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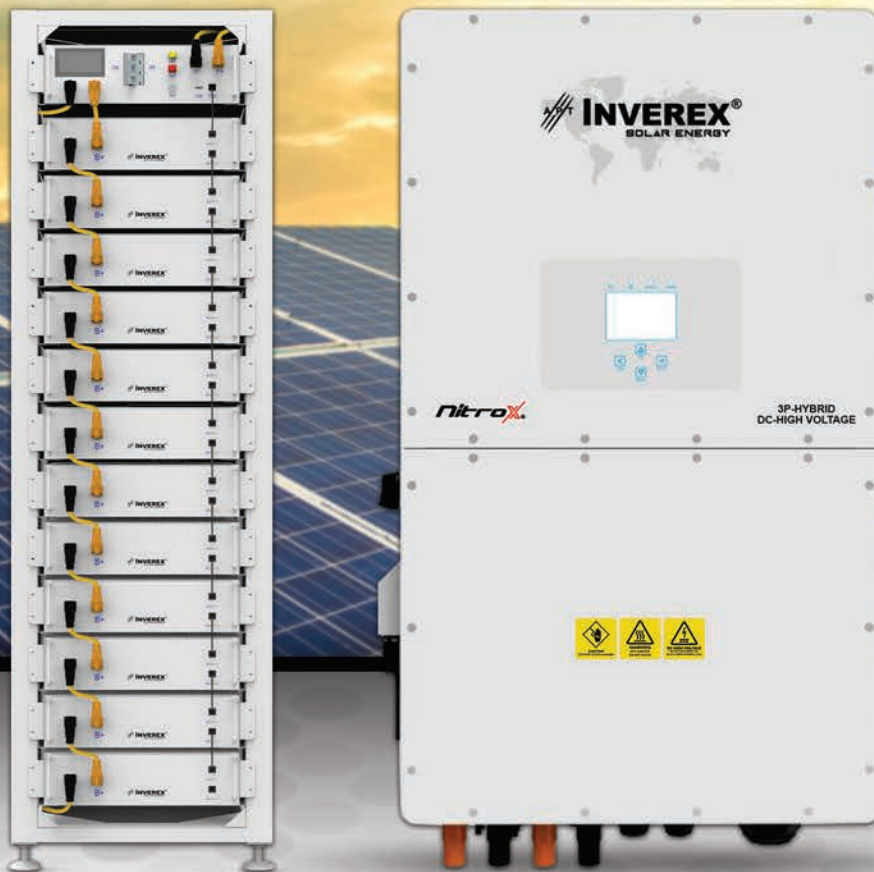
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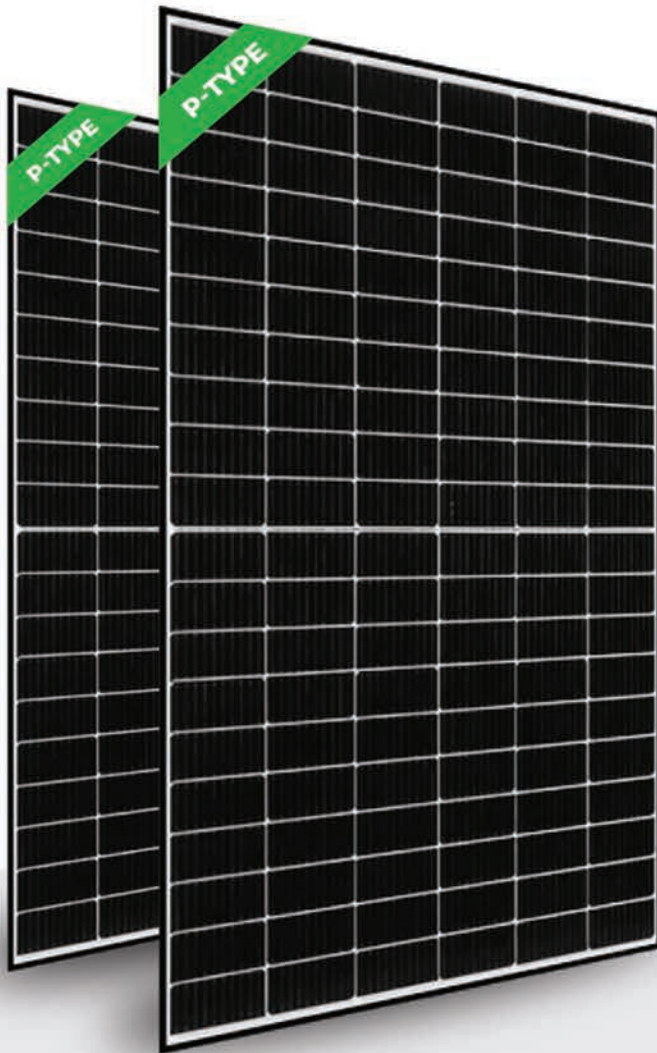
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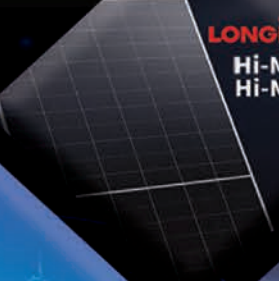
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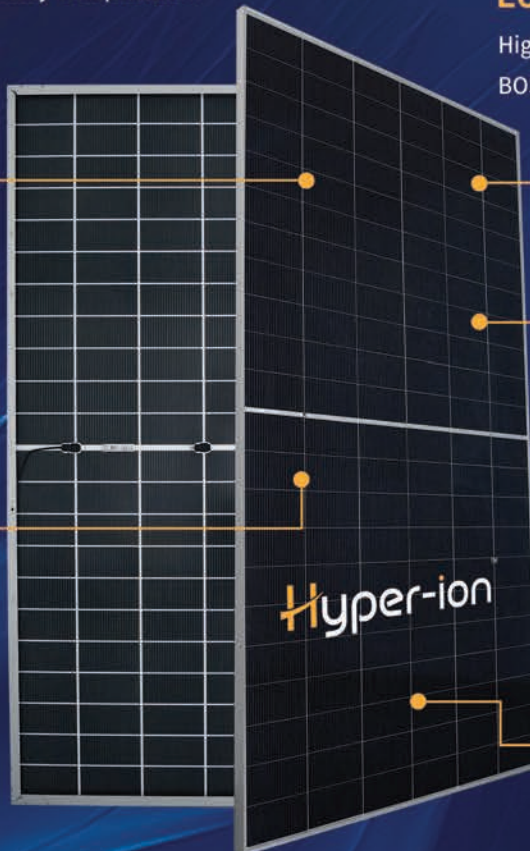
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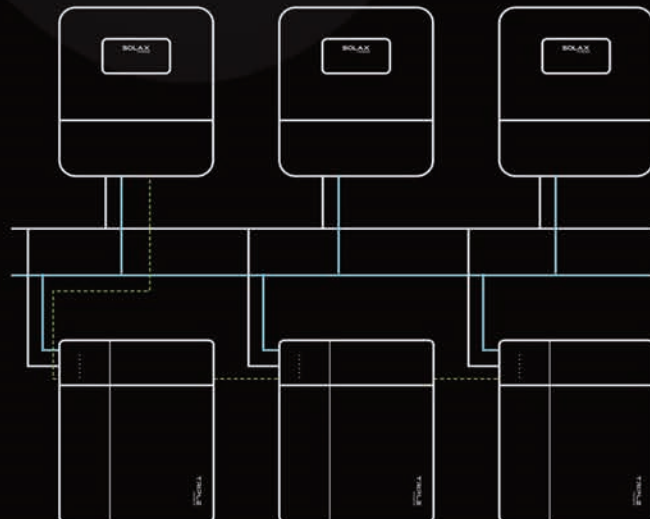


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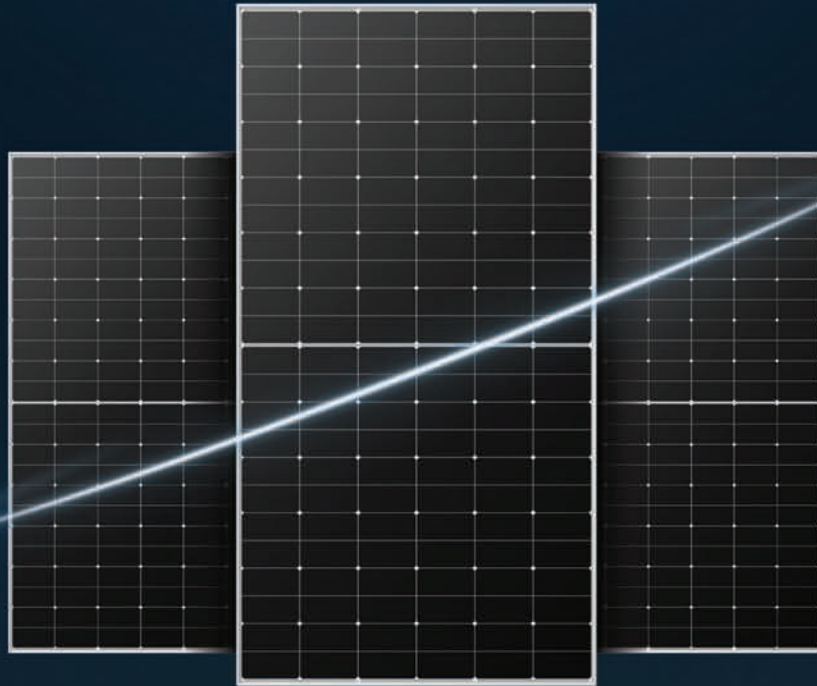
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FROM THE Editor's desk...

Shocking gas tariffs

The Cabinet's Economic Coordination Committee has recently approved a massive hike in natural gas prices by 194 per cent implemented from Nov 1, 2023, sending a heavy blow to the inflation-hit people of the country who were already unable to pay the heavy electricity and other utility bills.

KCCI and all seven industrial associations of the city have openly rejected this extortionate hike in gas tariffs and termed them as unviable and unacceptable.

With ECC's decision to increase gas tariffs, 60 percent of domestic consumers will bear the burden of Rs400 per month whereas gas tariff for the rich segment has been brought at par with LNG prices, which is a human rights violation.

Gas tariff for export-oriented industries has been raised by 86 percent to Rs2050 per MMBtu while for general industries, it has been enhanced by 117 percent to Rs2600 per MMBtu but this was not the end of the story, as 10 percent more will further be added in gas tariff as blended cost of RLNG, which would take gas tariff for export-oriented industries to around Rs2300 per MMBtu, leading to huge downward revision in Pakistan's exports by rendering our goods uncompetitive in the world markets.

The surge in gas tariffs in Pakistan has sparked a nationwide debate on its implications for the common man and the economy as a whole. This move has left many consumers grappling with the harsh reality of increased living costs, and it has stirred concerns about the long-term consequences on Pakistan's socio-economic landscape.

The immediate impact of higher gas tariffs is felt directly by consumers. The most obvious impact is that consumers have to pay more for their natural gas consumption. This can be particularly burdensome for low-income households and those living on a fixed income. The industrial and business sectors are also adversely affected. Increased gas tariffs lead to higher production costs, which can reduce the competitiveness of Pakistani industries on the global stage.

Increased financial stress on households can lead to social issues such as domestic tensions and mental health concerns, as individuals struggle to make ends meet. To mitigate the impact of increasing gas tariffs on consumers, the government and relevant authorities should consider the following strategies; promote energy-efficient appliances and practices, which can help consumers reduce their gas consumption and costs; raise public awareness about the importance of energy conservation and efficient usage, enabling consumers to make informed choices; invest in alternative and renewable energy sources to reduce the reliance on expensive imported energy.

The increase in gas tariffs in Pakistan has a direct and lasting impact on consumers, affecting their standard of living and the overall economy. It is essential for the government to strike a balance between fiscal responsibility and the welfare of its citizens. Implementing targeted subsidies, promoting energy efficiency, and diversifying energy sources are vital steps in mitigating the adverse effects of rising gas tariffs while ensuring sustainable economic growth and development for Pakistan.



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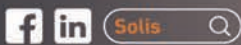
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Gas crisis torments whole nation

For borderline-poor households, access to affordable fuel alternatives is paramount

Shujuddin Qureshi



The writer is a senior journalist. He works at a news channel in Karachi

The scale and impact of Pakistan's gas and energy crisis are being felt across the nation. The recourse to natural gas as the dominant energy resource was rooted in the belief that low cost, abundant domestic reserves will continue to provide a relatively clean fuel.

The crisis reached a crescendo in the winter months of 2022-23. Gas shortages, once an occasional problem became a perpetual nightmare. All sectors — industrial, commercial and domestic — felt the pinch. Many factories grounded to a halt, some businesses struggled to keep their lights on and a lot of households shivered in the cold.

The problem did not go away with the winter. The entire summer of 2023 was gas-deficient. Many areas of the country faced gas loadshedding even on hot days. The intensity of the problem was felt severely during Ramazan (in April) when both Sui Southern and Sui Northern announced their schedules for gas supply during sehri and iftari hours.

Energy experts fear a more severe shortage of natural gas during the coming winter. Gas prices have increased and the OGRA has raised LPG rates by Rs 21 per kilogram for domestic users. Dr Mussadik Malik, the former minister of state for petroleum, had pointed out that Pakistan's gas resources were depleting by 10 percent a year. "We have only 1,600mmcf (million million cubic feet per day) of gas left while the demand is on the rise," the minister said in April 2023.

The impact of the shortage is most acutely felt by those least able to bear it — the low-income families. As inflation soars to historic

heights, their meagre incomes are little help. Up to a quarter of their earnings is now consumed in securing cooking fuel, leaving scant resources for necessities like education, health, food and shelter. The winter gas shortages ruthlessly drain whatever meagre savings they might have managed throughout the year.

Many areas in Pakistan get no gas. "Even today, many towns and small cities in the country do not have gas connections. Natural gas connections are not easy to get even in areas serviced by the distribution network. Additionally, there have been long periods when outright bans were imposed on the issuance of new connections," research conducted by The Knowledge Forum has concluded.

Natural gas remains the preferred fuel for cooking in Pakistan but no longer for heating as utility companies often fail to provide adequate pressure and there are frequent outages. Low-income families are thus forced to make the difficult choice of forgoing heating their homes or water.

The gas and energy crisis calls for united action, heightened awareness, and a deeper comprehension of the climate crisis at hand. Sustainable solutions may appear elusive but are well within our grasp.

As the gas crisis deepens, access to affordable fuel alternatives becomes paramount for borderline-poor households. In the past, when shortages were confined to the winter months, it was a challenge. Now, with gas scarcity stretching throughout the year, low-income families face a constant drain on their resources.

High inflation and dwindling foreign exchange reserves are driving up the fuel import costs. Difficult decisions and compromises on health and education have become inevitable for many households.

In some areas, impoverished families are turning to wood as a cheaper alternative to gas. The potential harm to local fauna and flora remains largely unaddressed. There are no focused and proactive responses.

Access to alternative fuels is not merely an economic consideration but also a reflection of class distinction. Low-income families are trapped in a competitive sellers' market, where affordability dictates access. The natural gas subsidy, once a lifeline, is no longer available.

Choices in alternative fuels are quite limited. Wood, a traditional choice, is likely the most practical for urban dwellers.

The crisis has worsened over time. Some consumers naively believe that more efficient allocation can resolve the problem.

Awareness of environmental concerns is notably rare. Consumers prioritise immediate energy needs over clean and sustainable alternatives. Fuels that do not emit visible smoke are often perceived as environmentally friendly. Even at the policy level, the discussion revolves around foreign exchange losses through imports and often ignores the environmental damage.

The proposed solutions often focus on narrow self-interest and range from separate pipelines to priority allocations. These band-aid solutions do little to address the underlying supply shortfall or the broader implications of fossil fuel use.

Yet, not all hope is lost. Some voices are echoing a demand for renewable resources, mainly solar energy. These come from provincial capitals and reflect a more aware consumer base that seeks sustainable solutions beyond the usual knee-jerk reactions.

The gas and energy crisis is more than just an inconvenience; it's a profound challenge to the nation's well-being. It demands collective action, awareness and a broad understanding of the climate crisis. Some of the sustainable solutions are within reach but the journey requires a shift away from fossil fuels and a leap towards clean alternatives.

The crisis calls for united action, heightened awareness and a deeper comprehension of the climate crisis at hand. The journey may be arduous, but it is essential for securing a brighter and more sustainable future. ■



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Reforming Power Sector

Energy crisis in Pakistan is rooted in management rather than capacity

Dr. Khalid Waleed



The writer has a doctorate in Energy Economics and serves as a Research Fellow in the Sustainable Development Policy Institute (SDPI)

Reforms, especially in sectors as intricate as energy, can be particularly complex. This is especially true for a country like Pakistan, where the energy sector continually oscillates between crises and short-term solutions. At a recent conference co-hosted by the World Bank and the Pakistan Institute of Development Economics (PIDE), Dr. Nadeem Ul Huque succinctly described the ongoing tumult in the energy sector as a product of governance and cultural failures. He has consistently advocated that

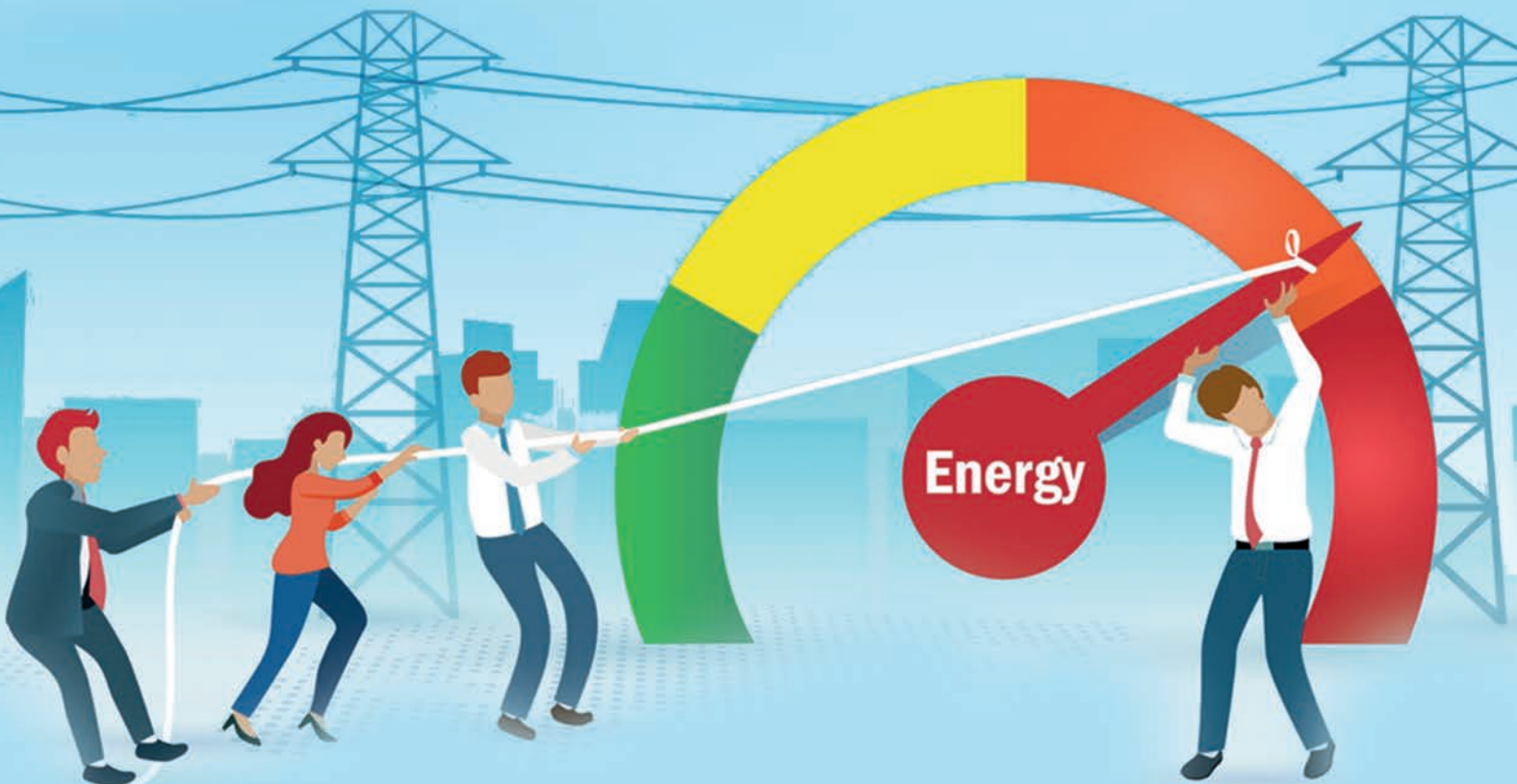
the core issue is not capacity but management, a stance he has maintained since introducing his "New Growth Framework" in 2015.

