah Jahan Mirza also confirmed to The News that the Chinese investment in the power sector had increased to over \$21 billion.

According to the latest figures available with The News, the eight projects which were functional include Sahiwal coal power plants of 1,320-MW, Port Qasim coal power project of 1,320-MW, Engro Thar coal power and

mine project of 660-MW, HUBCO coal power project of 1,320-MW, Karot hydropower project of 720-MW, HUBCO Thar coal power plant of 330-MW, Thar coal Block-1 power generation project of 1,320-MW, and Thal Nova Thar coal power project of 330-MW.

The under process five projects include 884-MW Suki Kinari Hydropower project, which will become commercially functional by November 2024, and Gwadar coal power project of 300-MW will now be functional by December 2025. Azad Pattan Hydropower project of 700-MW will be completed and become functional by September 2030, Kohala project of 1,124-MW will become functional by March 2031. Thar electricity coal project of 1,320-MW at Block VI has also been included in CPEC, but its cost is yet to be finalised. ■





## Paying a hefty price

# Gas-electricity tariff hikes badly affect consumers

◆ Mansoor Ahmad ◆

Three items that trigger inflation in Pakistan besides a devaluation of the rupee are food, electricity and fuel. Prices of all agricultural products and manufactured items rise whenever electricity tariffs and prices of petroleum products are raised. Electricity and natural gas are utilities consumed in every household. When electricity rates are revised, there is a severe impact on household budgets.

The recent hikes in gas tariffs for domestic consumers have had a nominal impact on the pockets of lower middle class consumers and a tolerable impact on middle class households. It may be noted that two decades ago there was no gas loss (theft) in the gas distribution system. Now the unfound gas (theft) exceeds 12 percent. Natural gas is mainly used as kitchen fuel in households, rich or poor, who have piped natural gas connections. Gas consumption in the kitchens is nominal. Revised tariffs have therefore not had much impact on the gas consumed as kitchen fuel.

Currently, the household bill of kitchen burners ranges from Rs 260 to Rs 450 per month. The gas bills inflate when room heaters and geysers are used. The tariff rises non-linearly to discourage such use. Tariff revisions will therefore have a greater impact on affluent consumers. Another point worth noting is that piped natural gas connections are available to less than 30 percent of Pakistani households.

The rest use other kitchen fuels like LPG,

coal or wood, which are more expensive than piped gas. The consumers of these alternate fuels tend to be poor. A household lacking access to natural gas consumes an 11 kg LPG cylinder for kitchen fuel per month, which costs around Rs 3,000 – nearly eight times the monthly bill for a similar household.

A household lacking access to natural gas consumes an 11 kg LPG cylinder for kitchen fuel per month. It costs around Rs 3,000 – that is around eight times the average natural gas bill for a similar household.

A lower middle class family consumes 150-200 units per month during winter and 300-400 units during summer, using a fan and maybe even a room cooler. The tariff rises for bills above 300 units. This means that the same consumer will have to pay Rs 10,000 to Rs 15,000 per month during summer peak.

The rationale for gas and power tariff revision is that both power and gas distribution companies operating under state control suffer huge losses. The losses are due to the inefficiencies and corrupt practices, including theft, in these companies. The 'losses' in both gas and power systems have increased over the years.

Tariffs were also increased

periodically, particularly for electricity. On many occasions the tariffs were raised to cover the cost of inefficiencies and corruption, so much so that now provisions have been added in the tariff to recover past thefts of electricity. Nowhere in the world are consumers penalised for thefts committed by others. Successive governments have failed to restructure the power sector transparently.

The International Monetary Fund had asked the government of Pakistan to eliminate the 'circular' debt in power and gas sectors and had suggested tariff hikes. The IMF would have no issue if power and gas sectors are made transparent and 'circular' debt gets paid. Bringing transparency in power and gas sectors is the only prudent way to ultimately bring down power and gas rates. ■

*The writer is a senior economic reporter*





# SOCIAL ROUND UP



**FFC Energy Wind Power Plant celebrated its 10 years success. On this occasion Maj Gen Asif Ali, HI (M) (Retd), Managing Director, Chief Executive Officer, Employees, Partners, government officials, and local community are seen in the group photos.**



**M. Zakir Ali CEO Inverex Solar Energy hosted a dinner in honor of Solar Community. On this occasion a group picture with M. Zakir Ali CEO Inverex Solar Energy, M. Naeem Qureshi Managing Editor Energy Update, Anas Zafar Marketing Head Inverex, Journalist Mirza Iqbal Baig Seen in the picture.**