Certainly, the energy crisis in Pakistan is rooted in management rather than capacity. Emphasizing capacity alone is a narrow viewpoint, especially when governance and management need to align with principles of corporate governance. This article delves into the multifaceted nature of Pakistan's energy sector, adopting a holistic, long-term perspective. It is crucial to recognize that the energy sector extends beyond just electricity. For instance, Pakistan's primary energy breakdown is enlightening: 40% is sourced from firewood (biofuels), 20% from imported oil, another 20% from natural gas, and 11% from electricity generated through hydel, solar, nuclear, and bagasse methods. The remaining 9% is derived from coal. This distribution underscores the idea that the energy sector in Pakistan is far more diversified than

merely its electricity component.

Secondly, the electricity sector in Pakistan has long been trapped in a pattern of short-termism. Between 2007 to 2013, a period marked by General Musharaf's governance, the nation grappled with an acute electricity shortfall stemming from poor planning. As demand surged, protests against load-shedding became commonplace.

The Pakistan Peoples Party's administration faced plummeting approval ratings, attributed to soaring inflation, extensive 18-hour load shedding, and energy deficiency. Subsequently, the PMLN government, which ascended to power in 2013, anchored their campaign on the promise of curtailing, if not eliminating, load shedding ignoring the "economics of long-term planning". Their focus leaned heavily on immediate political gains, sidelining the imperatives of long-term economic planning. Both the PPP and PMLN governments initiated attractive Purchasing



Power Agreements (PPAs) – linked with variables like exchange rates, interest rates, and both local and US inflation – to incentivize investors to join the capacity expansion plan. This strategy addressed the immediate electricity access issue through the IPPs' take-or-pay contracts. However, it has now transpired into an affordability crisis: tariffs have surged, the circular debt is burgeoning, and under the IMF-SBA, the government is compelled to cut electricity subsidies.

Thirdly, alongside the importance of long-term strategies, integrated planning is vital to address Pakistan's energy crisis comprehensively. To grasp the concept of integrated planning, let us turn to the Sustainable Development Goal (SDG) no. 7, which aims to ensure "affordable, reliable, sustainable, and modern energy for all" by 2030. SDG7 emphasizes three primary targets: clean energy access for everyone, the promotion of renewable energy, and energy efficiency. Pakistan has some distance to cover regarding clean energy access. A concerning trend is the majority of households still relying on firewood, using inefficient cookstoves as their primary cooking medium. The Pakistan Standard of Living Measurement (PSLM) reveals that 60% of households predominantly depend on firewood for cooking.

This emphasizes the paramount importance of understanding the "economics of integrated planning." Our approach should harness "one fuel for multiple energy services," allowing electricity to serve diverse functions from heating and cooling to cooking and transportation. Such a strategy not only aligns with SDG7 but also addresses the energy efficiency aspect, with electricity being an incredibly efficient secondary energy form.

Addressing the seasonality effect, where there is a vast discrepancy between summer and winter energy demands, becomes feasible. Additionally, it offers a solution to the looming gas shortage by positioning electricity as an alternative fuel. Furthermore, the financial savings from a reduced import bill would provide Pakistan with the fiscal flexibility it desperately needs, stabilizing the exchange rate, inflation, and interest rates. Consequently, this would reduce the capacity payments, potentially setting the stage for reversing the current detrimental cycle in the energy sector.'

Upon appreciating the managerial economics of long-term and integrated planning, the next crucial consideration is understanding the "economics of efficiency and productivity" within energy consumption. Historically, Pakistan has squandered its natural gas reserves on non-strategic, often unproductive endeavors. For example, the residential sector has been given access to natural gas for extended periods and at nominal rates.

When we assess electricity consumption, a staggering 50% emanates from the residential sector—a glaring testament to inefficiency. Billions have been spent merely to cool inefficiently designed homes and walls. As Dr. Fayyaz of the LUMS Energy Institute pointed out, these practices yield negligible benefits. There is a pressing need to align our electricity capacity and consumption with meaningful industrial growth. This can be achieved by adopting the efficiency standards and building codes thoughtfully proposed by the National Energy Efficiency and Conservation Authority (NEECA). By connecting special economic zones (SEZs) to a reliable electricity grid powered by renewable energy, we can bolster industrial productivity.

Moving on to the fifth aspect, the "economics of corporate governance" plays a pivotal role in addressing the inefficiencies of electricity distribution companies (DISCOs) in Pakistan. Informed by corporate governance literature, we can assert that board independence and director expertise are integral to optimizing operational efficiency. Having directors who possess specialized knowledge—especially in energy distribution and policy—can significantly enhance a DISCO's performance. This expertise spans aspects like bill recovery, efficient distribution management, digitization, and addressing the principal-agent problem.

By leveraging this expertise, companies can be steered towards modernizing and digitizing their distribution networks—essential for combating inefficiencies. But beyond mere governance structures, introducing a competitive landscape can also drive essential reforms in the electricity distribution sector. Promoting competition, segregating line operations from administration, and other related reforms necessitate a well-balanced approach—one that integrates protective measures while maintaining openness.

Adopting strategies like privatization, liberalization, and merit-based efficiency

initiatives can craft an environment where companies are encouraged to compete, innovate, and prioritize service excellence. Academic insights, thus, have a significant role in shaping a resilient and efficient electricity distribution framework in Pakistan. Additionally, as the government navigates its Circular Debt Management Plan (CDMP) under the guidance of the IMF, encouraging competition through privatization will be instrumental in refining service quality and bill recovery.

In wrapping up our discussion, it is essential to highlight that the cornerstone of a successful energy transformation lies in efficient governance. While the Ministry of Energy (MoE) plays a pivotal role, sometimes the most strategic move is to take a backseat and allow the maestros—engineers, economists, and environmental experts—to conduct the symphony, ensuring that it is in harmony with the direction set by the MoE.

While recovery drives and bill collections might seem pressing, they are merely scratching the surface of a much more significant and financially unstable behemoth that is the energy sector. It is the highest time we confront the looming elephants in the room, particularly the bureaucratic mazes and political-economic hurdles, which are the very essence of political economy of governance.

As the famous saying from 'Game of Thrones' goes, "Chaos is a Ladder". Let us utilize the current tumult as a stepping stone to ascend, leveraging long-term and integrated planning, rather than digging ourselves deeper into a quagmire with myopic solutions.

As rightly pointed out by the Professor Stefan Dercon of Oxford University in his keynote address that "We all know the ingredients, but we do not know the recipe" and further summed up by Mr. Najy Benhasnine, country director World Bank Pakistan, "We need a passionate conviction that the solutions for Pakistan will not come from the donors, but from the within" ■



UAE doing its best for Pakistan's economic growth

Pakistan has a special place in the hearts of all UAE leaders

United Arab Emirates, Consul General,
Bakheet Ateeq Al Remeithi



Naeem Qureshi

“**T**he UAE while valuing its close brotherly ties with Pakistan has been providing the best possible assistance for the uplift of Pakistanis in the underprivileged areas and accelerating the growth of the economy of the country. We have been providing special aid services in the education and health sectors in the underprivileged areas of Sindh. UAE this year has established Asia's largest visa centre in Karachi to fully facilitate people from Southern Pakistan to visit the UAE.”

This was stated by the Consul General of the United Arab Emirates in Karachi, Bakheet Ateeq Al Remeithi, in an exclusive interview with the Energy Update magazine in which he talked about various aspects of the growing brotherly relations between the UAE and Pakistan. Following are the important excerpts from his interview for our readers:

Energy Update: We would like to know the details about the UAE's special assistance for the people of Pakistan.
Bakheet Ateeq Al Remeithi: We have

been looking after the interest of the people of Pakistan in the best possible manner. Pakistan has a special place in the hearts of all the UAE leaders as they care much about the welfare and well-being of the Pakistani people. We have been providing special aid services in the education and health sectors in the underprivileged areas of Sindh. These two sectors are our focus areas in Pakistan. The Embassy, Consulate General, and humanitarian aid organizations of the UAE jointly provide special relief services in these two areas in Pakistan. We stand together to help out the Pakistani nation in their hour of need.

The recently signed accord enabling the Abu Dhabi Ports to look after the affairs of Karachi Port is a step forward in this direction. This agreement will phenomenally increase the cooperation between the two countries. It will go a long way in transforming the economic

conditions of Pakistan. We have been providing the best possible assistance to Pakistan for increasing exports from the country for the improvement of its economy.

EU: What areas and sectors could play an important role in the economic progress of Pakistan?

Mr Remeithi: The Karachi Port and Port Qasim in Karachi have to play an important role in this regard as the more the operations of these ports will expand, the more the Pakistani economy will grow. These ports due to their strategic locations have to play an important role in the economic corridor to be established from the Middle East to the Central Asian states. Moreover, foreign investment in the mines, mineral, livestock, and agriculture sectors will also go a long way in increasing exports from Pakistan. Pakistan should establish more economic-free zones for establishing

industrial units with ease in urban centers like Karachi to accelerate economic activities.

EU: What is your valuable opinion about overseas Pakistanis present in the UAE?

Mr Remeithi: There are around 1.7 million Pakistanis living in the UAE and this is a much greater number than the natives of Pakistan present in any other overseas territory or foreign land. The remittances regularly sent by these hard-working overseas Pakistanis play an important role in the economic upkeep of the country.

EU: What new reforms the UAE has introduced to ease its visa regime for Pakistanis?

Mr Remeithi: Earlier, the issuance of UAE visas to Pakistani businessmen was quite a lengthy process due to the involvement of the bureaucracy. The relevant Chamber of Commerce and Industry was earlier used to write to the Foreign Ministry for the grant of the UAE visa to a businessman from Pakistan.

Now the Chamber of Commerce concerned directly sends the recommendation to us for issuance of the visa as the process is completed either the same day or the very next day. The Ambassador of the UAE took an interest in this matter and eased the visa issuance regime for prospective Pakistani businessmen. This new system is also a step in the right direction to promote the brotherly ties between the UAE and Pakistan.

Earlier, one month's time was required for the issuance of the visa, but now the same process is completed just in a day or two. Moreover, the UAE this year has established Asia's largest visa centre in Karachi to fully facilitate people from Southern Pakistan to visit the UAE. The 11 counters of this newly established visa centre are capable of issuing



200 visas daily.

EU: What role the UAE has been playing in increasing its reliance on renewable forms of energy?

Mr Remeithi: The UAE for the last many years has emerged as the regional hub for the promotion and greater use of renewable forms of energy. Because of this reason, a far greater number of electric cars have been in use in Dubai and other parts of the UAE as compared to any other country. Many solar power plants and other clean energy projects have lately been installed in the UAE at an accelerated pace.

Many initiatives have been launched to increase the UAE's reliance on clean and green energy. Given this context, Dubai has been selected as the venue for the 2023 UN Climate Change Conference to be held by the end of this year. Pakistan should become a beneficiary of this conference and get approval for special projects and financial assistance in view of the

grave risks and vulnerabilities being faced by it due to climate change.

EU: What is your opinion about the Pakistani nation?

Mr Remeithi: We have very high regard for Pakistani people for their massive contribution to the development of civil infrastructure, the engineering field, and the process of setting up vital national institutions like our airline soon after the UAE came into being.

Similarly, we value Pakistani culture and its very elegant manifestations like the national language Urdu, and the national dress of Pakistan Shalwar Kameez. My stay in Pakistan is as comfortable as staying at home as I speak in Urdu while interacting with the people here whether I meet them in my official capacity or privately. Pakistani people should make efforts to ensure that the next generation should care about preserving their national dress and national language. ■



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Gas tariff and reforms

Solar, Wind and Hydrogen appear to be the future

Syed Akhtar Ali



The writer is former Member Energy, Planning Commission and author of several books on the energy sector

The government is to announce a new gas tariff for the current financial year (1st July 2023-30th June 2024). The announcement will be late by almost three months. Circular debt issues are interconnected with gas tariff on which a plan has already been submitted by the government to the IMF, some details of which have already been shared with the media.

Ogra (oil and gas regulatory authority) determines the average yearly gas price of the two gas companies. Based on Ogra determination, the economic coordination committee (ECC) of cabinet determines consumer tariff for one year. Ogra has done its job and now it is the job of the economic coordination committee (ECC) of the cabinet to devise and

approve the consumer tariff.

Both government and consumers should be nervous about the possible rise in the new gas tariffs in the context of already heavy increases in petroleum products and electricity prices. On average, gas price has to be increased by 47% as determined by Ogra. It would not be equal increase among all but as usual there would be different rates of increase. Lower socio-economic groups would most probably be saved or loaded lesser and richer classes would have to bear the brunt. People belonging to middle class, despite a lower burden, suffer due to comparatively lower earning incomes. The art of consumer tariff determination, therefore, is all about devising the consumer tariff of the middle classes.

Review of regional gas tariff

Bangladesh increased gas prices at the beginning of 2023 bringing gas prices in most sectors to Tk 30 per M3 which is equivalent to Pk.Rs.2273 per MMBtu. This includes commercial, industry and captive power. Only residential got Pk.Rs 1364/MMBtu, power (Pk.Rs.1061/-) and fertilizer

sector (Pk.Rs 1212/- per MMBtu) got comparatively lesser tariff. Largest increase had been in fertilizer sector in the context of similar pressure that we are facing in Pakistan.

LPG price in Bangladesh is the highest in South Asia. Interestingly, pipeline gas price in India, which covers both residential and industrial sector are Pk.Rs 5060 per MMBtu, is very close to LPG prices. However, India used to provide 12 free LPG cylinders per year, which was reduced to 50% price. Later, Direct Benefit Transfer Scheme has been introduced which continues till date. LPG subsidy stands at IRs 200-400 per cylinder on a price of IRs 900 Rs per cylinder.

This scribe is not aware of some special subsidies that are given to export sectors in India. It can be concluded that Bangladesh's gas tariff is much higher than Pakistan's, although it may increase in a few months as there is always a lag of six to nine months between the timings of change in the two countries. Residential tariff is several times higher than in Pakistan except the large residential consumers' category, which is lower in Bangladesh being only 44% of what it is in Pakistan. Bangladesh's industrial and captive power tariffs are twice Pakistan's; while power sector gas tariff in Bangladesh is 24% higher. However, these are rather rough calculations due to several reasons like currency variations, comparability issues, etc.



There are three prices which can be used as a reference for devising consumer tariff, although traditional approach is to apply a percentage increase. It is difficult to impose schemes that are totally out of sync with historical prices. The three price references are; 1. Locally produced gas at USD 6-7 per MMBtu; 2. LNG at USD 10-12 USD per MMBtu; 3. LPG at 15-18 USD per MMBtu.

Possible scope of increase in gas tariff

Ogra has determined a need for increase in average gas price by 47%. A simple and simplistic solution is to increase gas prices in all categories by the same percentage of 47%. After all, if the last year's tariff was right, passing on increase in the gas prices on the base of it should be right as well. However, everything has not been right in the previous year's tariff. There are opportunities to improve it. For example, there is a case of adjustment in low gas prices for tariff, which has been discussed here in this space.

Looking at the gas price data in our region and elsewhere, it appears that upward increase in gas tariff is required, especially, in residential. In the lower level tariff, even distribution cost is not covered. But is it the right time to make major increase in gas tariff? Similarly, there are issues in trying to take a major move towards reducing circular debt. Gas tariff and circular debt are inter-related issues.

In the context of very high inflation, currency devaluation and increases in electricity and petroleum prices without any increase in wages, it should make both the government and the people nervous to expect any increase in gas tariff. The other side of the issue is that nothing is free. Gas prices are increasing. Local cheaper gas resources are going down. No significant progress has been made or appears to be in pipeline in finding new gas resources. Nor are we trying any conservation-like promoting devices such as solar geysers, neither biogas resources are being explored seriously. Resultantly, reliance on expensive imported gas resources like LNG will increase.

Fertilizer sector tariff

Fertilizer sector tariff in Pakistan is Rs. 512 per MMBtu. In Bangladesh, fertilizer sector gas tariff is PkRs. 1212 per MMBtu, which is 240 % higher than in Pakistan. Strangely, a top fertilizer manufacturer is charged only 0.7 USD (Rs 200 only per MMBtu). It has a very old plant under a contract but till when can it be extended? In India, fertilizer sector is not subsidized through gas sector; they have a separate fertilizer subsidy system.

There is a case for doubling the existing fertilizer gas tariff. We provide the following details of the implications of this issue and approaches thereof. Apart from life-line consumers and other low income groups' consumer tariff issue, there is a major source of anomaly in gas tariff which arises from very low gas tariff traditionally awarded to the fertilizer plants.

Subsidy to fertilizers is a desirable issue, but the question is from where it should be financed? Should it be financed from the agri-

cultural budget or from gas consumers? Cross-subsidy to fertilizer plants has been causing circular debt and on consume gas tariff.

Gas subsidies are not liked by IFIs and other international bodies, while agricultural subsidies have been common in Europe and are understood. Thus transferring the cross subsidies from the gas sector to agriculture would be a desirable step.

Industrial growth in Pakistan has been stagnating. Exports are also linked with industrial gas tariff. Bangladesh industrial gas tariff is 189% higher than Pakistan. It appears that an increase of 47% (average Ogra determined increase) in industrial gas tariff should be affordable by the industrial sector as well as commercial sector. There is a scope for a comparable increase in commercial tariff as well.

Power sector

It may be desirable to keep tariff for power sector a bit lower than the uniform rate increase formula. Under uniform increase of 47%, gas tariff for power sector would come out to be Rs.1544 from the existing rate of Rs.1050. A 10-15% discount may be considered if surplus from other areas are available. Captive power tariff should be 20% higher in order to discourage Captives. It is more of a tax evasion tool than a technical requirement in many cases.

Reforms in gas tariff procedure

There is a need to reform the current procedure for tariff award, which results in consuming time and delays in tariff award and Government acceptance and announcement of the same. WACOG may have to be adopted, although its final legal acceptance appears to be doubtful or in some confusion. With adoption of WACOG, it may be appropriate to adopt power sector approach and methodology.

Solar, Wind and Hydrogen appears to be the future. It appears that increased Thar coal utilisation (gasification) may not be possible in the immediate future as is evident from the minutes of JCC (China-Pakistan) meeting recently reported in the press. ■



Air pollution on the rise in Pakistan's big cities

Lahore, Karachi, Peshawar worst hit: Turning a blind eye to the air pollution problem not only risks public health but also affects the planet

Special Report by Mansoor

Air pollution is on the rise in Pakistan's major cities due to continuous increase in public transport, industries, commercialization, hotel outlets, burning of all types of garbage, rise in ACs, refrigerators, gas & electric motors, deforestation, cutting of roadside trees, oil refineries, population etc. With rapid population growth and urbanization, Pakistan cities are been facing the worst air quality for many years. Despite the government's tall claims of striving to reduce air pollution, there is no decline in this unhealthy environment pollution.

In 01 Oct 2023, IQAir said that Peshawar's Air Quality Index (AQI) was recorded at 179 in Peshawar, 163 in Lahore, 159 in Rawalpindi, and 113 in Islamabad. Recently, the average air quality index reading of Karachi was recorded at 220, which is dangerous. It is pertinent to note here that AQI as high as 151-200 is considered unhealthy. An AQI reading between 201 to 300 is more harmful and AQI rate over 300 mark is extremely hazardous.

Pakistan's Economic Survey 2023 says: "Air pollution has the highest share in economic costs (30-34 percent), followed by water-related costs (26-27 percent), malnutrition (15-17 percent), temperature-related diarrhea (9-17 per-

cent), agricultural productivity (5-7 percent), deaths due to excess heat (2.8-3.2 percent), decrease in exports (1.6-2.3 percent), sanitation-related diarrhea (1.2-1.9 percent), and maternal mortality (0.3-0.4 percent)."

According to WHO, air pollution is one of the greatest environmental risks to health. By reducing air pollution levels, Pakistan can reduce the burden of diseases like

stroke, heart disease, lung cancer, and asthma. The combined effects of ambient air pollution and household air pollution are associated with 6.7 million premature deaths annually in the world, including Pakistan.

Ambient (outdoor) air pollution is estimated to have caused 4.2 million premature deaths worldwide in 2019. Some 89% of those premature deaths occurred in low- and middle-income countries and the greatest number in the WHO Southeast Asia and Western Pacific Regions. Outdoor air pollution is a major environmental health problem affecting everyone in low-, middle-, and high-income countries.

People living in low- and middle-income countries disproportionately experience the burden of outdoor air pollution with 89% (of the 4.2 million premature deaths) occurring in these areas. The greatest burden is found in the WHO South-East Asia and Western Pacific Regions. The latest burden estimates reflect the significant role air pollution plays in cardiovascular illness and death.

Controlling Air Pollution

In today's complex world, the idea of being able to reduce air pollution is not easy to imagine. More than just smog, air quality is linked to everything, from childhood asthma to global warming. Turning a blind eye to the problem of air pollution not only risks our own health but the health of the planet for generations to come. There is still time, however, to make a difference. With these seven steps, government and people can to improve the air quality:

Understand Where Air Pollution Comes From: The Federal Environmental Protection Agency (EPA) says there are six major causes of air pollution in the United States. These are ground-level ozone, particulate matter, lead, sulfur dioxide, nitrogen oxides, and carbon monoxide.

Reduce Use of Automobiles: Automobiles do more than just contribute to ground-level ozone. The making of gasoline requires the burning of coal and oil which causes an increase in sulfur dioxides, another of the six leading causes of air pollution. The EPA says petroleum refineries are key producers of sulfur dioxides and the more time

spent behind the wheel of a car means more air pollution for everyone to breathe.

Plant More Trees: NASA recently discovered that many household plants, like the Gerbera Daisy, Peace Lily, and English Ivy are instrumental in removing carbon monoxide from the air.

Operating much like the human liver, these common indoor plants actually filter harmful chemicals and dangerous compounds from the air, absorbing the toxins through tiny pores in their leaves and "digesting" the pollution through their stems, roots, and out through the soil.

Go Solar: Electricity might seem a green way to heat your home, but the VOCs generated by electrical utility plants are among the highest in all forms of manufacturing. Nitrogen oxides are also a byproduct of electrical utilities. Utility companies produce more sulfur dioxides than petroleum plants and the amount of other resources necessary to operate the plants make electric utilities a less-than optimum choice when looking to "power" your home.

Get the Lead Out: The dangers of lead-based paint have been known since roughly the 1970s, however, recent environmental issues surrounding imported toys have caused everyone to rethink the use of lead in common household products. Leaded fuels were phased out after the 1990 Amendment to the federal Clean Air Act, making trash-burning, battery storage, and utility-leaching the major sources of household lead pollution. Have your gas and electric appliances checked to make sure there are no leaks in the lines or shorts in the wiring. Never burn trash or use your fireplace to get rid of excess garbage.

Never Dust Again: Well, not really. But be careful about the kind of dust you stir up. Much of the thick brown haze you see over large urban areas is a combination of dust from construction sites, smoke from factories and the emissions from cars mixed together. While you might not be able to control the number of cars on the road or the types of factories that operate, you can watch your yard for dry patches and do your part to eliminate dust.

Get Cozy: Since electrical plants contribute to both carbon monoxide and nitrogen oxides, the burning of coal and petroleum generates ground-level ozone and sulfur dioxides, and the use of gas-powered heating systems can raise interior carbon monoxide levels to dangerous levels. Instead of turning on the heat, why not put on a sweater? Put another blanket on your bed during colder winter months. Keep cozy sweatshirts and plush chenille throws near the sofa for those evenings in front of the television. Snuggle next to someone to keep warm.

Addressing air pollution, which is the second highest risk factor for noncommunicable diseases, is key to protecting public health. Most sources of outdoor air pollution are well beyond the control of individuals and this demands concerted action by local, national and regional level policy-makers working in sectors like energy, transport, waste management, urban planning, and agriculture.

Pakistan needs to raise environment budget as per UN standards and take result-oriented actions to reduce air pollution which is a silent killer. ■

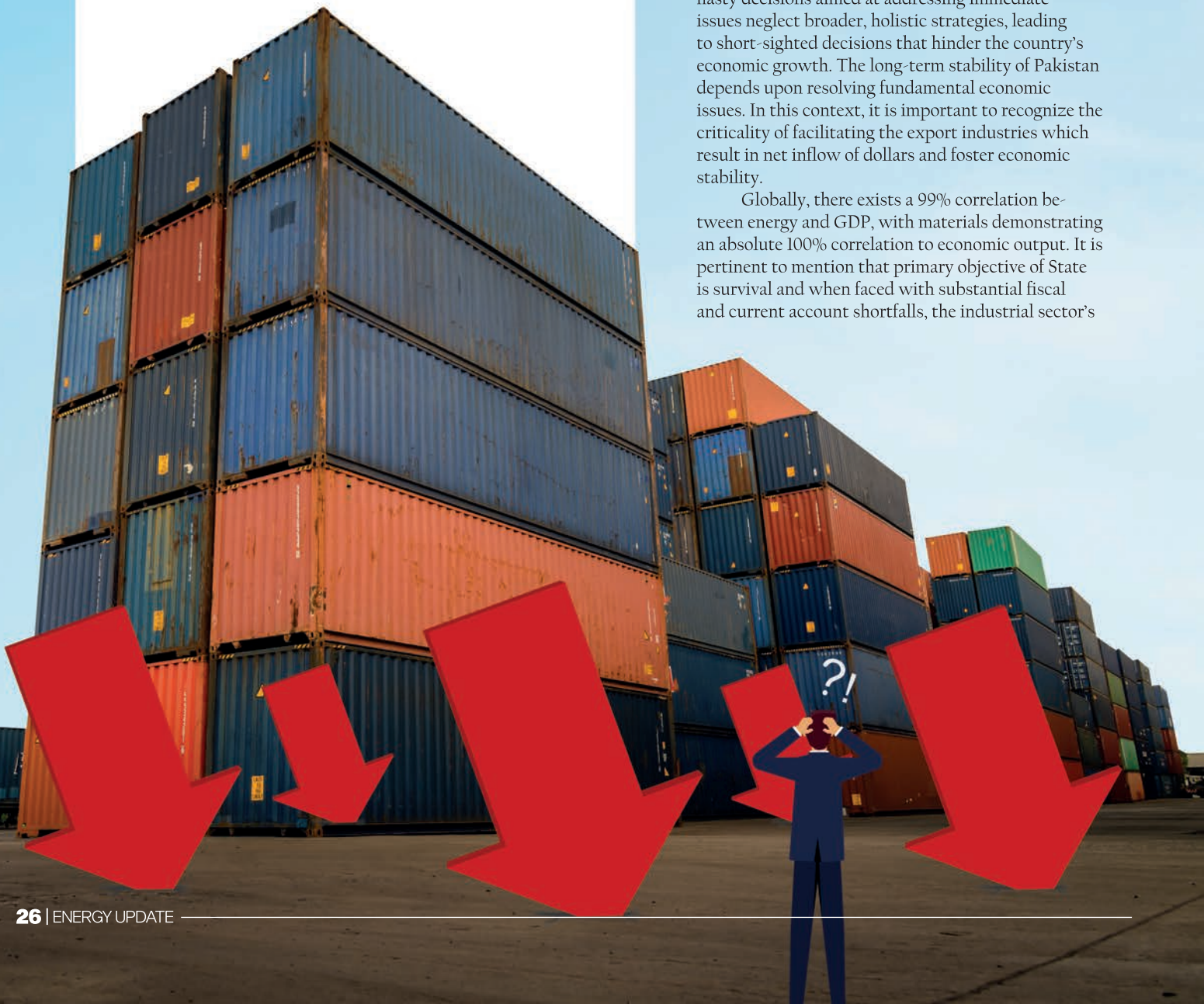
Economic recovery hamstrung by energy issues

Bid to boost exports amid poor governance in energy sector is not achievable

Shahid Sattar and Asim Riaz

Pakistan has been facing a host of challenges that have seriously impacted its development, growth, economic progress and political stability. Inconsistent policies, cross-subsidization, resource misallocation, underperforming agriculture, unemployment, untapped female workforce, and rising energy prices are pressing concerns for Pakistan's Industry. Often, hasty decisions aimed at addressing immediate issues neglect broader, holistic strategies, leading to short-sighted decisions that hinder the country's economic growth. The long-term stability of Pakistan depends upon resolving fundamental economic issues. In this context, it is important to recognize the criticality of facilitating the export industries which result in net inflow of dollars and foster economic stability.

Globally, there exists a 99% correlation between energy and GDP, with materials demonstrating an absolute 100% correlation to economic output. It is pertinent to mention that primary objective of State is survival and when faced with substantial fiscal and current account shortfalls, the industrial sector's



paramount importance becomes evident, as these deficits represent an existential threat to the nation.

Pakistan has a low literacy rate, sub-optimal agricultural yield and limited female participation in the workforce, stemming from deeply ingrained gender norms. Overcoming these issues necessitates long-term strategies. Hence, this article primarily focuses on 'energy' as one of the main challenges affecting Pakistan's export sector as it can be addressed swiftly.

Concerns over the reliability of vital energy sources have shaped public opinions and political agendas, eventually affecting broader security issues ranging from risks of armed conflicts to the viability, integrity and stability of political systems and national economies. In 2021, the Global Primary Energy Supply was 584 Exajoules (EJ), equivalent to about 100 billion barrels of Oil or 281 million barrels of oil per day (mbpd) out of which 100 mbpd from oil, 65 mbpd from gas, and 75 mbpd from coal, totaling 240 mbpd from fossil fuels whereas Wind and Solar only provide 5.5 mbpd. To grasp the gravity of our energy dependence, consider that a barrel of oil, currently priced at ninety dollars in the open market, equates to roughly 5 years of human labor. Global economic framework relies on an annual consumption of 100 billion barrel-equivalents of coal, oil, and natural gas, effectively introducing an additional 500 billion units of labor into our human system, complementing about five billion real human workers.

The economy, as measured by global GDP, increased exponentially in fossil-fuel era levels to a staggering \$105 trillion today. Accordingly, industrialized European nations have taken proactive measures to shield firms from surging energy prices and becoming uncompetitive, over EUR 600 billion between 2021-23, according to Bruegel (Sgaravatti et al., 2023).

Energy shifts human work to machines increasing productivity of a Nation. While this intricate relationship remains largely overlooked in Pakistan, with domestic consumers historically receiving top priority in allocation of resources such as Indigenous Gas. This approach, while aiming to provide affordable energy to households, has led to industrial consumers subsidizing domestic sector. Pakistan has historically favored prioritizing the household sector which consumes over 50% of the total electricity/gas in last 5 years; a consumptive demand with no contribution to economic growth and it is being cross-subsidized in two tiers. First, capacity payments, which have increased due to cooling load in component-wise tariff while industrial consumer demand is almost flat and could be met with limited installed capacity. Second, unjustified cross subsidies incorporated in the Industrial Tariff to cross-subsidize household cooling load encourages non-economic consumptive load

and inefficient use and allocation of energy resources.

The power sector in Pakistan is host to multifaceted and apparently insurmountable inefficiencies, including transmission, distribution losses, financial burden from Independent Power Producers' (IPPs') idle capacity payments (in FY 2021-22, out of 30.3 GW base load thermal power plants, 54% remain unutilised - Nepra). Capacity payment was only Rs 2 per kWh in FY 2013-14 to Rs 17 per kWh in FY 2023-24 before rebasing while base load remained 7-8 GW. With industrial base load of about 8 GW at present large seasonal and intra-day variations in grid electricity makes capacity surpluses very expensive. NTDC supplied 25.5 GW at mid-night on August 21, 2023, which implies about 21 GW to supply seasonal ventilation and ACs load (Cooling load) as reserve margin would be required for reliability of supply. Average generation cost per MW in a power system is around USD 2.5 million per MW. The associated T&D infrastructure cost is about USD 1.5 million per MW, which makes it total CAPEX USD 4 million per MW. Hence, 21,000 X 4 = USD 84 billion CAPEX was required to serve 17,500 MW additional cooling demand which has a very low utilization factor of 30%. To tackle these issues, proposed solutions involve reducing losses, restructuring debt, lowering industrial tariffs, improving transmission, optimizing capacity usage in winter months, and transitioning to local Thar coal for certain projects. Nonetheless, achieving a sustainable, durable and effective economic outlook requires a fundamental shift in management and strategic thinking of the energy sector.

There is lack of transparency in gas pricing mechanisms, political reluctance to implement reforms; and regulatory weaknesses have resulted in revenue, gas development surcharge shortfalls and a substantial circular debt problem in the gas sector. Consumption in households exceeds 1 billion cubic feet per day (bcfd) in both Suis when considering high Unaccounted-for Gas (UFG) in the feeder main of Gas Utilities. Domestic consumption in the SNGPL System Gas consumes staggering 61% of the annual intake at under \$1.5/MMBtu, requiring diversion of spot LNG cargoes in winters due to load profiling. It is an untargeted subsidy that primarily benefits the affluent urban population, which constitutes 80% of the demand and incurs a significantly higher cost of service. Expensive spot LNG purchases raise the weighted average price of LNG, a burden yet again borne by the industry.

Numerous challenges are faced in this supplying Piped Natural Gas (PNG) to domestic sector which includes limited carrying capacity, gap between connected and contractual load, ageing infrastructure, unplanned spaghetti network, leakages, measurement and billing errors coupled with the practices of gas load shedding and fluctuating demand/

load profiles—ranging from daily and weekly variations, notably on Fridays, to monthly and seasonal shifts—further aggravating the gas losses. Reported reduction in SNGPL's UFG appears inconsistent with decreasing Bulk to Retail ratio, raising questions about the accuracy of the figures. Ironically, SNGPL's reported UFG levels have reduced by 50%. Needless to say, this needs to be audited and verified by independent consultants.

Sui companies practicing price discrimination manipulate UFG levels by reallocating losses to lower-priced system gas units shifting them to the RLNG Industrial consumer, which results in increased energy costs for industries, damaging the economy even. Prioritizing the allocation of indigenous gas should first focus on maximizing its economic value addition, particularly considering export industries or to create a National Basket Price including RLNG. Government-imposed charges and taxes, inefficiencies and UFG on RLNG substantially raise its consumer cost, affecting affordability.

At present, cost of transporting LNG from Karachi to Lahore about 1200 km via the LNG Virtual Pipeline is \$3/MMBtu and within 200 km is \$0.5/MMBtu, while SNGPL and SS-GCL RLNG distribution through gas pipelines adds an about \$3.3/MMBtu in Delivered Ex-Ship (DES) price, a seemingly inconceivable difference in expense as globally gas pipelines are the most efficient way to transport energy through molecules. An independent consulting firm is required to report on high RLNG transportation costs and UFG issues, with the aim of rationalizing supply chain expenses and preventing undue additional costs from being passed on to the consumers.

Providing affordable and reliable energy to the industrial sector involves a complex interplay of various disciplines, including economics, politics, geopolitics, institutions, laws, and regulatory framework of a Country. Thus, how we choose to define our energy policies, rules and regulations are of paramount importance for our survival as a state as the world has scarce resources.

Pakistan's household gas consumption parallels that of the US and European countries, with cross-subsidies, borne by industries, benefiting the rich far more than the poor. Our economy hinges on the rationalization and transparent mechanism of energy pricing. Establishing a Gas Market will address untargeted subsidies, misallocation, and inflated demand in the long-term. However, for the short term, there's an urgent need to eliminate gas price anomalies as not only will it be instrumental in promoting exports, it will also be sending right price signals for conservation and optimal utilization of both indigenous and imported fuels in the domestic sector. Attempting to boost exports as envisaged by the government, while poor governance in the energy sector remains, is not achievable. ■



to be held in
Dubai from
30 Nov

UAE producing major fossil fuel may result in weak outcomes

Aron White, Joydeep Gupta

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COP28 is this year's crucial UN climate summit, the 28th Conference of the Parties (COP) to the UN Framework Convention on Climate Change (UNFCCC). The meeting will bring together the 198 signatories to the convention, which meet every year to discuss efforts to limit climate change and adapt to its effects. All UN member states plus the European Union are parties to the UNFCCC, according to a The Third Pole Report.

Since the Paris Agreement was adopted in 2015, climate COPs have focused on its implementation and progress towards its aims of restricting global warming to "well below 2°C" and "pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels".

COP28 will be held in Dubai, United Arab Emirates, from 30 November to 12 December 2023. The venue for the summit is Expo City Dubai, a huge site in the south of the city which was first built for the world's fair Expo 2020.

As announced in January, the COP28

president will be Sultan Ahmed Al Jaber, who is both the UAE's Minister of Industry and Advanced Technology, and CEO of the Abu Dhabi National Oil Company. This appointment has attracted criticism from environmental groups, with many seeing these roles as conflicting.

A major focus of discussions at COP28 will be the first Global Stocktake, which will conclude at the summit in Dubai. This two-year process has involved collecting information on parties' climate actions and identifying gaps, thereby assessing the overall implementation of the Paris Agreement. COP28 will adopt a resolution on what the stocktake shows, and the direction it indicates for climate action. This is expected to include fresh pledges from governments.

The Global Stocktake report, released in September, concluded that the world is not on track to meet the goals of the Paris Agreement. In early October, the UNFCCC Secretariat also released a synthesis report of the first Global Stocktake. In July 2023, the COP28 president declared that the summit would focus on four "paradigm shifts", concerning:

fast-tracking the transition away from fossil fuels; transforming climate finance arrangements; the role of people and nature in climate action; and ensuring inclusivity at the summit, including for women, Indigenous peoples, local communities, youth and subnational

actors.

How these aims can be achieved under a presidency that is heavily investing in fossil fuels and places severe restrictions on freedoms of speech and assembly remains a controversial sticking point.

One topic likely to attract attention at COP28 is progress on a fund for loss and damage, into which developed countries would pay to support developing countries in dealing with irrevocable losses caused by climate change. Agreement to establish such a fund was a hard-fought success for developing countries at last year's COP27 summit in Sharm El-Sheikh, Egypt, but its efficacy will depend on how it functions and how much money it can attract.

The agreement at COP27 was to establish the loss and damage fund within two years, so with this deadline still in the future, it may not be high on the agenda for all government negotiators. However, civil society groups and developing countries are likely to argue that progress on establishing the fund has been inadequate, and to call for greater urgency and redoubled efforts.

Many environmental groups and commentators have expressed concern that COP28 being hosted by the United Arab Emirates – a major fossil fuel producer – could result in weak outcomes, at a point when efforts to curb

fossil fuel use need to be drastically increased if limiting warming to within 2C is to remain possible.

The appointment of Sultan Al Jaber as COP28 president, despite the fact he is the CEO of one of the world's largest oil companies and one which continues to invest heavily in extraction of the fossil fuel, has come under particular criticism. Greenpeace said it was "deeply alarmed" by the appointment, stating, "There is no place for the fossil fuel industry in the global climate negotiations." Christian Aid said that "the conflict of interest is obvious", and that "having an oil baron running the global climate talks is like putting an anti-vax conspiracy theorist in charge of the response to Covid-19."

Al Jaber, for his part, has pitched himself as a figure who can keep fossil fuel companies at the table in negotiating a "phase down" in oil and gas use – language that remains contentious, with many countries and campaigners pushing for a firmer deadline for the "phase out" of fossil fuels.

Civil society groups from around the world have also raised concerns over the UAE's restrictive laws around protest and freedom of expression, especially given that large public demonstrations are typically held in the host city during climate COPs. In early October, the United Kingdom sought assurances from the UAE at the United Nations over how the summit host will ensure freedom of expression and assembly around COP28.

What outcomes will India and other countries in South Asia be looking for at COP28?

India and other countries in South Asia, as well as developing countries the world over, will be looking principally for one thing at COP28: money, and lots of it.

The issue of financial assistance from those most responsible for climate change to support those facing the worst impacts and highest adaptation costs has dogged climate negotiations for almost two decades. Developed countries have consistently failed to match the pledge made in 2009 to provide USD 100 billion per year in climate finance to support climate action in developing countries – and even this is far below the sum poorer countries will need to decarbonise their economies and adapt to the impacts of climate change, now estimated to be in the trillions of dollars per year.

The Summit for a New Global Financing Pact, held in Paris in June 2023, brought to the fore issues such as developing countries paying more to service their debts than they receive as climate finance. Developing countries demanded a restructuring of the World Bank and its affiliates; more concessional and grant-based financing; and debt cancellations for the least developed countries. These issues are almost certain to come up again at COP28. ■

Fossil fuel use issue remains largely unsolved



Sajid Mehmood Qazi

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The world stands at a crossroads, facing a dilemma of unparalleled proportions: the consumption of fossil fuels. In this struggle, two opposing forces are pushing our planet closer to the brink of catastrophe. On one side, affluent nations with the means to adopt clean energy alternatives continue to produce and consume fossil fuels, despite being acutely aware of the dire consequences of their actions.