**Growatt organized dinner for solar business community. Country Head PK Growatt Mian Fahad & other participants seen in the picture.**



**A Eid Luncheon hosted by Management for Team National Forum for Environment & Health & Energy Update**



**Mesol organized a meet up with Solar fraternity at Head Office. Irfan Allahwala, Danish Shakil, Yousuf Irfan and others seen in the picture**



# Energy savings of over Rs500bn a year

## Govt set to push shift from gas to electricity, energy-efficient buildings

◆ Khaleeq Kiani ◆

**T**he government plans to embark on a 10-year transition strategy to shift from gas to electricity in commercial, industrial and residential sectors, and push energy-efficient buildings under a Rs45 billion energy efficiency and conservation project, which envisages energy savings of over Rs500bn a year.

The project was formally cleared by the Central Development Working Party a few days ago for negotiations with the World Bank for a \$150 million loan, including a \$15m technical grant for capacity-building of the National Energy Efficiency and Conservation Authority. However, it was observed that a 10-year transition period was too long and should be minimised.

The project's sponsors — the Ministry of Science and Technology and the Energy Efficiency Authority — have reported to the Planning Commission that Pakistan's current energy-saving potential was around 10m to 12m tonnes of oil equivalent — a unit of energy defined as the amount of energy released by burning one tonne of crude oil.

The country's current primary energy supply stands at about 95m tonnes of oil equivalent and is projected to go beyond 115m in 2025 at an annual growth rate of 5.8pc, as its per-capita energy consumption is expected to increase from 405 kilograms of oil equivalent to 469kg during the period. Plans 10-year transition strategy under a project envisaging annual savings of over Rs500bn

The project aims to reduce fossil fuel imports, leading to foreign exchange savings and improving the country's fiscal situation, cut household expenditures, especially on heating and cooling needs, and foster a green and efficient economy, thus supporting Pakistan's objective to reach upper-middle-income status by 2047 — when the country turns 100.

The project also aims to help meet nationally determined contributions goals by reducing 20pc of the total projected greenhouse gas emissions by 2030. The energy sector would be the main focus for emission reduction as it contributes 46pc of the total emissions.

According to a study conducted by the World Bank for the project, a 25pc reduction in building energy use across all sectors could translate into energy savings of 16 gigawatt-hours, providing cost savings of about Rs291bn per year. The efficiency gains by shifting gas consumption to electricity could go significantly beyond Rs250bn per year — another component of the multi-purpose project.

Most buildings in Pakistan were not constructed with high energy-efficiency standards, resulting in significant unnecessary energy consumption and costs for consumers.

The project will involve energy audits and benchmarking of all large federally owned buildings, demonstration of deep energy efficiency retrofits of several 'showcase' buildings and development of standardised materials and specifications to support the retrofitting of buildings in the commercial, public and residential sectors.

The project would help the development

of building design templates that can be freely provided to housing authorities, relevant government departments and businesses to enable them to specify and construct new energy-efficient buildings as per new "green building codes". The National Energy Efficiency and Conservation Authority has estimated that savings of 10-12pc in winter and 20-25pc in summer utility bills can be achieved by using inverter air conditioners.

In winter, around 46 million standard cubic feet per day of gas would be saved by switching from gas heaters to inverter ACs. This component will therefore support a gradual shift from gas to electricity to meet heating requirements in the targeted sectors.

This would be carried out in parallel with changes to building designs and codes to ensure improving the energy efficiency of buildings and delivering a coordinated approach that considers both the thermal insulation of buildings and also the efficiency of heat and cooling services provided within them.

Based on current analysis and ongoing studies, the project will involve launching a trade-in scheme for households and businesses to voluntarily replace their inefficient gas geysers or boilers and space heaters with electrically powered alternatives.

This will be based on heat pump technology and replacement of inefficient heating technologies and the upgradation of processes, in particular those that promote a shift from gas to electricity in industrial sectors based on a revolving loan fund to also provide credit lines to households and businesses. ■

Courtesy Dawn

# Sindh may set up its own power regulatory authority

— EU Report —

**S**indh has decided to go 'rogue' on Islamabad by setting up its own Sindh Electric Power Regulatory Authority so that people receive power supplies more equally and "energy poverty" is eliminated in the province.

If this works, it would be a historic decision as people in villages and small settlements in certain areas barely get any electricity during the day. They have, where possible, invested in solar over the years. A village outside Larkana, for example, called Khairo Dero gets power just one hour a day.