Meanwhile, developing countries, lacking the resources to transition to renewable energy, are compelled to embrace fossil fuels for economic survival. This paradox has created a situation where the entire planet is hurtling towards extinction, largely due to uncontrolled fossil fuel production and consumption.

The inaction of resource-rich nations

Ironically, many of the world's affluent nations, including China, seem apathetic to the destruction wrought by fossil fuel consumption. In fact, trillions of dollars in fossil fuel subsidies continue to prop up this industry worldwide. These subsidies range from tax breaks on consumption such as reduced sales taxes on residential natural gas, to production incentives, such as tax breaks for oil exploration.

While nations pledge to reduce emissions, the core issue of fossil fuel consumption remains largely unaddressed. As the world anticipates COP 28, hosted by the UAE, a

major energy player, skepticism surrounds the potential outcomes given the host country's vested interests.

The plight of developing nations: Pakistan's predicament

For countries like Pakistan, the dilemma is painfully real. They lack the financial resources to transition away from fossil fuels, even if they desire to do so. These nations find themselves caught in a vice grip of economic strain due to high energy prices and distorted domestic energy policies. Balancing the need for energy security and economic stability, they are forced to maintain significant oil and gas infrastructure, perpetuating a vicious cycle.

The fact that the world's two biggest emitters of carbon did not feel it appropriate to send in their top tier leadership to the world body exhibited their double standards, and the UN chief by leading from the front has called on all serious thinkers and practical solution wielders to come forward to make it a success.

Conclusion

The dilemma of our planet, defined by the paradoxical consumption of fossil fuels by both the resource-rich industrialized world and the resource-poor developing nations, is pushing humanity towards the precipice of extinction. It is imperative that we recognize the urgency of the situation and collectively work towards a sustainable future.

Fostering global cooperation, investing in clean energy technologies, and transitioning away from fossil fuels are the critical steps needed to avert the catastrophic consequences of our actions. In the face of the looming catastrophe posed by climate change, it's crucial to heed the warnings and take decisive action. ■

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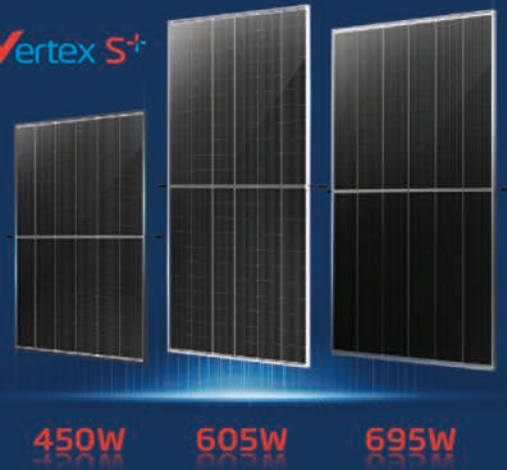


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MMP TACKLED SEVERAL CHALLENGES TO BECOME A LEADING INDUSTRY ENTITY

PEC should focus on effective regulation rather than acting as a welfare organization, says

Waseem Nazir

Engr. Nadeem Ashraf

“Over the years, I and MMP, have experienced several challenges and obstacles that we had to overcome in order to become a leading industry entity. For example, managing public sector clients and maintaining cash flow posed substantial hurdles in the consultancy realm. Public sector projects often entail complex bureaucratic processes and rigorous scrutiny. However, we tackled these challenges strategically, tailoring our approaches to suit the unique environment, said Waseem Nazir, Managing Director, MM Pakistan (MMP) in an interview with Energy Update.

INTRODUCTION

A distinguished professional in Pakistan's development landscape, Waseem Nazir, Managing Director, MM Pakistan (MMP), has left an indelible mark on the nation's growth and advancement.

As the Managing Director MMP, he has played a pivotal role in steering and realizing hundreds of transformative projects across the country. Serving as a trusted advisor to both public and private organizations, Mr Nazir has collaborated with esteemed international institu-

Waseem Nazir
MD MM Pakistan

tions including the Asian Development Bank, World Bank, and Islamic Development Bank. His substantial contributions extend toward policy-making, capacity-building, and institutional enhancement, reflecting his dedication to propelling the nation forward.

Q: Could you share with our readers your journey in the field of engineering consultancy and how your experiences have shaped your role as the Managing Director MMP?

Ans: My journey in the realm of practicing engineering, started at the University of Engineering and Technology (UET), Lahore. Fuelled by an entrepreneurial spirit, I co-founded a construction business during my academic years, getting an opportunity to explore infrastructure and construction projects across Pakistan.

After graduating, I worked in the public sector for nearly six years, gaining insights into project management, development, and operation dynamics within the Irrigation Department, and Water and Sanitation Agency (WASA).

In my late 20s, I pursued a Master's in Civil Engineering in the UK, broadening my horizons and work ethic. My interest in consultancy was kindled during my academic coursework at college, where I first interacted with the consultancy, Sir M MacDonald & Partners.

This led to my professional association with Sir M MacDonald & Partners (which merged with Mott, Hay and Anderson to become Mott MacDonald) while I was completing my MBA. This path eventually led to a consultancy offer from Mott Macdonald, where I proposed to lead its Pakistan chapter.

The late 1980s and early 1990s were a period of crucial learning; I honed my skills in proposal preparation and project management, securing my first independent consultancy project, a World Bank-funded study on Sindh Riverine Areas. This success boosted my confidence and self-belief.

Over the years, I've overcome a myriad of challenges, fuelled by my desire to excel and succeed from achieving distinctions at Southampton University to becoming the youngest Managing Director in the local market during my early 30s. This journey has shaped my ethos of conquering challenges and excelling in every endeavor I set my mind to.

Q: In the diverse landscape of engineering consultancy, what significant challenges have you encountered, and how did you overcome them to position MMP as a leading entity in the industry?

Ans: Over the years, I and MMP, have experienced several challenges and obstacles that we had to overcome in order to become a leading industry entity. For example, managing public sector clients and maintaining cash flow posed

substantial hurdles in the consultancy realm. Public sector projects often entail complex bureaucratic processes and rigorous scrutiny. However, we tackled these challenges strategically, tailoring our approaches to suit the unique environment. While fundamental values and ethics remained unwavering, strategies and tactics were adjusted to align with the specific demands of public sector projects.

The most pressing challenge that we face is to ensure consistent employment for our workforce. Since the nature of our business is such that we deliver time-bound projects, it is not uncommon for some of our employees to not be engaged in work/projects. We overcome this challenge by diversifying our focus across different sectors so that we can sustain employment even during sectoral downturns or intervals between projects.

Throughout this journey, the three Ps - Passion, Perseverance, and Patience - have been guiding principles for me and my company. Passion drove our commitment to projects, perseverance instilled a determination to overcome obstacles, and patience allowed for strategic navigation in this ever-evolving field. These principles have propelled MMP to its current position as a reputable and leading entity in the engineering consultancy landscape.

Q: How can the Pakistan Engineering Council (PEC) play a pivotal role in advancing the engineering and development sectors, and how would this benefit the industry at large?

Ans: The Pakistan Engineering Council (PEC) functions as a regulatory body, and to maximize its impact, it should focus on effective regulation rather than acting as a welfare organization. A conviction to uphold this role is essential. Through stringent regulation, PEC can enhance the quality of education, resulting in better-trained engineers equipped to handle the multidisciplinary nature of modern projects.

Tailoring university courses to meet specific industry demands is a key area where PEC can contribute significantly. PEC should develop a comprehensive 10-year plan to align the accreditation of universities with the country's and regions' engineering needs. This demand-driven approach will be critical in developing an effective PEC business plan.

Soft skills and a sound understanding of market demand and supply for engineers should also be integrated into the curriculum. By addressing these areas, PEC can ensure that engineers are not only technically proficient but also possess the necessary soft skills to excel in a multidimensional work environment.

Q: In a rapidly evolving technological landscape, how does MMP encourage the integration of cutting-edge technologies to enhance efficiency, sustainability, and innovation in the consulting industry in Pakistan?

Ans: In an industry where innovations optimize project management and facilitate collaboration, we stand out. Few, if any, local Pakistani companies have embraced technology at the scale we have. However, fostering a culture of change is a fundamental approach to embracing the ever-evolving technological landscape. This change is not instantaneous but a gradual transformation ingrained in our organization's ethos.

Our journey into integrating cutting-edge technologies began with the MMP intranet several years ago, unifying communication within the organization. Since then we have incorporated a comprehensive HRIS system, a Knowledge and Innovation Center, and have collaborated with Google Workspace as our technology partner. Utilizing Google's tools and capabilities, MMP has been able to develop robust internal systems and processes aimed at improving productivity and operational efficiency. Notably, our partnership with Google as a technology ally underscores our dedication to adopting innovative technologies, placing us at the forefront of the industry.

Google has even recognized our strides in this direction, featuring a customer case study on our company, available on their website. We firmly believe that by embracing innovation and technology, we equip ourselves to stay competitive and effectively meet the evolving needs of our clients.

Q: How can organizations actively contribute to the development and mentorship of young engineers, and what steps do you believe are essential in ensuring their welfare and growth within the industry?

Ans: In my opinion, mentorship stands as a cornerstone, where seasoned professionals share their knowledge and experiences. This mentorship approach ensures a seamless transfer of knowledge and insights, which is crucial for the growth of young engineers. The beauty of mentorship is that it does not need formal; it can organically become part of a company's culture.

I also recognize the equally critical significance of structured training programs. These initiatives, with their focused modules and experiential learning, instill a sense of ownership and responsibility among employees, propelling their growth and development. By honing their technical expertise and fostering critical soft skills, these programs equip our engineers to navigate the dynamic landscape of engineering consultancy.

At MMP, we see it as our ethical obligation to nurture competent engineers. We believe that by providing mentorship and training, anchored in our core values of PRIDE (Professionalism, Respect, Integrity, Drive, and Excellence), we can lay a strong foundation for developing engineers, fostering a symbiotic relationship that benefits both our organization and society. ■

LONGi

embracing BC Solar Cell Technology

A step to harness Pakistan's massive clean energy potential

EU Report

Pakistan should adopt the fast-track mode for the introduction of modern technologies for harnessing its full potential of solar energy. The power consumers in the industrial, commercial, and domestic sectors should get easy access to the latest equipment for maximum utilization of solar energy abundantly available in the country.

No doubt, the geographical, weather, and climatic conditions are most suitable in most parts of our country around the year for the availability of solar power in abundance. Just the right combination of government support, long-term policies, investment, availability of trained manpower, and the latest technology is required to fully utilize this massive clean energy resource.

The recent countrywide agitation against excess electricity bills also shows that the government has to act fast to promote the usage of renewable sources of energy as an alternative to the expensive imported fossil fuels for power generation.

The latest estimates show that Pakistan has the potential to produce up to 2,900 GW of clean energy alone on the basis of solar power. Despite such a huge potential for renewable energy generation, the country hasn't been producing more than 3 GW based on both solar and wind power. At present, solar power accounts for only two per cent of Pakistan's national energy mix, so it needs to be increased to up to 19 per cent in less than a decade as per the plan of the government to promote renewable sources of energy in the country.

The development schemes aimed at using rooftops of public sector buildings for installing solar panels, and provision of solar

systems at subsidized rates to off-grid homes in rural areas, and building utility-scale solar park projects near urban centres should be implemented at an accelerated pace to meet this target.

No doubt, LONGi is the ace renewable energy sector company, which stands shoulder-to-shoulder with the energy sector authorities in Pakistan to support their efforts to promote the usage of clean solar energy resources both in urban and rural areas. LONGi has always taken the lead among its competitors in the market in introducing the latest technology for helping out domestic, commercial, and industrial consumers who are switching to solar power for uninterrupted electricity at the cheapest rates for powering their homes and businesses without increasing their carbon footprint. The state, federal, and provincial

authorities who deal with the Pakistani energy sector frequently appreciate the LONGi's active role in introducing state-of-the-art technologies and equipment for the consumers in the Pakistani renewable energy market who opt for solar power. Independent analysts and experts associated with the Pakistani energy sector have also acknowledged the positive role of LONGi in introducing quality solar power equipment in Pakistan. No doubt, the recent announcement by the LONGi to adopt the BC (Back Contact) Solar Cell Technology is a step in the right direction in this regard.

The National Energy Administration of China also recently predicted that BC-type batteries will soon dominate the market, becoming the go-to choice for crystalline silicon batteries. With roots dating back to 2004, BC technology has been on a steady rise, and



major players in the global renewable energy market have been adopting it at a fast pace. As this latest renewable energy technology gains maturity, LONGi looks at a potential production capacity of over 50GW within just two years. When it comes to BC tech, the combined PERC and TOPCon (HPBC) route offers the highest cost-effectiveness. But that's not all as BC technology promises even greater efficiency and outstanding power generation performance. Plus, its breakthroughs in aesthetics make it a seamless fit for various applications in the diverse world of distributed photovoltaics for end-consumers in the power sector. With BC battery technology, module products can be customized in a spectrum of colours, vastly expanding the application scenarios for photovoltaic components. The renewable energy sector analysts believe that BC tech, with its efficient conversion and sleek design, is set to lead the way for the future of photovoltaic batteries

“Over the next 5-6 years, the BC solar cells, known for their high efficiency and aesthetics are set to swiftly become the leading choice in the photovoltaic industry. With a growing market share, they are poised to be the absolute mainstream technology of crystalline silicon solar cells. Therefore, LONGi will adopt the BC solar cell technology route in a substantial portion of its product portfolio.” This was stated by Zhong Baoshen, Chairman of LONGi, while recently unveiling the company's innovation direction in solar cell technology during the company's 2023 H1 performance briefing.

LONGi has developed a proprietary HPBC (Hybrid Passivated Back Contact) solar cell, which is an alternative BC technology featuring free front shading by metal contacts, leading to improvement in photon collection and therefore higher conversion efficiency. This technology is widely recognized as a revolutionary invention in the post-Passivated Emitter and Rear Contact (PERC) era. It was developed over the years by LONGi's R&D team and has now achieved commercial value.

LONGi's HPBC solar cell offers a benchmark conversion efficiency in mass production of over 25 per cent. With the aid of optimizing device structural design, the HPBC solar cell technology significantly enhances light absorption and photovoltaic conversion capabilities, resulting in significantly improved module output power. Based on this technology, the module product Hi-MO 6 was released on November 2nd 2022, with an average module conversion efficiency in

mass production up to 23.3 per cent.

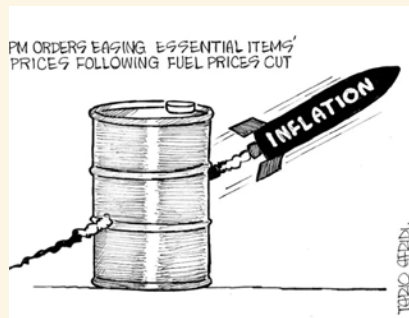
In 2023 H1, LONGi started industrial-scale production of HPBC solar cells and has now achieved its target yield and efficiency. Mr. Zhong Baoshen disclosed that by the end of 2023, the 30GW HPBC production capacity expanded by the company will be fully operational. Furthermore, the majority of LONGi's production facilities will adopt the BC solar cell technology roadmap in the future.

“But the challenge of BC solar cell technology is low yield and cost-effectiveness. This time, LONGi announced that, by technology upgrading, the company has successfully improved the mass production yield, modified the manufacturing processes, and significantly reduced the cost, thereby facilitating the large-scale promotion of BC solar cell technology,” said Professor Shen Wenzhong, the Secretary General of Shanghai Solar Energy Society, the Director of the Institute of Solar Energy at Shanghai Jiao Tong University.

LONGi views the space of efficiency improvement as its top priority in selecting a technology roadmap. Regarding the BC solar cell technology, the company firmly believes that it offers greater room for successive efficiency enhancement than other technologies available in the market.

Additionally, thanks to the improvement in aesthetics, the BC products can be integrated into different application scenarios, particularly into the thriving distributed photovoltaic market for domestic, industrial, and commercial consumers. To meet various demands from diverse distributed photovoltaic applications, the BC modules can be fabricated in different colours.

LONGi has been heavily investing in R&D with consistency. From 2012 to 2023 H1, the company has a cumulative R&D investment exceeding CNY 20 billion, the highest in the industry. In 2023 H1 alone, LONGi invested CNY 3.42 billion in R&D, accounting for 5.29% of its overall operating income. Until June 30th 2023, the company has obtained 2,525 approved patents of different types. ■



EVENT REPORT

Illuminating Future: REEE-II Programme's Milestone Ceremony

EU Report

In a significant stride towards a sustainable energy future, the NED Academy at NED University of Engineering and Technology hosted the award distribution and closing ceremony for the advanced level 3/4 training in solar PV competency, a pivotal initiative under the Renewable Energy and Energy Efficiency Programme (REEE-II).

This collaborative effort between GIZ (Deutsche Gesellschaft für Internationale Zusammenarbeit), AEDB (Alternative Energy Development Board), and now PPIB (Private Power and Infrastructure Board) underscores Pakistan's commitment to advancing renewable energy.

The ceremony, held on Friday, October 13, 2023, welcomed Mr. Shah Jahan Mirza, the distinguished Managing Director of PPIB, Ministry of Energy, Government of Pakistan, as the esteemed Guest of Honour. His presence not only elevated the occasion but also symbolized the collective determination to foster a Renewable Energy Transition in Pakistan.

A testament to the program's success lies in the completion of 10 batches, where 258 professionals from AEDB registered Solar Companies underwent rigorous training, emerging as competent contributors to the renewable energy landscape. The Karachi center, a bastion of excellence, saw a noteworthy surge in female participation, a testament to the program's inclusive impact.

Headed by Team Lead, Mr. Gerd Schober and guided by Engr. Aysha Ahmed, designated as the Focal Person for the Karachi center by INTEGRATION Germany under the REEE-II Programme, and led by the dynamic management of NED Academy, helmed by Prof. Dr. Muhammad Tufail, Pro Vice-Chancellor of NED University, and Prof. Dr. Bilal Zahid, Director-General of NED Academy, this ceremony not only marks the end of an intensive training period but also signals the beginning of a new era in solar competency for Pakistan.

The trainings, conducted at the Center of Advanced Studies in Renewable Energy, headed by Dr. Mohsin Aman, were held in a state-of-the-art lab—a one-of-its-kind facility. Mr. Shah Jahan Mirza, in his role as the Guest of Honour, later visited the lab and expressed appreciation for the quality and advanced capabilities it brings to the training program.

As we celebrate the achievements of these skilled professionals, the REEE-II Programme continues to be a catalyst for sustainable energy development, paving the way for a brighter, greener future for Pakistan.

Anatomy of Afghan imports

Afghanistan has been an economic-foreign affairs issue for Pakistan

Syed Shabbar Zaidi



Writer is Former
Chairman FBR

That Afghanistan has been an economic-foreign affairs issue for Pakistan since 1947 is a fact. In the past, especially since the Soviet invasion of Afghanistan in 1979, Pakistan continues to sacrifice its economic interests at the geo-political considerations.

The collateral losses of this misadventure are beyond imagination. The discussion in the following paragraphs, however, is limited to the abuse of Afghan Transit Trade and the necessary corrective actions taken by the caretaker government on this matter.

As per the reported position the Afghan trade data is as under:

Afghanistan had a total export of 870,488.51 in thousands of US\$ and total imports of 8,568,013.88 in thousands of US\$ leading to a negative trade balance of -7,697,525.36 in thousands of US\$. The trade growth is 31.51% compared to a world growth of -1.73%.

Two questions are arising from this primary data. The first pertains to the identification of the sources available to the Afghanistan government to finance these imports; and second, whether or not these imports are actually wholly consumed within Afghanistan. In fact, both the questions are interrelated.

The growth in Afghan trade of 31.5% as against a decrease of 1.73% on the global level reflects that things are not in order. The Afghans and their government in Kabul, which is not recognized by the world at large, are conducting trade through Pakistan to sustain their economic existence. The increase in imports is actually

an economic device to manage the Afghan economy. Annually, Afghanistan needs USD 8.5 billion for its imports. But this landlocked country has only USD 1 billion of exports. The remaining USD 7.5 to 8 billion is required to be paid to the importers.

The discussion in this article is about the modes of payment or how the prices of imports are settled. A part of the sum, estimated at around 50%, i.e., USD 4 billion, is acquired from the currency market in Pakistan that results in increasing the demand for USD in Pakistan.

This puts immense pressure on our reserves as it promotes hundi/havala and results in rupee depreciation. The goods so imported are used and consumed in Afghanistan by its residents and payment is made in the Afghan currency. The Afghan currency is converted into PKR and is used to buy USD from Peshawar and Quetta markets.

In that process, the USD in Pakistan legally available with the Exchange Companies is effectively used to finance the Afghanistan imports and the rupee weakens. Now, that this currency business has been administratively handled, there is a stability in the value of Pakistani rupee. When we juxtapose the abuse of Afghan transit trade in this scenario it completes the picture. It becomes apparent that out of USD 6 to 8 billion imports effectively USD 4 billion are for Pakistan.

These goods are generally imported by 'Benami' Afghan importers. For all practical purposes it is an import by a Pakistani importer. They may be 'Black Tea' importers using an 'imposter' with an address somewhere near Kabul or Jalalabad. The rest is done by the Pakistani entity behind the veil of an Afghani importer created for import under the transit trade.

Since there cannot be any outward remittance from Pakistan for such imports, therefore the funds are arranged through surrogates outside Pakistan financed

by havala from Pakistan. In addition to havala USDs are also acquired from the open market. In short, Pakistan's availability of USD is depleted by USD 8 billion.

This mechanism is explained in the chart.

In simple words, the whole USD 8 billion is the undocumented cash untaxed economy of Pakistan. It amounts to around 2.5 trillion rupees cash in the market. This explains the increase in cash in circulation and increase in trade in Afghanistan after the Taliban takeover.

From another angle it can be clearly stated that the Taliban government in Afghanistan is economically sustaining itself only for the reasons that Pakistan is feeding the Afghans from its hard earned US Dollars.

This is a rather simplistic but realistic account of what is being done. If both of these abuses are checked then there is no reason that rupee should be above 240-250 to one USD. It would not be unrealistic to expect the rupee around this level by March 2024 if the present administrative action and policy continue.

The question before army chief General Asim Munir, SIFC and the Caretaker setup is whether or not the abuse of Afghan Transit Trade can be allowed under any circumstances. A strong and clear answer in this regard is in the negative. This circus has to be stopped.

The question why there is such silence has an easy answer. The traders involved in the abuse of Afghan transit trade are now fully exposed before the government and the industrial sector alike. If this country is to economically survive then the actions referred above need to be continued on a permanent basis. ■



Circular history of power sector

Stupendous amount of Rs 17 billion has been recovered from the Rs 2.5 trillion of receivables

Engr Tahir Basharat Cheema



The Writer is Former MD PEPCO

The presently beleaguered Power Sector is being assailed by its generalist governors. Conveniently forgetting that they are the problem, they are offering solutions by a dozen now – in all probability, retrieved from the dustbins of the yore. Unfortunately, the dustbins have seen these solutions being consigned to the dark and dreary cellars once too many.

Earlier in 1984, when the seeds of IPPs (independent power producers), etc., were initially sown the government required WAPDA to implement a campaign to arrest illegal abstraction of energy (power) in the country.

This campaign quickly petered-off with the things reverting to the original position. Thereafter, in 1997, the then government decided to correct things by outright handing over of Wapda's management to the Pakistan Army.

The mission was jump-started by inducting a plethora of red tabs, hundreds of officers and 42,000 troops in all. So much was the fright, that within days, the national electricity demand fell by 1000MW – a hefty fall by 16% of the total generation then. Both losses and recovery improved but unfortunately retracted once again to the old levels in the next 2-3 years' time. The one-star generals holding the reins as DISCO heads too were gone by early 2004. As a consequence of and collateral damage, a large number of the cream of professionals left Wapda for greener pastures.

The situation improved to see the best between the years 2009-12, when again in 2014, the then government started an anti-theft and recovery campaign. It was spear-headed by the civil bureaucracy and assisted by the FIA (federal investigation agency).

The divisional commissioners, DIGs of

police and others claimed ascendency and made their campaign the top news of the country. NAB (National Accountability Bureau) too was inducted to deal with the defaulters.

Presently, a new campaign has been started – probably, by retrieving the same dust-ridden files of 2014. This time around, the media had no problem with regurgitating the earlier headlines and stories – just by changing the date lines. The Power Division's (PD's) style and propagation, this time, are a little different. The nuggets that cap all are that a stupendous amount of Rs 17 billion has been recovered from the Rs 2.5 trillion of receivables and Rs 500 billion of theft and that the PD could not understand as to why bills collection in Swat was good in comparison to the neighboring districts. Probably, a sociology study would be undertaken soon to understand the quirks.

Not to be left to minuscule gains – and that too at a big price of further lowering of customer care by DISCOs, it is reported that NAB is going to be once again tasked to make recoveries. This leads us to understand that the fished-out file is not fully used-up as yet and the part where NAB was required by law not to indulge in recovery etc. (as it did not fall into its job charter etc.) has as yet to unfold.

In addition, one DMG (BPS-17) officer in each DISCO has been posted, ostensibly to oversee or report on the ongoing campaign. The provincial governments would underwrite their pay & allowances, with the distribution companies tasked to provide lodging and transport. It is something like the earlier placement of subalterns in DISCO offices in 1998 onwards. What would these novices do; it all begs an answer.

In order to explain the issue, it is seen that during this scribe's first field posting in South Punjab during 1974-75, the electricity sub-division (a full civil district) had nearly 300 staff to manage and with sub offices each to control electricity operations in three tehsils of that particular District. On the other hand, a typical Disco has over 25,000 personnel and LESCO has a yearly revenue base of over Rs 700 billion. Procure-

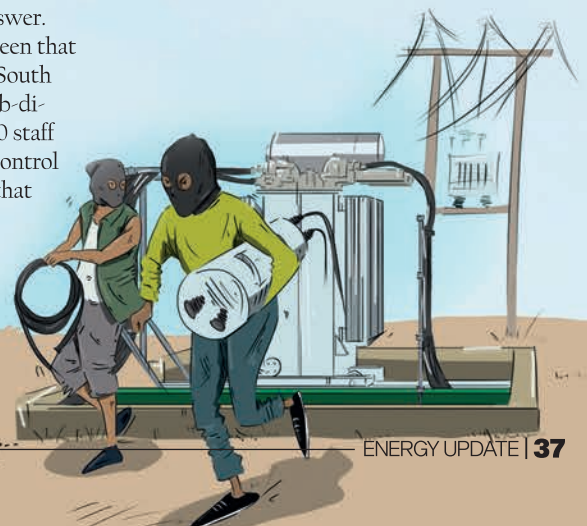
ment and contracting too is of the same order of magnitude. This kind of control is not possible for anyone, but for the experienced cadre from the sector alone.

Lately, the union in Quetta protested against the supposed meritless changes in Qesco and has also vowed to protest at the national level. Even if it is stifled at the onset, such situations should be avoided.

Why is it that proper lessons are not learnt? Why does history have to repeat itself? Why is it that the non-professional mind fortifies failures? Why do real issues get brushed aside at always? It has to be understood that the issues are the stumbling policies in vogue, non-professional governance, the extreme wayward management through juvenile political BoDs, temporary CEOs, top-heavy Disco structures, untrained middle management and the lack of out-sourcing against the 60,000 or so vacancies in all of the PSCEs (Power Sector Corporatized Entities).

Furthermore, as the current campaign / thrust is alien to DISCO employees and being set in motion without their full acceptance or from within, the heart and soul is far away. That it is further aggravated by the failed writ of the State in huge swathes of the country is another serious aspect. It was only recently that the Kasur District in the territorial jurisdiction of LESCO was declared as the top area of theft in the Punjab. It was said to be akin to the erstwhile tribal districts of FATA, while the Commissioner Lahore Division himself presides over the anti-theft campaign in this very area. Incidentally, the same office-holders need to assure full writ of the state in their areas of controls, which would automatically improve all and specially the power sector operations.

The prognosis thus is that the present campaign, though most needed but powered by outsiders, has elements of failure – and this is what history tells us. And if at all, its sustenance and longevity is to be assured, then the missing requirements have to be fulfilled on priority. The writer is B.E. (Elect), Dip. Pub. Admn, Dip. Bus. Admn., Cert. Statistical Sciences, M.B.A. and former MD PEPCO, former President I.E.E.E.P. Former Caretaker President I.E.E.E.P. ■



DISCOS in Transition

UNPACKING

ADVANTAGES DISADVANTAGES

OF PRIVATIZATION

Dr Basharat Hasan Bashir

Writer is Alternative Energy & Climate Change (Mitigation and Adaptation) Specialist

Pakistan's energy sector faces a colossal challenge - the circular debt crisis, estimated to be between Rs 3 to 3.5 trillion. To address this financial burden and enhance the sector's efficiency, the government of Pakistan is contemplating a significant policy shift: the privatization of power distribution companies (DISCOs). This paper explores key findings, implications, and future prospects related to this policy change, as well as conducting a SWOT analysis comparing privatization with the alternative option of granting DISCOs to provincial authorities.

Privatizing DISCOs The government's decision to privatize DISCOs represents a pivotal shift in Pakistan's approach to managing these critical entities. Initially, the plan was to transfer control of DISCOs to provincial authorities, but the new direction is to engage the private sector through long-term contracts.

Retaining Government Ownership Crucially, the government intends to maintain ownership of DISCOs, even as private entities take on operational roles. This hybrid model aims to balance the benefits of privatization with the need for continued government oversight and asset ownership.

Efficiency Gains Privatization can potentially bring efficiency gains to the energy sector. By introducing market competition and private

sector expertise, losses may be reduced, and service delivery improved. However, these benefits depend on effective regulatory oversight and a transparent tariff structure.

The future of Pakistan's energy sector is a pivotal concern. If the privatization of DISCOs is executed transparently and with robust regulatory oversight, it has the potential to create a more efficient, reliable, and financially stable energy sector. This includes enhanced service quality, infrastructure development, and competitive markets. However, challenges like regulatory oversight, social implications, and infrastructure investment should not be underestimated.

Opportunities

Privatization, when well-executed, can significantly improve the efficiency and performance of DISCOs, including reduced losses and better customer satisfaction. Private sector involvement can attract the necessary investment for modernizing the energy infrastructure, including grid reliability and advanced metering systems.

Fostering competition within the energy sector can stimulate innovation and cost-effective solutions, benefiting consumers. Successful privatization can contribute to resolving the circular debt issue, which has long plagued Pakistan's energy sector.

Challenges

Effective regulatory oversight is essential to ensure that privatized DISCOs operate in the public interest and avoid monopolistic behavior.

Workforce reductions and changes in service delivery due to privatization may have

significant social and political repercussions. Ensuring a fair transition for employees and maintaining service quality is paramount.

While privatization can attract investment, the private sector must be encouraged to invest in infrastructure development and maintenance through regulatory mechanisms. **Political Considerations:** The political landscape can significantly impact the energy sector's direction, introducing policy instability or uncertainty. Balancing reasonable tariffs with private sector profit motives is a complex task, as maintaining affordable energy for consumers is critical. Privatization of DISCOs vs. Giving DISCOs to Provinces

Privatization of DISCOs**Strengths**

Privatization can lead to reduced losses and improved service delivery, enhancing efficiency. Private sector involvement can introduce innovative practices to power distribution, improving overall performance. Private companies may invest in infrastructure, leading to better service quality.

Privatization can alleviate the government's financial burden, allowing allocation of resources to other critical areas. Introducing competition can encourage innovation and cost reduction.

Weaknesses

Privatization may result in higher tariffs, impacting consumers. Workforce reductions can affect employees and their communities, leading to social challenges. Effective regulatory oversight is essential to ensure that private companies act in the public interest. Private entities may require government incentives or subsidies to manage underperforming DISCOs.

Opportunities

Privatization can enhance service quality and reliability, benefiting consumers. It may address the circular debt issue, making the energy sector more financially stable. Private entities can bring innovation to the sector, leading to consumer benefits. Competition and private sector expertise can lead to cost savings.



Threats: Higher tariffs may lead to public dissatisfaction and affordability issues. Workforce reductions can result in social unrest and unemployment challenges. Weak regulatory oversight can lead to abuse by private companies. Transitioning to private ownership can temporarily disrupt services. Privatization decisions can face political opposition, leading to policy instability.

Handing DISCOs to Provinces

Strengths

Government Control: Provinces can maintain control over the DISCOs, ensuring alignment with regional priorities. Provincial ownership may help address local needs and create employment opportunities. Provinces are familiar with local dynamics and can tailor services accordingly.

Weaknesses

Provincial ownership may lead to political interference, affecting efficiency. Government-owned entities may suffer from operational inefficiencies. Provinces may struggle to fund and invest in infrastructure and service improvements.

Opportunities

Local Empowerment: Provincial ownership can empower local communities and effectively address their needs. Provinces can involve local communities in decision-making processes. Provinces can prioritize social welfare aspects over profits.

Threats

Provincial ownership may not resolve the circular debt issue, leading to financial instability. Government-run DISCOs may continue to suffer from inefficiencies, affecting service quality. Government-run entities may struggle to introduce innovation and modern practices. Provinces may lack incentives for efficiency and cost reduction.

Conclusion

In conclusion, Pakistan's energy sector is at a crossroads, with significant implications associated with the decision regarding the future of DISCOs. Privatization offers potential efficiency gains, financial sustainability, and innovation, but also raises concerns about tariffs and job losses. Handing DISCOs to provinces may empower local communities but could result in inefficiencies and funding challenges. ■

BILLS THREAT

Design thinking for rising electricity tariff

The surge in electricity tariffs has forced consumers to struggle against rising monthly bills for their security

Saleha Qureshi

Writer is a research associate at Sustainable Development Policy Institute

In recent times, a surge in electricity tariffs has left consumers struggling with rising monthly bills, causing financial insecurity. The average consumer tariff, including taxes and surcharges, has soared to alarming heights.

The price hike has further compounded the financial strain on households already wrestling with the burdens of inflation and economic challenges. In these chaotic times, innovative solutions are paramount to alleviate the consumers' suffering.

The concept of budget billing is based on annual electricity consumption. Assume your electricity bill is no longer a monthly rollercoaster ride, but rather a steady, predictable expense. This approach aims to offer customers a more consistent and manageable billing experience.

The idea is refreshingly simple: your annual energy costs are evenly distributed across the year, resulting in a fixed, monthly payment based on your average monthly bill through retrospective analysis.

How does the system work and what are the benefits? The approach centres on closely monitoring energy consumption through smart meters, which collect data throughout the year to accurately estimate monthly energy usage. The result is a stable and predictable bill, alleviating concerns during months of higher electricity consumption.

Prepaid meters are a promising option for the utility companies as they offer several advantages. They also empower consumers to save money by paying for electricity upfront, providing greater control over energy use.

These metres also foster energy conservation by offering real-time usage information, raising awareness of electricity consumption and prompting users to adopt more energy-efficient habits.

Real-time meter readings enable users to monitor use and make necessary adjustments to save costs. Under this scheme, monthly electricity bills are calculated by taking a 12-month rolling average of power use, smoothing out the crests and troughs that frequently characterise traditional billing. The consumers receive 12 bills per annum, each closely resembling the others. This provides the reassurance of an electricity bill like other regular expenses such as rent, mortgage or car insurance.

Arguably, the best thing about budget billing is that it makes electricity payments average out. This is a solution for typical Pakistani electricity consumer on a tight budget and wanting to know how much

they'll spend on electricity each month.

This system isn't solely about fixed payments; it embodies fairness. If estimated payments consistently surpass actual consumption, consumers may receive refunds or credits. Conversely, if estimated payments consistently fall short, adjustments may be necessary. The system remains adaptable. Regular reviews ensure that estimated consumption aligns with actual use. At year's end, total energy consumption is tallied based on smart meter data. This system isn't solely about fixed payments; it also ensures fairness. If estimated payments consistently surpass actual consumption, consumers may receive refunds or credits. Conversely, if estimated payments consistently fall short, adjustments may be necessary to cover the difference. A budget billing facility can be offered to all consumers.

However, such a shift warrants a reevaluation of existing tariff structures, fuel inventory methods and energy invoicing practices of the CPPA(G), the NEPRA and the Ministry of Energy (Power and Petroleum Division). The proposed changes may present new challenges, necessitating financial solutions to address potential issues.

The psychological impact of this transition must also be considered. Adapting to the new system may initially evoke apprehension, particularly when consumers encounter higher winter bills for lower energy consumption. Effective education and communication will be vital in managing this psychological adjustment.

To ensure the effectiveness of this system, security deposit mechanisms at the distribution company level and with landlords of rented properties may be necessary. These measures ensure recovery of electricity bills throughout the year.

Considering the challenges faced by the economy, finding new approaches to tackle the rising electricity costs is crucial. However, there are no quick fixes. We must develop a comprehensive plan that encompasses short-, medium- and long-term strategies, ensuring sustainability to avoid recurring issues. While the government of Pakistan could potentially provide financial support to electricity consumers, the current economic instability presents formidable obstacles to that approach. A different approach is needed to enhance electricity affordability and facilitate a move to solar energy.

Budget billing based on annual electricity consumption emerges as a transformative solution in this context. It not only provides relief to consumers but also offers a fair and manageable approach to energy payments. The potential benefits for consumers and the energy sector make this concept a forward-looking and viable solution. ■

A Focus on Pakistan's Wind Energy Potential

Fostering collaboration among stakeholders can expedite deployment of transmission infrastructure

Farhan Mujeeb Khan

The Writer has expertise in Power System Operation & Control

Pakistan is home to some of the most promising wind energy resources in the region, and one of its crown jewels is the Jhimpir wind corridor. This corridor, situated in the southern part of the country, has gained significant recognition as one of the largest and most productive wind corridors in Pakistan. The importance of harnessing wind power in this region was underscored by the National Renewable Energy Laboratories (NREL) USA, which, under the USAID assistance program in 2007, conducted a comprehensive wind resource study of Pakistan. This study yielded a wind resource map that unveiled the extraordinary wind energy potential available at a 50-meter altitude in various parts of the country.

The NREL wind resource map of Pakistan, a result of meticulous research, has been a game-changer for the country's wind energy landscape. It

has not only laid the foundation for ambitious wind power development activities but has also highlighted key regions, including the Jhimpir wind corridor, where the wind potential is particularly remarkable. These regions include the Karachi – Hyderabad area, especially on hilltops, ridges in the northern Indus valley, wind corridor regions in western Pakistan, high mountainous areas, and hills and ridges in south-western Pakistan.

One of the standout features of the coastal belt of Pakistan is the wind corridor that spans an impressive 60 kilometers in width and stretches a staggering 180 kilometers in length. Within this corridor lies an exploitable wind power potential of up to 50,000 megawatts (MW) of electricity generation. This immense wind energy resource has transformed the coastal areas of Pakistan into a focal point for future wind energy development.

As of the latest data from the National Electric Power Regulatory Authority (NEPRA) State of Industry Report 2022, Pakistan's wind energy sector has witnessed remarkable growth. The installed wind capacity has surged to 1,838 MW as of 3rd June 2022. This milestone underscores the rapid expansion of wind energy in the country, particularly in regions like the Jhimpir wind corridor.

Considering this substantial wind energy potential and the impressive growth in wind power installations, it becomes imperative to address the challenges and opportunities associated with the transmission and integration of renewable energy into the grid. In recent news, the Pakistan Wind Energy Association (PWEA) has raised concerns about excessive curtailment issues faced by wind power projects (WPPs). This curtailment has surged to unprecedented levels during the months of December 2022, January 2023, and February 2023. These WPPs were developed under the Policy for Development of Renewable Energy for Power Generation 2006, which mandated

the compulsory evacuation of all generated power from these projects.

These curtailment issues shed light on the critical importance of effective transmission planning and grid integration in the renewable energy sector. The challenges faced in Pakistan are not unique and are experienced in various parts of the world. One major challenge arises from the temporal misalignment between transmission planning and renewable generation development. The planning and construction of transmission infrastructure to access these remote areas can take between 5 to 10 years. In contrast, renewable generation projects themselves can be constructed in 1 to 3 years. The lengthy planning and construction process of transmission infrastructure is the complexity of the regulatory and permitting processes. Building transmission lines often requires approvals from multiple government agencies at the local, provincial, and federal levels. Environmental impact assessments, and land rights negotiations can further complicate the process.

In Pakistan securing the necessary funding for transmission infrastructure projects can be challenging. These projects are capital-intensive, and financing often involves public investment. Negotiating agreements and securing loans can take considerable time. Additionally, the uncertainty surrounding government policies can further delay projects.

Addressing the time gap between the construction of renewable generation projects and transmission infrastructure is vital to address curtailment of Wind Power from Jhimpir corridor. To bridge this gap effectively, a combination of strategies and approaches can be employed.