As of 2021, K-Electric has the capacity to produce around 2,267 MW from a mix of

thermal, hydro, and solar power plants

It is frustrating because we've been hearing that Sindh can produce lots of power (coal, solar, and wind). But, Energy Minister Imtiaz Shaikh told the Cabinet that the province's power projects, especially for renewables, face constraints within the national framework. He was being polite, or the press handout was bleached of invective.

The constraints are because Sindh struggles with the Indicative Generation Capacity Expansion Plan 2021 (IGCEP 2021). The National Transmission and Dispatch Company or NTDC makes the plan, which Nepra approves. This plan makes it possible for private and government power projects to happen.

The CM said that it was essential that Sindh had a legal, policy, and regulatory frame-

work so that power can be made and sent to homes to ensure no one is left out.

Under the 18th Amendment to the Constitution, the power to levy taxes on the consumption of electricity and the power to determine the tariff for its distribution within a province was given to the provinces.

Nepra's law (under Section (7)(4) of the NEPRA Act 1997) says that the provinces can build power houses and grid stations and lay transmission lines for use within the province and determine the price at which they want to distribute electricity.

The idea behind this bill is that all power companies should also be under the provinces instead of being controlled from Islamabad. This will be a big breakthrough and it will affect K-Electric as well. ■

## First BtB deal in gas sector signed

— EU Report —

In a rare but welcoming development, a new era of private-to-private business in the country's gas sector under Third Party Access (TPA) rules has begun. The Economic Coordination Committee ratified the decision of the Petroleum Division on January 17, 2023, which paved the way for the deal.

Chairman of Energy Task Force and ex-prime minister Shahid Khaqan Abbasi, who played a pivotal role in materializing this BtB transaction of supplying gas to private consumers, including the industrial sector, declared it a success story while talking to The News.

Under the transaction, (Universal Gas Distribution Company) UGDC – a private company will purchase gas from MOL, a Hungary-based private gas-producing company, and distribute it to private consumers through the SNGPL distribution network.

UGDC has also signed a Gas Sales and Purchase Agreement (GSPA) with MOL Pakistan Oil and Gas Company B.V. for supplying 14MMFCD gas initially from Mamikhel gas field, TAL Block, on a take-and-pay basis, with the supplier agreeing to increase gas supply in the future.

The company also entered an access agreement with SNGPL for the transportation of gas through the existing Sui-network to private end consumers.

Confirming the BtB transaction to The News, the management said MOL is actively engaged in Pakistan's oil and gas sector since 1999 with its local joint venture partners OGDCL, PPL, GHPL and POL. The MOL and its joint ventures have so far invested \$2.8 billion in the exploration and produced 23 percent oil, 9 percent gas, and 25 percent LPG, making its Tal JV block in KP the largest hydrocarbon-producing block in the country. ■

## MOL Group to invest \$23m in KP's Tal block

— EU Report —

**H**ungary-based oil and exploration company MOL has announced \$23 million more investment in the Tal block in Khyber Pakhtunkhwa to inculcate impetus to indigenous oil and gas exploration and production, which could assist in mitigation of energy shortages in the country.

The development came amid a statement that Secretary Petroleum gave to NA penal on petroleum on Thursday that Pakistan was a high-risk country for new investment.

The bidding process for an exploratory well 'Razgir' has begun, which would cost the TAL joint venture \$23 million. MOL's top management disclosed that in a correspondence to Prime Minister Mian Shehbaz Sharif.

MOL wrote to the top man of the government heralding commencement of investment in the Tal

block in KP province, after a pause of two and half years because of a pricing issue. The incumbent regime has resolved the pricing issue paving way for more investments in E&P activities in the country.

MOL Group of Hungary, through its subsidiary MOL Oil & Gas Co Pakistan, has been actively engaged in Pakistan's oil and gas sector since 1999 and with its local joint venture partners; OGDCL, PPL, GHPL and POL contributing significantly to the energy security of Pakistan.

MOL produces 23 percent oil, 9 percent gas, and 25 percent LPG, making its Tal JV block in KP the largest hydrocarbon-producing block in the country. MOL and its joint venture partners have so far invested \$2.8 billion in Pakistan and are paying over Rs50 billion to the national exchequer annually in the form of taxes, royalties, and CSR contributions besides savings of over one billion US dollars in foreign exchange through oil import substitution.

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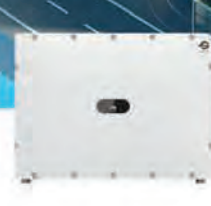
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