Encouraging public-private partnerships can help share the financial burden and risk of transmission infrastructure projects. Governments can provide initial funding and regulatory support, while private companies contribute expertise and capital. Furthermore, Government should establish stable, long-term policy frameworks that provide financial incentives and guarantees for transmission infrastructure projects. These incentives can include tax credits, grants, and low-interest loans to attract private investment. Government should also create streamlined, unified permitting processes that consolidate approvals from various agencies into a single, efficient procedure. This will help reduce bureaucratic red tape and expedite project commencement.

On the public front, raise public awareness about the benefits of renewable energy and the importance of transmission infrastructure. An informed and supportive public can lead to quicker approvals and reduced resistance. Engagement with local

communities early in the planning process to address concerns and gain support can prevent delays caused by opposition from affected communities.

On the technical front, NTDC/CPMA shall implement integrated energy planning that considers both generation and transmission needs over the long term. This holistic approach can lead to more efficient, interconnected systems. Embracing the new technologies is very essential. Implementing smart grid systems can enhance grid management and reduce the need for extensive new infrastructure. These systems allow for better integration of intermittent renewable sources and demand-side management. Incorporating energy storage systems and green hydrogen into the energy transition strategy can offer a promising approach to managing the timing gap between renewable generation projects and transmission infrastructure development. By effectively using hydrogen as an energy carrier and storage medium, utility can reduce the immediate pressure on building extensive transmission networks.

In summary, efforts should be directed towards streamlining the regulatory and permitting processes, securing financing, and investing in research and development for innovative transmission technologies. Additionally, fostering collaboration between governments, utilities, and private stakeholders can help expedite the deployment of transmission infrastructure. Ultimately, a more balanced approach to developing both transmission infrastructure and renewable generation projects is essential to realize issues associated with our Transmission system. ■

Mari Petroleum drills appraisal well

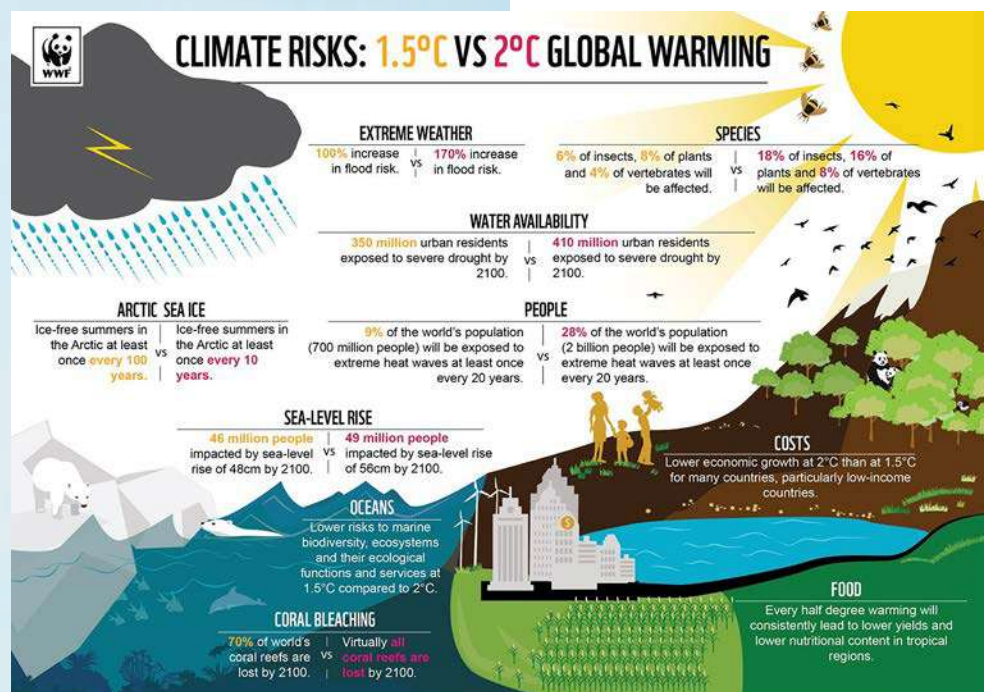
Mari Petroleum Company Limited (MARI), one of Pakistan's largest energy and exploration companies, has successfully drilled and tested the appraisal well Mari Ghazij-1, located in Mari D&PL, Sindh.

The company has also shared the development in its notice to the Pakistan Stock Exchange (PSX). Back in January, the E&P company discovered gas at its exploratory well Mari Ghazij-1, located in Mari D&PL.

It is pertinent to note that appraisal wells are drilled to assess the characteristics of a proven petroleum reserve such as flow rate. MARI is the operator of Mari D&PL with 100% working interest.

"The well was spud in on September 11, 2023, and successfully drilled down to a depth of 1,016 meters. The post-acid gas flow rate was 11.1 million standard cubic feet per day with wellhead flowing pressure of 519 pounds per square inch at 64/64 inch choke size," the company said.

MARI said that Ghazij-2 is the first well in a series of planned appraisal wells to evaluate the Ghazij-1 discovery and determine its extent. "The well will be put on extended well testing in due course for the supply of gas to government designated buyer, after completion of requisite regulatory formalities," the company shared.



Gas sector reform: beyond pricing

Syed Akhtar Ali



The writer is former Member Energy, Planning Commission and author of several books on the energy sector

Finally, pricing reform in the gas sector is in sight. The summary has been moved, and prices are likely to increase soon (before the IMF review). The gas circular debt stood at Rs1.5 trillion (exclusive of duplication of power sector debt and late payment surcharges) as of end-June 2023. The proposed price increases are likely to stop the flow of gas circular debt.

It is not easy to increase the gas prices in Pakistan. The caretaker energy minister has repeatedly emphasized in public on the increase (55 times, according to an independent observer's calculations) ever since he took oath. And now it is happening.

However, it is not an equitable increase across the board. One of the top consumers of domestically produced natural gas is in the fertilizer sector where the proposed increase is at notional rate of 5-14 percent while the increase across all the other sectors (barring households) ranges from 90-136 percent.

Pakistan's estimated demand from natural gas (excluding LPG) is 4,100-4,200 mmcf - out of which 3,200 mmcf is being supplied locally while 900-1,000 mmcf of LNG is being imported.

The imported gas (which is most expensive) is being used in the most efficient (60 percent+) power plants while the local gas is supplied at much cheaper rates for inefficient use - general industry and captive power are priced at one-third of LNG prices while their efficiency is around 40 percent. In the case of commercial and households, the efficiency is even lower.

These historic low prices for inefficient use have misallocated the precious indigenous energy sources of the country that have contributed to overall low economic productivity and has seeded other macroeconomic illnesses. One fundamental reform is price rationalization for better allocation of resources.

That optimal allocation of resources should be the main motivation behind gas price increase. However, primary consideration is to stop the flow of growth of gas circular debt. The price increase is proposed keeping the same in mind. The gas circular debt has been growing rapidly in the past few years as domestic gas reserves are declining and imported RLNG share is increasing in the fuel mix.

The gas circular debt was Rs 550-600 billion at the start of 2021, and is now at Rs 1,500 billion. The toll of Rs 2,700 billion which the energy minister quotes include some duplication of power sector debt and LPS. Excluding duplication and LPS, gas circular debt is around Rs 1,500 billion and power sector debt is at Rs 2,300 billion (total energy sector circular debt is Rs 3,800 billion). With the recent electricity prices increase the growth of power circular debt has been almost plugged, and now proposed gas price increase will plug the gas sector debt as well.

That was required to be done. But more reforms are warranted. Energy use should be based on efficiency, not on the cost of production. For example, cost of production of Mari gas is amongst the lowest, and that is mainly provided to fertilizer sector at lowest prices (barring protected domestic consumers). And the cost of import is highest for LNG and RLNG is being mainly used for power plants.

Ideally, low-priced gas should be provided to power sector efficient plants and that shall help transferring the load of households (space heating) and captive industrial use (without combined cycle) to power, and

potentially lower the overall electricity prices. And if some industries have combined cycle plants, they can be competitive by paying higher gas prices, instead of opting for grid power.

In the case of fertilizer, the equation is a bit more complicated. The subsidy is in the shape of providing gas at cheaper rates to urea producers, and they in turn supply urea at lower than international prices to farmers. However, not all the gas subsidy is being passed on to the farmers which is evident by very high EBITDA margins (average last five year's margin is at 32 percent for Big 3) for listed fertilizer companies in Pakistan.

The subsidy mechanism needs to be revisited. This model is rare to find elsewhere in the world. Even in India, the subsidy, though routed through fertilizer companies, is based on cost plus approach and is paid to urea manufacturers through concession rates.

One way for Pakistan is to follow the Indian model, and the other is to provide direct subsidy to farmers while providing gas to fertilizers manufacturers at market competitive rates. In India, more than 50 percent of imported RLNG is provided to fertilizer companies while Pakistan is providing cheapest produced local gas.

Urea is essentially conversion of gas to fertilizer - 1 ton of urea requires around 30 MMBTU of natural gas - or 630 kg of gas for 1 ton of urea. Globally, fertilizer prices tend to track natural gas prices. The question should be whether we import urea or LNG and should revisit the subsidy model. Especially, when the urea (cheaply priced gas) is being smuggled.

Such strategic reform is still missing in the gas sector. Here the lobby of urea producers is overpowering the energy ministry. Pakistan needs to question the age-old mythologies being used to support certain industries. There are many other examples (to be discussed subsequently). We should start calling spade a spade. ■



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World heading towards end of fossil fuel era

IEA says no new major oil and gas extraction projects are needed now

Syed Rashid Husain

The Organisation of Petroleum Exporting Countries (Opec) and the Organisation for Economic Co-operation and Development's energy watchdog — the International Energy Agency (IEA) — are on a war path. In an opinion piece dated September 11 carried in the Financial Times, Fatih Birol, the executive director of the IEA, said the world was heading towards the end of the fossil fuel era.

“The age of seemingly relentless growth for fossil fuel demand is at the beginning of the end,” Mr Birol, the guru of the energy world, underlined. “This is the first time that a peak in demand is visible for each fuel (oil, gas and coal) this decade — earlier than many people (had) anticipated,” adding demand will hit an all-time high before the end of this decade.

The peak in demand was primarily driven by the spectacular growth of clean energy technologies such as solar panels and electric vehicles, the changing energy governmental policy around the globe, the structural shifts in China's economy, the rise in the use of heat pumps and the forced accelerated move off gas in Europe after Russia invaded Ukraine, Mr Birol underlined.

Is the era of fossil fuels over or is the world transitioning away at a rate that is unsustainable and overly optimistic? This was a startling admission and hitting raw nerves in some quarters. In a sharply worded response, Opec Secretary General Haitham al-Ghais accused the IEA of ideologically driven fearmongering that would destabilise the world economy.

“Such narratives only set the global

energy system up to fail spectacularly,” Mr Ghais said in a statement on September 14. “It would lead to energy chaos on a potentially unprecedented scale, with dire consequences for economies and billions of people across the world.”

Further fuel was added to the raging debate during the World Petroleum Congress (WPC) in Calgary later in September. Saudi Arabia openly warned of the consequences of ditching oil in haste, stressing the need for a more realistic energy transition and more investment in oil and gas.

The sector can't solely focus on climate change, the Saudis asserted.

“If we really want to be faithful to the idea that we will be transitioning, we also have to make sure that transitioning happens whereby you end up attending to energy security, ensuring that energy is still affordable and does not act as an impediment to economic prosperity and growth,” the Saudi Oil Minister Prince Abdulaziz bin Salman emphasised.

“And if you don't do all of the above, I'm sorry, but I don't think you could attend to climate change issues.”

Prince Abdulaziz bin Salman also struck out the IEA projection, underlining that the trend was dangerous to the energy security of the world. “They (the IEA) have moved from being a forecaster and assessor of the market to one practising political advocacy.”

Likewise, Amin Nasser, the CEO of Saudi state-controlled oil giant Aramco, underlined that the notion of peak oil demand is “wilting under scrutiny,” noting “many shortcomings in the current transition approach that can no longer be ignored.” He also stressed that carbon capture “can no longer be the bridesmaid of transition.”

Premier Danielle Smith of the energy-rich Canadian province of Alberta and the chair and CEO of ExxonMobil, Darren Woods, made similar points. “There seems to be somewhat wishful thinking that we're gonna flip a switch, and we'll go from where we're at today to where we'll be tomorrow,” Mr Woods said.

“If we don't maintain some level of investment in the industry, you end up running short of supply, which leads to high prices and some of the effects that Amin referenced,” he stressed.

Despite the transition toward renewable energy, Opec continues to be bullish. It is reportedly raising its medium and long-term oil demand forecast in its forthcoming 2023 World Oil Outlook, to be released today (October 9). Three Opec sources told the media that the group continues to carry a positive outlook about oil demand.

The IEA, however, is insisting that the global energy portfolio is changing fast and that no new major oil and gas extraction projects are needed now. This made headlines all around the globe.

Even if no new government climate policies are introduced before 2030, global demand for fossil fuels will still peak before the end of the decade, a report released late in September stated.

The report, an update on the IEA's 2021 plan to get to net zero global greenhouse emissions by 2050, added that this meant that no new major oil and gas extraction projects are needed anywhere around the globe, nor any new coal mines, mine extensions or unabated coal plants. This is a huge projection.

“If the world is successfully bringing down fossil demand quickly enough to reach net zero emissions by 2050, new projects would face major commercial risks,” the IEA highlighted. The world is already set to invest a record \$1.8 trillion in clean energy in 2023, the report noted.

Some others seem to concur. “Demand is peaking,” Claudio Galimberti, Norwegian consulting firm Rystad's head of North America Research, reportedly said last Thursday.

Nestlé, BISP, Akhuwat transforms lives of 3,000 women



EU Report

Nestlé Pakistan in partnership with the largest poverty alleviation programme of the government and a top non-profit has revolutionised the lives of 3,000 rural women in backward villages of the country by helping them to establish their small retail businesses.

The Benazir Income Support Programme (BISP), the non-profit Akhuwat Foundation, and the Rural Deep Reach Initiative of Nestlé Pakistan joined hands some six years back to support the BISP beneficiaries in the selected districts in the three provinces of the country.

The selected BISP beneficiaries are given financial and material support and training to help them set up small retail shops in their native backward villages.

The same welfare initiative combining the public, private, and non-profit sectors is set to be scaled up in Sindh after transforming the lives of 3,000 rural women mainly in Punjab.

The programme to support the BISP beneficiaries to attain the stage of economic self-reliance in the retail and sales sectors has so far been unfolded in 26 districts of Punjab, two districts each of Khyber Pakhtunkhwa and Sindh.

A key component of the initiative is Akhuwat using its interest-free microfinancing loan system to financially support the selected BISP beneficiaries. A revolving fund with Rs two million seed money was established for the purpose in 2018.

The main success story of this initiative is that over 90 per cent of selected BISP beneficiaries after obtaining the interest-free loans have been paying them back in very easy instalments without any default much like other microfinancing initiatives of Akhuwat.

“In Sindh, we have so far helped the underprivileged rural women in Larkana and Sukkur districts and in the next stage our focus would be to expand this initiative in the province especially to cover the BISP beneficiaries in the rural belt of Hyderabad district,” Dr Adnan Mushtaq, Project Manager of Nestlé Pakistan’s Rural Deep Reach project.

He said that in the next stage, the Rural Deep Reach Initiative would be launched in Balochistan where poverty alleviation initiatives should be implemented at an accelerated pace given the severe underdeveloped status of the province.

Global oil demand growth, which averaged 3.7 million barrels per day (bpd) last year, should decelerate to 2.4m bpd this year, 1.2m bpd in 2025, and just 500,000 bpd in 2026, Galimberti said.

Such a transition will have a huge impact on oil market prices. “We anticipate prices to taper off in the next three to four years, primarily due to ample supply.” Oil producers’ group Opec+ has succeeded in moving oil prices this year by cutting output, but that strategy can not succeed in the long term, Galimberti added. JP Morgan analysts are now also reporting ‘demand destruction has begun’.

Things are changing fast. The era of electric vehicles (EVs) has arrived. More and more EVs could now be seen on the streets all over the developed world, and China is taking the lead.

With the transport sector currently responsible for more than 60 per cent of total global crude consumption, switching from internal combustion engines to EVs would considerably impact crude demand and market prices.

With regular floods, increasing temperatures, rapid melting of Himalayan glaciers, and growing pollution in Karachi, Lahore and other megacities in South Asia, the region needs to act and act now. Climate issues are at the forefront of our problems. Early adoption of EVs could be one answer, yet not much seems being done. This could spell catastrophe for Pakistan and the region. ■

Courtesy Dawn

Accessing climate finance

Ali Tauqeer Sheikh



The writer is an expert on climate change and development.

The global landscape for international climate finance has in recent years undergone a transformational change. Fundamentally, it has moved away from grants to lending and investments. It has become overly complex, complicated, and competitive for Pakistan's lethargic policymaking processes.

The present government machinery is constrained when it comes to optimally accessing and exploiting opportunities without first clearly understanding the nature of available finances, their intended purpose, and the distinct roles and responsibilities of national and provincial institutions. To do this, Pakistan will need to adopt a reform agenda that is driven by the need for climate-smart development.

It will, however, require burying some old thinking habits and shedding some myths. As Pakistan has an extremely narrow fiscal space, it is imperative to diversify the sources of financial inflows. Forging partnerships with private-sector enterprises to access domestic and international climate finance has become essential, particularly since climate risks to the economy add to macroeconomic volatility.

Let's identify four myths that have re-

strained Pakistan's access to climate finance:

Myth 1: Pakistan's climate vulnerability is so high that the world community is obligated to extend a helping hand.

There are at least four myths that have restrained Pakistan's access to climate finance.

In reality, there is no international mechanism to support countries facing climate disasters. The 2005 Paris Declaration on Aid Effectiveness that had committed 0.7 per cent of gross national income (GNI) as official development assistance has no comparable instrument in the realm of climate disasters.

Developed countries do not accept any historical responsibility to support victims of climate-induced disasters and they have gradually reduced their humanitarian assistance budgets. So, portraying Pakistan as one of the most vulnerable countries will not always attract international finances. In fact, the opposite may be true: showing half the country under floodwaters can scare away potential investors. **Myth 2:** Pakistan can invoke the 'polluter pays' principle that was adopted at the Earth Summit in Rio in 1992 for accessing international finance when the Loss and Damage finance facility is operationalised.

The principle has indeed found place in several multilateral environmental agreements

and has evolved as an important legal doctrine in several domestic jurisdictions. But presently, it has little to no utility in multilateral contexts.

The Paris Agreement has not accepted the principle of historical responsibility nor have Western countries agreed upon the notion of compensation under any arrangement. In any case, the size, governance structure, and eligibility criteria for accessing the proposed Loss and Damage fund are still up in the air.

Myth 3: Developed countries are duty-bound to support Pakistan under the principle of Common But Differentiated Responsibilities, also adopted at the Earth Summit.

The assumption that Pakistani policymakers brought home then was that international support would be in the form of grants. The subsequent evolution of the global climate finance architecture has all but buried the CBDR principle. The DNA of climate finance has undergone profound changes. It now emphasises blending and leveraging private-sector finances.

We in Pakistan did not recognise it, but the world system began to move away from CBDR even before the Kyoto Protocol came into force in 2005. The most significant step was taken by president George W. Bush in 2002 when he committed \$10 million to the World Bank for multilateral development banks to proactively develop responses to the financing needed for climate costs. This paved the way for all MDBs to jointly set up four specialised funds on clean energy, renewable energy, forestry, and climate resilience, under the umbrella of Climate Investment Funds (CIFs).



Managed by all six MDBs, the CIFs have emerged as important instruments to test and mobilise non-grant climate finances. Collectively, the CIFs have supported investments in 72 countries, mobilising over \$12 billion by using a combination of grants, concessional finance, co-financing, and private-sector leveraging to finance their projects.

Having served as a civil society representative from Asia on its board and on its advisory group on learning and evaluation, this writer has observed first-hand how CIF projects have included co-financing from an array of public and private sources including MDBs, bilateral official agencies, international and national development banks, recipient government national and municipal budgets, and commercial and investment banks. The CIF funds offered important learning for the MDBs' climate portfolio. In fact, the World Bank, ADB and other MDBs now record the climate-related co-benefits of their lending. Building on the CIFs' experience, the Green Climate Fund has also used a combination of grants, concessional finance, co-financing, and private-sector leveraging to finance their projects. According to a 2021 report by the Heinrich-Böll-Stiftung, only 9.5pc of GCF financing is based on grants, while 69.8pc is based on loans, and 18pc on equity financing. The report also notes that the majority of GCF private-sector finance takes the form of loans.

Despite the invites, Pakistan did not sign up to the CIFs as its priorities then were focused on US finances flowing from the 'war on terror'. Pakistan has, therefore, missed any direct exposure to the complexity and changing nature of international climate finance.

The global climate finance agenda is robust and constantly changing. CIFs, for example, has launched new focus areas on accelerating coal transitions, renewable energy integration, industry decarbonisation, and the development of climate-smart cities. The Updated Strategic Plan of GCF underlines private sector co-financing. IMF's brand new Resilience and Sustainability Facility commits financing to undertake reforms to help reduce risks to prospective balance-of-payments stability from climate change and other long-term structural challenges.

Myth 4: A well-written grant proposal by consultants can help create perennial streams for financial flows.

About a dozen government institutions at the federal and provincial levels are vying for donor support to set up climate centres, but in an uncoordinated fashion. Working in silos will not help them create a coherent financing framework or a national climate finance strategy, complete with sectoral investment plans and specifying national/provincial roles and responsibilities.

In the present situation, the country cannot afford desperate measures. Instead, what Pakistan needs is a set of deliberated, measured steps enabling it to develop its own capacity rather than outsourcing its thinking on climate finance. ■

KE inks deal to double national grid supply

EU Report

K-Electric (KE) has reached an agreement with the federal government for an almost 100 per cent boost in supply from the national grid, the power utility said on Thursday.

The announcement comes amid stiff opposition from Karachi-based business leaders who have objected to KE's push for a higher quarterly tariff. They have also raised concerns over KE's six-year power acquisition plan, which forecasts an addition of 2,050 megawatts, predominantly from local coal and renewable sources.

The National Electric Power Regulatory Authority (Nepra) conducted two public hearings on Thursday and reserved its judgement. However, it hinted at not allowing a Rs16 billion write-off claimed by K-Electric, as had been the precedent in the past, practically ruling out any addi-

tional quarterly tariff adjustment.

K-Electric had sought Rs3.02 per unit additional fuel cost adjustment for the April-June quarter, mainly based on Rs16bn deemed unrecoverable.

The KE's representatives disclosed during the hearing that it had "initialled the revised interconnection agreement (ICA) and Power Procurement Agency Agreement (PPAA) with National Transmission and Despatch Company (NTDC) and Central Power Purchasing Agency (CPPA), respectively, for the procurement of additional power up to the transmission capacity from the national grid for 10 years".

The agreements had been reached following the creation of a special committee comprising the representatives of the federal ministries, KE and federal government entities, including the NTDC and the CPPA, to resolve outstanding issues, including hundreds of billions of rupees worth of claims and counterclaims.

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ENSERVER:

Solving Pakistan's industrial power concerns

EU Report

The last four years have been a considerable struggle for the industrial sector of Pakistan as consistent power-related issues have had a direct impact on the country's economic growth. Pakistan's industries contribute a substantial 19% of the country's Gross Domestic Product.

A shortage in electricity, predominantly caused by an inefficient transmission system as well as a poorly regulated and managed energy sector has been the primary cause of what has been described by many experts as an energy shortage. This has ultimately led to regular power outages.

The power outage problem is more detrimental in particular to



Waseem Ashraf Qureshi

Chairman, CEO Enercap Holdings
Inventor of ENSERVER and ENCAP Technologies

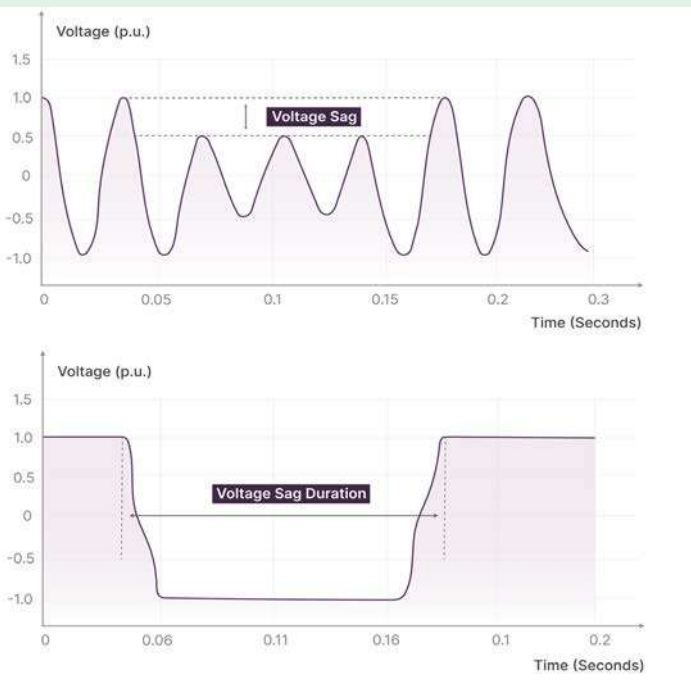
those who have invested significantly in costly equipment and machinery to bolster their manufacturing capacity and lower the cost of production. For any industrial entity to remain profitable, it must have a regular and consistent power supply, and for this reason, renewable energy inputs have played a key role in bridging the gap where the grid has been unreliable.

Unfortunately, renewable energy is also intermittent as it is dependent on the time of the day or the amount of wind power available. This intermittency poses its own contentions to the industrial sector.

However, the country has been fortunate to also have another resource for which the country can be extremely proud of. That is the ability to produce innovative geniuses such as Waseem Ashraf Qureshi who has in the early phase of his career worked vehemently on trying to solve Pakistan's power-related issues through his inventions in power management systems and non-chemical electrostatic energy storage mediums. Known to the international power electronics community as the 'father of the supercapacitor energy storage system', Waseem Ashraf Qureshi today proudly holds over 21 patents in inventions stemming from non-chemical energy storage to power conditioning, automation, control, balancing and regulation.

His ENSERVER and ENCAP technologies are known to be well ahead of the mark with respect to similar technologies in the industry today. ENSERVER is a power conversion-conditioning and control unit that can have up to eight AC or DC inputs, including the Grid, Solar PV, Diesel Generators, Gas and Wind turbines.

ENSERVER is not only a smart hybrid power conversion system, but it also conditions power with very advanced uninterrupted power

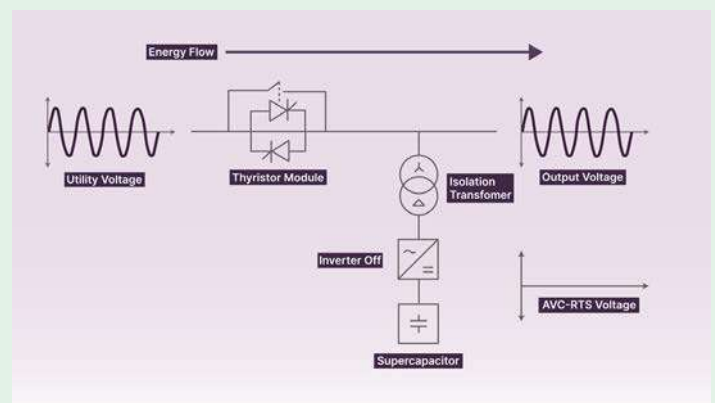


What is Voltage Sag?

Voltage Sag is a short-duration reduction in the voltage of an electric power distribution system. It can be caused by high current demand such as inrush current (starting of electric motors, transformers, heaters, power supplies) or fault current (overload or short circuit) elsewhere on the system. (Reference)

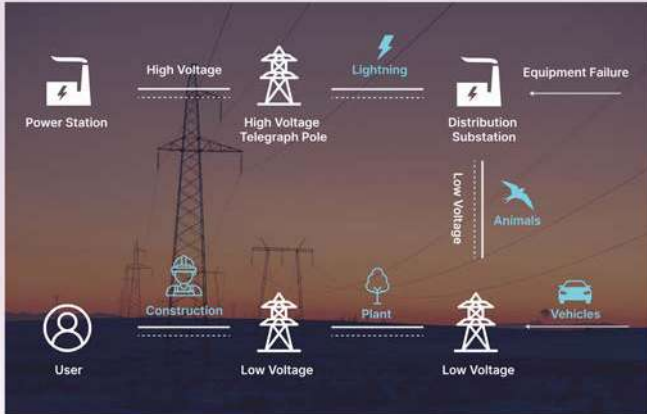
Characteristic of Voltage Sags

- The time of sag is unpredictable
- Short duration and deep depth
- High frequency of occurrence



Common cause of Voltage Sags

Voltage sag is generally caused by the failure of power grid, substation facilities or sudden large changes in load. In the process of long-distance transmission, there are many unpredictable situations, such as power system fault, lightning strike, large motor starts, capacitor switching and other events in the transmission and distribution system.



supply functionalities such as automatic voltage control, maintaining the voltage profile by keeping a power system within an acceptable voltage range and at the same time, sustaining the longevity of equipment by maintaining the regulation of controllable components. ENSERVER essentially is the most advanced technology which is curing the effects of Voltage Sag's, Dips and Surges.

Voltage Sags are caused by a sudden change in input of energy and its characteristics such as switching from the grid to renewable energy or in an event when a distribution system running on solar PV or wind is faced with a shortage of that input due to a sudden change in weather conditions.

Voltage Sag (DIP)

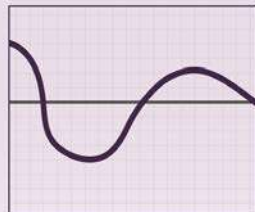
Voltage Sag's or Dip's occur when there is a decrease in voltage, decrease in nominal voltage level between 10 - 90% of the nominal rms voltage for the duration of 0.5 cycles to 1 minute.

Causes

- Heavy loads and start-up motors
- Transmission faults or distribution network faults

Effects

- Disconnection and loss of efficiency
- Tripping of contactors and electro-magnetic relays



Voltage Sag (DIP)

Description

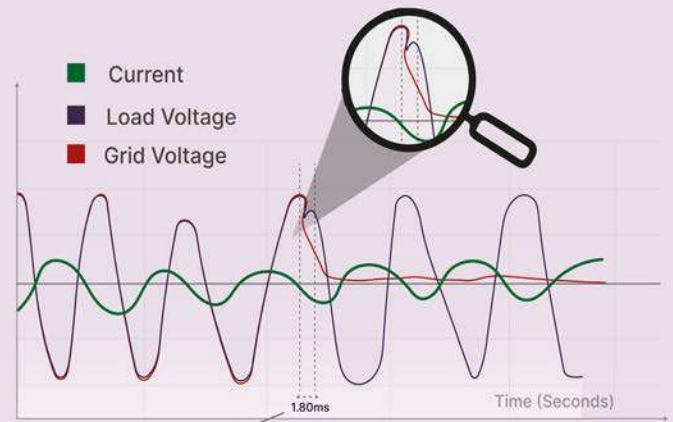
A decrease of the normal voltage level between 10 and 90% of the nominal rms voltage at the power frequency, for duration of 0.5 cycle to 1 minute.

Causes

Faults on the transmission or distribution network (most of the times on parallel feeders). Faults in consumer's installation. Connection of heavy loads and start-up of large motors.

Consequences

Malfunction of information technology equipment, namely microprocessor-based technology equipment, namely microprocessor-based control systems (PCs, PLCs, ACD, etc) that may lead to a process stoppage. Tripping of contactors and electromechanical relays. Disconnection and loss of efficiency in electric rotating machines.



Response time is 1.80ms

When the utility voltage drops the above waveform can be noticed. ENSERVER has the ability to switch into the system within 2ms to protect the load from voltage interruption and disturbance. The load current and voltage will revert to the same as before and therefore no current surge during switching will occur. This results very smooth and perfect compensation effect.

Voltage Sags or Dips normally result in the voltage going below 10% to 90% of the normal or recommended level such as 120V system going to 90V or in extreme cases even lower than 90V, with the result of the dip being a potentially catastrophic ripple across multiple layers of equipment. The more frequent these ripples the faster the degradation and depreciation of the apparatus and equipment, in many industries this has caused millions of rupees of damage in short periods of time.

A voltage dip or sag is distinguished by its depth as a relative deviation to the unit commitment (UC) which can alternate over time with each voltage. A unit commitment (UC) is defined as minimizing the total cost of power generation in a specific period, by defining an adequate scheduling of the generating units. Hence voltage dips also have a relative effect on the total cost of power in application whereby the longer and more frequent the dip the greater the impact on cost.

ENSERVER with its patent active voltage technology has the ability to condition the system within 2 milliseconds and protect the load from voltage distributions thus consistently preventing damage to equipment and sustaining voltage levels within the defined unit commitment, hence maintaining a lower cost of energy input. Similar to a dip or sag, the power system may also face a voltage surge caused by a lightning strike, or a sudden spike in renewable energy generation (for example a sudden gush of wind). The effects of a surge are similar to that of a sag.

Pakistan has witnessed a huge increase in the offtake of renewables in the last decade and experts estimate with the current energy issues and constant rise in the cost of electricity, renewables are going to play a significant role in facilitating Pakistan's economic growth in the foreseeable future. Whilst the increase in renewable energy is both encouraging and commendable, this will also mean that voltage sags, dips, and surges will become more frequent and unless remedied, will prove to be a huge burden on Pakistan's industrial sector.

Waseem Ashraf Qureshi the Chairman, CEO-CTO, and founder of Enercap Holdings is also the inventor of the world's first and most advanced energy storage system called ENCAP. This encapsulated supercap-based energy storage system, now deployed in multiple international territories since 2016 is operable between -30 and 70 degrees Celsius with negligible degradation over life, cell level attributes such as five hundred thousand cycles, one hundred percent depth of discharge, ultra-fast charge and discharge rates and a 1-2% idle discharge. Coupled with his patent ENSERVER technology is deemed by experts as the perfect combination for solving the current conundrum faced by many industrialists. ■

Integration of carbon credits presents attractive opportunity

Pakistan's allegiance to the Paris Agreement signals its dedication to the global battle against climate change



Khalid Waleed



The writer has a doctorate in energy economics. He is research fellow at Sustainable Development Policy Institute

The global economy, driven predominantly by capitalist principles, has been focused historically on maximising profit and capital accumulation. The intense focus has resulted in significant industrial growth and productivity. However, it has also triggered an environmental crisis marked by high carbon emissions and the unwelcome reality of climate change.

The consequences of climate change are forcing a re-evaluation of traditional economic models. One such adaptation is the emergence of carbon markets, which are fast gaining recognition as a potential solution to climate change on a global scale.

By trading carbon credits, countries can aim to meet their climate action goals in a financially efficient manner. Against this global backdrop, Pakistan, endowed with a unique geographical location and status as a developing nation, presents a novel perspective on the economics of carbon markets.

A carbon market operates as a platform where nations or corporations can buy or sell carbon credits, which are essentially certificates for the reduction of greenhouse gas emissions. The central idea is to incentivise emission reductions through market dynamics.

Carbon markets can have two broad formats: cap-and-trade systems and carbon offset markets. The former involves governmental

limits on emissions, with entities being allocated or purchasing emission allowances. If an entity's emissions are below these allowances, they can sell the surplus. In contrast, carbon offset markets allow organisations to fund carbon reduction initiatives in other sectors or nations to balance out their emissions.

Understanding the pricing of carbon credits necessitates a grasp of the influencing factors. For starters, the type of carbon reduction plays a role. Projects ensuring permanent removal of carbon typically fetch higher prices than those focusing merely on avoiding certain emissions.

Then there are technological elements, such as the nature of renewable energy projects or initiatives like clean cooking alternatives and forest regeneration. Each has its own set of criteria that impacts its credit pricing. Traditional market fundamentals, like demand and supply dynamics, drive the market. The longevity of credits and various geopolitical factors, including the credibility of the host country are also important considerations.

In a world increasingly threatened by the adverse impacts of climate change, the role of carbon markets transcends mere mitigation — it becomes an indispensable economic engine. According to a World Bank report, State and Trends of Carbon Pricing 2022, the global value of carbon pricing initiatives was estimated to be roughly \$82 billion in 2021.

To put this in perspective, the global GDP for the same year was estimated at around \$84 trillion, making the carbon market roughly 0.1 percent of the global GDP. While this may seem a small percentage, the potential for growth is staggering, especially as international consensus strengthens and more stringent climate targets are set. According to the IEA, it is expected to

increase to 6 percent of global GDP by 2050. Monetising carbon emissions serves a dual purpose: incentivising entities to minimise greenhouse gas emissions and generating a significant pool of financial resources. These funds can be channeled to finance adaptation measures, bolster resilient infrastructure, and support communities battered by climate disasters like typhoons, droughts and sea-level rise.

By placing a tangible price tag on carbon emissions, such markets also steer investments toward cleaner, sustainable technologies, promoting green innovation. Hence, carbon markets not only proactively mitigate environmental degradation but also fortify a financial bulwark, ensuring that even the most vulnerable societies have the economic resources to navigate the multifaceted challenges of a warming planet. Given Pakistan's vulnerability to climate change, growing energy demand and the crucial role of agriculture, the country's relationship with carbon markets is quite complex.

It is essential to recognise that the resource endowment of a nation can sway the costs of emission reductions. Labour-abundant countries might experience lower costs for emission reduction projects, while capital-abundant nations might have technological and infrastructural edges. This distinction affects the strategies these countries adopt, the scope for trade dynamics in the carbon market and eventually the equilibrium in carbon credit pricing.

Given its vulnerability to climate change, growing energy demands and the crucial role of agriculture, Pakistan's relationship with carbon markets is quite complex.

Pakistan's significant potential for carbon trading, afforestation efforts like the billion-tree tsunami and Sindh delta blue project, and the

opportunities for foreign investment in sustainable projects underline its potential in global carbon economics. However, challenges abound. These included the need for robust monitoring systems, capacity-building and access to technology.

Pakistan's allegiance to the Paris Agreement signals its dedication to the global battle against climate change. A well-structured regional and national carbon market could serve dual purposes for the country: addressing climate change repercussions and unlocking economic prospects. Effective partnerships on international platforms, technology exchanges and capacity enhancement endeavours will be foundational in shaping Pakistan's success in the carbon market realm along with potential foreign exchange stream. The conceptualisation of a South Asia Carbon Market holds immense promise for the region. South Asia's combined population and increasing industrial activity make it a significant contributor to global carbon emissions. A unified carbon market could bolster economic efficiency, drive green investments, and enhance resilience against climate change. For such a market to materialise, preliminary dialogue, harmonisation of policies, stakeholder engagement and a phased implementation approach would be imperative. COP28 could play a crucial role in this vision, offering technical, financial and policy support and promoting relevant agreements.

Essential to this vision is a synergistic approach, necessitating close cooperation among financial stalwarts, regulatory entities and technological agencies within Pakistan. Harnessing technologies like satellite monitoring, machine learning and blockchain, spearheaded by institutions like SUPARCO, MoCC and the IT ministry, can amplify the credibility and efficiency of the proposed carbon market. Pakistan's biodiverse landscape offers a unique opportunity. The potential in forest conservation, mangrove protection and wetland rejuvenation projects shouldn't be overlooked, especially given their dual promise of ecological preservation and societal uplift.

A foundational aspect is the integration of digital infrastructure, capacity building, public-private collaboration and regulatory clarity. A streamlined digital interface can serve as the bedrock for transparent and efficient carbon credit trading.

Augmenting this infrastructure with rigorous capacity-building measures can ensure a knowledgeable stakeholder base. Fostering public-private synergies can be instrumental in harnessing both technical and financial prowess. A clear, comprehensive regulatory framework, shaped in tandem with relevant authorities, can safeguard market integrity, steering Pakistan towards a sustainable, prosperous future. The integration of carbon markets presents an attractive opportunity for developing nations. It can pave the way for accelerated socio-economic progress and facilitate a smooth transition to a low-carbon economy. By pricing carbon and introducing mechanisms for carbon trading, these markets can unlock new avenues of growth, fostering an environment where businesses can capitalise on emerging market opportunities. By embracing such an approach, developing countries can strike a harmonious balance between economic advancement and environmental sustainability. ■

Public servants cost national kitty over Rs8tr, study reveals

Khaleeq Kiani

The federal government spends over Rs8 trillion on paying its 1.92 million employees and providing pensions on top of over six dozen kinds of perks, privileges and other dole outs, yet knowing little about their contribution, outcome and impact on taxpayers.

While the judiciary gets the highest in perks, it is the Pakistan Administrative Services (PAS) — erstwhile DMG — that manipulates special benefits instead of allowing the professionals of other cadres to excel and return the taxpayers with outcomes.

This is the crux of the latest study conducted by a five-member team of state-run Pakistan Institute of Development Economics (Pide) led by Nadeemul Haque.

“In Pakistan...the cost of paying these employees is about Rs3 trillion, and pensions cost about Rs1.5 trillion. Project workers, people working in government companies, and other organisations cost approximately another Rs2.5 trillion” while the total amount spent on wages and salaries of the military becomes around Rs1tr, the study, titled ‘Life time Cost of Public Servants’, said.

Pay scale revision

It said the Basic Pay Scale (BPS) of 1983 had undergone a series of revisions, with a total of 12 updates implemented since its inception — the latest revision in 2022. “Sadly, none of these revisions were based on modern human resource principles to develop modern public sector incentives with market conditions and the needs of modern management,”

It said the BPS system continued with the socialist one-pay scale structure across the entire public sector with a few minor tweaks but PAS was increasingly favoured with non-monetary benefits and better appointments. The technical or professionally skilled remain sidelined in terms of grades and in terms of non-monetary benefits.

While the national pay scales later sought to enter the system to lateral entry to BPS for technical or sector specialists in management payscales and special pay-scales (MPs & SPS) but this was made

difficult and yet “all subservient to PAS”.

The study on perks and benefits of civil servants concluded that as generally believed, civil servants are not at a salary disadvantage; in fact, there was a lot more which never reflected on their salary slip.

The study noted that with higher grades, the proportion of cash allowances in pay and quantified perks in the total cost increases and government housing facility, given as an in-kind benefit, has never been accounted for in the total cost of the civil servants.

The use of official vehicles for personal use by grade 20-22 officers increases the total cost by more than 1.2 times the basic pay. In addition are the medical allowances and medical bills reimbursements.

The study noted, “Perks and different allowances add to the total cost of civil servants substantially, and if monetized, would break the myth of low salaries in the public sector. The judicial employees receive the highest number of perks... The secretariat and other ministries’ staff also gain 150pc of their basic salary as an allowance.”

Unproductive employees

Pakistan is facing a growing financial challenge due to the high number of non-productive government employees. Politicians pride themselves on placing their favourites in the public sector knowing that the taxpayer has no say in the process and will pay the cost.

“Yet no one looks at what the cost of this dirigisme politics is! Not only are most political employees mostly employed in positions where they are not productive, they are also a drain on the budget,” the study found out.

The cost of bad recruitment can be significant, both in terms of financial losses and the opportunity cost of lost opportunities. The employment practices of political governments in developing economies often stem from a combination of political motivations, short-term focus, lack of economic expertise, and societal expectations.

“While immediate job creation can have positive effects, it's crucial ... [to] strike a balance between short-term gains and sustainable fiscal policies,” it concluded. ■

Courtesy Dawn

Indus River turns world's second most polluted river

Govt lacks interest in cleaning the river, despite more than 80% of Pakistan's population lives in the Indus Basin; industrial discharges, and municipal waste are major pollutants; there is a need to ensure establishment of water treatment facilities and implementation of stricter environmental regulations

Special Report by Mansoor

The Indus River, one of the longest rivers in Asia, flows through China, India, and Pakistan, and it plays a vital role in the livelihoods of millions of people in the region. The Indus River is the largest river in Pakistan and is the second most polluted river in the world. It faces significant environmental pollution challenges. The pollution in the Indus River also affects the river's ecosystem and the species that inhabit it. Many fish species in the river are threatened due to the degradation of their habitat.

Poor water management practices, such as over-extraction of water for irrigation and inadequate flow regulation, have reduced water flow, concentration of pollutants, and increased salinity. There is a need enforcement of environmental regulations, the improvement of sewage treatment plants, the promotion of

responsible industrial practices, and the implementation of watershed management programs to reduce runoff and erosion.

Govt lacks interest in cleaning the river, despite more than 80% of Pakistan's population lives in the Indus Basin. It has served as the core of the region's socio-cultural and economic life for over a documented 5,000 years. Indus Basin is facing multiple threats ranging from Climate Change due to poor resource management, environmental hazards and unsustainable use of this valuable resource. Unaddressed, the economic cost to Pakistan of poor water resource management is estimated to be USD \$12 billion per annum (4% of GDP).

Industrial discharges and effluents from factories along the banks of the Indus River contribute to water pollution. These discharges often contain heavy metals, chemicals, and other pollutants that harm the water quality.

Untreated sewage and waste

from cities and towns along the Indus River often find their way into the river. This can lead to the contamination of water with pathogens, organic matter, and other pollutants, posing health risks to people and aquatic life.

Erosion of soil from agricultural and construction activities can lead to high sediment loads in the river, which can degrade water quality and aquatic habitats. The extensive agriculture in the Indus River basin relies heavily on pesticides and fertilizers. When it rains, these chemicals can wash into the river, causing water pollution and harming aquatic ecosystems. Inadequate sewage treatment facilities and the discharge of untreated sewage into the river can lead to the contamination of water with pathogens and organic matter, creating health risks for those who depend on the river for their water supply.

The construction of dams and diversion of water for irrigation and hydroelectric power projects can disrupt the river's natural flow,

affecting ecosystems and water quality downstream.

The plastic pollution is a growing concern in the Indus River. Plastic waste can harm aquatic life and degrade the environment. The Indus River dumps over 180,000 tons of plastic waste into the ocean annually — the second-highest amount after the Yangtze River in China, according to a research report.

The aquatic ecosystems and nearby habitats are being severely harmed by lagging plastic and solid waste management, inadequate legal framework, lax enforcement of environmental laws, and rise in single-use plastics (SUP) — like straws, plastic bags, water bottles that are thrown after a single use and often dumped into the river bodies. Low-density polyethylene (LDPE), sanitary products, and multi-layered packaging are the top three types of plastics, accounting for a staggering 75 percent of all plastics in the river.

LDPE, the most common SUP that is used to make bottles, grocery bags, and disposable containers, constitutes 43 percent of all plastics found in the river. Only 6 percent of the detected plastic waste is polyethylene terephthalate (PET) and high-density polyethylene (HDPE), which incidentally has higher recycling cash value for local waste-pickers.

The excessive withdrawal of water from the Indus River for agriculture, industrial, and domestic use can lead to reduced flow, increased salinity, and other ecological problems. Climate change and variations in precipitation patterns can affect the river's flow and water quality, exacerbating existing pollution problems.

There is a need to ensure the development of water treatment facilities, stricter environmental regulations, and the promotion of sustainable agricultural practices. International cooperation among the countries through which the Indus River flows is essential to effectively manage and protect this important water resource and its surrounding environment. ■



EU Report

Pakistan organized a roadshow in Dubai to attract investors for 600 MWp solar power PV project at Kot Addu (Muzaffargarh) with the support of the United States Agency for International Development (USAID) through Power Sector Improvement Activity (PSIA), well-informed sources told Business Recorder.

In order to counter the impact of prevailing high prices of conventional fuels resulting in high electricity tariffs and drain of foreign exchange reserves, the Government of Pakistan approved several interventions under the Framework Guidelines for fast rack solar PV initiatives 2022 for deployment of solar PV.

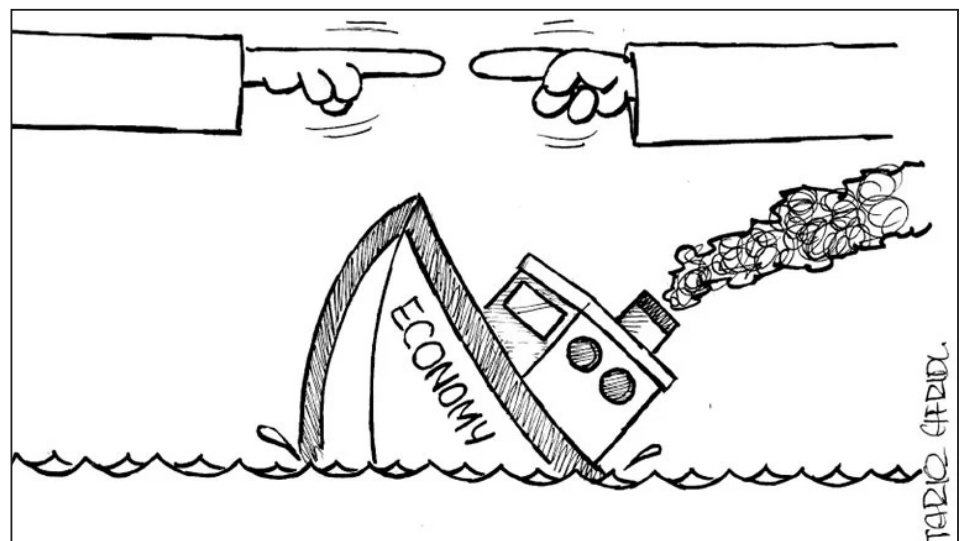
One such initiative envisages substitu-

tion of expensive imported fossil fuel-based power generation with solar PV based power projects to be developed primarily through competitive bidding.

The first 600 MWp solar PV project under the initiative is planned to be developed at Kot Addu/Muzaffargarh, Punjab through international competitive bidding.

The invitation for bids/proposals of project has already been advertised in local and international newspapers. All concerned quarters and private sector investors are being informally informed about the call for bids.

As this is the first major step towards increasing the Renewable Energy (RE) in the national grid and achievement of the ambitious RE generation targets setup by the GoP over the next 8-10 years it will be productive to market it as an international event where large global energy players can participate.



Efficiency Meets Reliability: SolaX X1-HYB-LV Inverter for Pakistan's growing energy needs

Introduction:

As Pakistan faces rising energy demands and an increasing need for sustainable solutions, the SolaX X1-HYB-LV inverter emerges as a strategic choice. With a strong emphasis on enhancing energy efficiency, reliability, and sustainability, the X1-HYB LV offers substantial advantages tailored to meet the unique requirements of Pakistani customers.

Tailored Work Mode for Pakistan:

The SolaX X1-HYB-LV inverter features an innovative work mode meticulously crafted to cater to the distinct needs and usage patterns of Pakistani customers, ensuring a seamless and personalized experience.

Versatile Operation:

One of the standout features of the SolaX X1-HYB-LV inverter is its flexibility, supporting both battery-powered and battery-less operation. This versatility not only improves daily energy management but also provides critical backup options for unforeseen emergencies.

Single or Three-Phase Synchronization:

This inverter offers the convenience of both single and three-phase synchronization, effortlessly adapting to diverse electrical systems. It can function as a single-phase unit in parallel operation or combine with two additional X1-Hybrid-LV inverters to create a robust three-phase inverter solution.

Optimized User Interface:

The redesigned user interface provides a refreshing, simplified, and intuitive experience. This user-friendly design ensures that users of all technical backgrounds can easily manage their energy needs.

Dual PV Input and Dual Load Output:

Equipped with dual PV input and dual load output capabilities, the SolaX X1-Hybrid-LV inverter adeptly handles two different sources of solar energy and allocates them to separate loads. This is a remarkable advantage for users with diverse energy consumption profiles.

Compatibility:

The X1-HYB-LV is compatible with generators, ensuring uninterrupted energy supply during grid failures. As a hybrid inverter, it supports multiple battery solutions, including lithium, lead-acid, gel, and lead-carbon batteries. Its performance is optimized when used with SolaX batteries, such as T-BAT-SYS-LV R2.5 and T-BAT-SYS-LV R3.6.

Intelligent Grid Management:

By effectively managing energy consumption and generation, the inverter helps users avoid peak-time electricity bills, resulting in significant cost savings.

Conclusion:

The SolaX X1-Hybrid-LV inverter is poised to make a substantial contribution to Pakistan's energy sector with its specialized features and excellent adaptability. Offering a comprehensive and user-friendly approach to energy management, it guarantees a dependable and economically efficient power supply.

For more information about SolaX's solar technologies, please contact info@solaxpower.com or info@fronus.com.



GreenTech: Denmark lights the way for Pakistan's clean energy future

Embassy of Denmark, in partnership with the Danish Energy Agency, introduced 'GreenTech' in Karachi, Pakistan, as a significant initiative to promote clean energy in Pakistan. This event showcased Denmark's commitment to helping Pakistan transition to sustainable and eco-friendly energy solutions.

GreenTech aimed to reshape Pakistan's approach to sustainable energy and provided a platform to showcase Denmark's expertise in energy planning, especially in energy efficiency and renewables. His Excellency Jakob Linulf, the Danish Ambassador to Pakistan, emphasized Denmark's commitment to Pakistan through the Danish Energy Transition Initiative (DETI), which aims to share technical expertise and sustainable energy solutions.

GreenTech introduced essential policy recommendations, including strengthening energy authorities' technical capabilities, establishing regulatory frameworks, enhancing energy planning, and expanding electricity production to meet growing demand. It emphasized the flexibility of the energy system



and the deployment of renewable energy and energy efficiency.

Ambassador Jakob Linulf, Denmark's Ambassador to Pakistan, emphasized the pivotal role of the Danish Energy Transition Initiative (DETI) during the event. DETI was a Government to Government collaboration aimed at offering technical expertise, knowledge, and sustainable energy solutions to transform Pakistan's energy landscape, with a clear commitment to facilitating Pakistan's access to Danish expertise for a green energy

transition.

DETI, part of the Green Framework Engagement between Pakistan and Denmark, has already started contributing to Pakistan's capacity for sustainable energy solutions, promising a greener and more sustainable future.

In summary, GreenTech was a significant event that highlighted Denmark's commitment to Pakistan's clean energy transition, offering valuable expertise and policy recommendations for a more sustainable energy future.

2nd Pakistan climate conference highlights urgency and collaboration in climate action

OICCI President Amir Paracha stressed the immediate impact of climate change on Pakistan at the 2nd Pakistan Climate Conference. Despite Pakistan's contribution of less than 1% to global greenhouse gases, it ranks as the eighth most vulnerable nation to climate change.

Caretaker Finance Minister Shamshad Akhtar estimated a \$340 billion investment requirement (10% of GDP) to address climate-related challenges, highlighting the trade-off between climate finance and developmental finance. The Ministry of Finance plans to collaborate with the Ministry of Climate to explore innovative climate finance mechanisms.

Minister of Energy Muhammad Ali emphasized the substantial cost of climate change to Pakistan and the need for private sector collaboration, particularly with organizations like OICCI, for substantial investments in energy assets infrastructure by 2040.

The conference highlighted the importance of embedding climate considerations in financial decision-making processes. Last year's devastating floods in Pakistan served



as a stark reminder of the country's climate vulnerability.

The 2nd Pakistan Climate Conference brought together global and local experts, business leaders, policymakers, and activists to address climate change impacts, with a focus on climate resilience, plastic and waste management, and emissions reduction.

Rehan Shaikh, Vice President of OICCI, stressed the need to align policies and investments with a net-zero future as a signatory to

the Paris Agreement.

Notable speakers at the conference included Dr. Shamshad Akhtar, Minister of Finance, Adil Najam, WWF Global President, Bill Winters, Global CEO of Standard Chartered Bank, and Philip Skinner, Managing Director of GuarantCo.

OICCI member companies, including Chevron, Dawlance, Standard Chartered Bank, Unilever, BASF, Toyota Indus Motors, Nestle, and Abbott, were key sponsors of the event.

Pakistan's mining sector gathers industry and academia to discuss Human Resource Development

Oil & Gas Development Company Limited (OGDCL) and the Ministry of Energy (Petroleum Division) hosted a day-long Conference in Islamabad to discuss the state of Human Resource in Pakistan's Mining and Mineral Sector. The event was prompted by the Federal Government and the State Institution for Financial Cooperation (SIFC) refocusing on the mining sector for economic growth.

CEOs of public sector mining companies, including Sandak Metals, PMDC, and Pakistan Minerals Ltd, as well as Chairpersons of Mining Departments from public sector universities, Higher Education Commission representatives, and the Director General (Minerals) participated in the event. The discussions included curriculum assessment, international best practices, and training needs for mining professionals, with contributions from training institutes. MD/CEO OGDCL, as the host, committed OGDCL's support to develop a world-class mining workforce for upcoming projects. MDs of PPL and GHPL also pledged support for the Human Resource Development Programme. The event was a pioneering initiative that brought industry and academia together to discuss human resource development, and MD/CEO OGDCL assured cooperation with the Ministry of Energy and Higher Education Commission to formulate an HR development strategy.

Thar Foundation inaugurates village electrification project to illuminate 1,035 households in Thar Coal Block II with solar power

The Thar Foundation recently celebrated a significant milestone with the launch of the Village Electrification Project (VEP), aimed at bringing electricity to households in Thar Coal Block II through the installation of solar systems. This initiative is expected to benefit a total of 1,035 households, signifying progress and development for the region's villages.

The project's inauguration took place in Thar Coal Block II and was led by Amir Iqbal, CEO of Sindh Engro Coal Mining Company. Several other notable individuals, including Azhar Malik (Director site SECMC), Farhan Ansari (GM Thar Foundation), Fazal Thebo (GM EPTL), and Tarique Fareed (GM Admin HUBCO), were also present at the ceremony.

Thar Coal Block II is already supplying electricity to three million households across the country, and through the Village Electrification Project, solar electricity will be extended to more than 1,000 households. Local workers, who have received training through the vocational training initiative of Thar Foundation, will be employed on this project. Amir Iqbal expressed optimism that this initiative would improve socio-economic opportunities for the residents of Thar Block II.

Pakistan's Clean Energy Priority: Collaboration with Denmark for sustainable transition

The Interim Energy Minister of Pakistan met with the Danish Ambassador to discuss the Danish Energy Transmission Initiative (DETI) and Pakistan's focus on clean energy due to climate change vulnerabilities. Pakistan has approved the National Electricity Plan 2023 with goals of 40% renewable energy by 2025 and 60% by 2030, and Denmark's support is crucial for achieving these targets.



The Ambassador is interested in expanding cooperation on wind and solar energy. The Minister stressed the importance of the power sector in climate change mitigation and a gradual reduction in tariffs, emphasizing the use of indigenous resources. Regarding DETI, discussions covered energy planning, modeling, and renewable energy integration. COP-28 will address green and economic scenarios, grid constraints, and attracting green investment. Future collaboration includes analyzing the transmission and distribution network, particularly in Interconnection Ready Zones (IRZs), and minimizing seasonal demand variations to maintain system stability. The Power Division aims for extensive cooperation with Denmark to achieve green energy goals, and the Ambassador praised Pakistan's efforts in energy transition.

OGDCL's impressive FY 2022-23: 59% profit growth, final dividend declared

OGDCL's 26th Annual General Meeting (AGM) for the fiscal year 2022-23 took place at the OGDCL Head Office in Islamabad, chaired by Mr. Zafar Masud, Chairman of the Board of Directors.



The company reported net sales of PKR 413.594 billion, resulting in a robust 59% increase in profits after tax, reaching PKR 224.617 billion, compared to last year PKR 133.783 billion. Earnings per share rose to PKR 52.23 from PKR 31.11.

The Board announced a final cash dividend of PKR 2.75 per share, equivalent to 27.50 percent, in addition to the interim dividend of PKR 5.80 per share (58 percent). OGDCL paid PKR 159.154 billion in taxes during the fiscal year. OGDCL's shareholders lauded the company's performance and growth initiatives.

SOCIAL AND BUSINESS ROUND UP



Trina Solar organized Road Show. Picture shows participants with Team Trina Solar and Team Energy Update.



A group picture with CEO Dawlance Umar Ahsan Director Opt Amin Ahmed at Pakistan Climate Conference of OICCI



Inverex Solar has launched its first-ever outlet in Dubai. The grand opening held on October 20, 2023, CEO of Inverex, Mr. M Zakir Ali, was the chief guest. & famous social media influencers, Bare Bhai Chote Bhai also attended this ceremony



At life time achievement award of Islamabad chamber of commerce Governor Sindh Kamran Tessori presenting awards to businessmen



Indus University holds special convocation at Governor House. Picture shows Governor Sindh Kamran Tessori, khali ur Rahman Qamar, Akhtar Tessori CG UAE Bakheet Ateeq, Khalid Amin VC IU, diplomats & other are seen in the picture



Caretaker Sindh Chief Minister Justice (R) Maqbool Baqar meets with Ambassador of Germany Mr. Alfred Grannas at CM House.



A picture heads of Pakistani Solar Companies at Renewable energy Expo in KSA



30-40w
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-  **Zero degradation over life**
-  **Ultra fast charging & discharging**
-  **Up to 15 years warranty**
-  **100% Depth of discharge**
-  **Non chemical - environment friendly**
-  **Operating temperature -30°C~ to +70°C**



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