

MONTHLY

ISSN 2309-6578

ENERGY UPDATE

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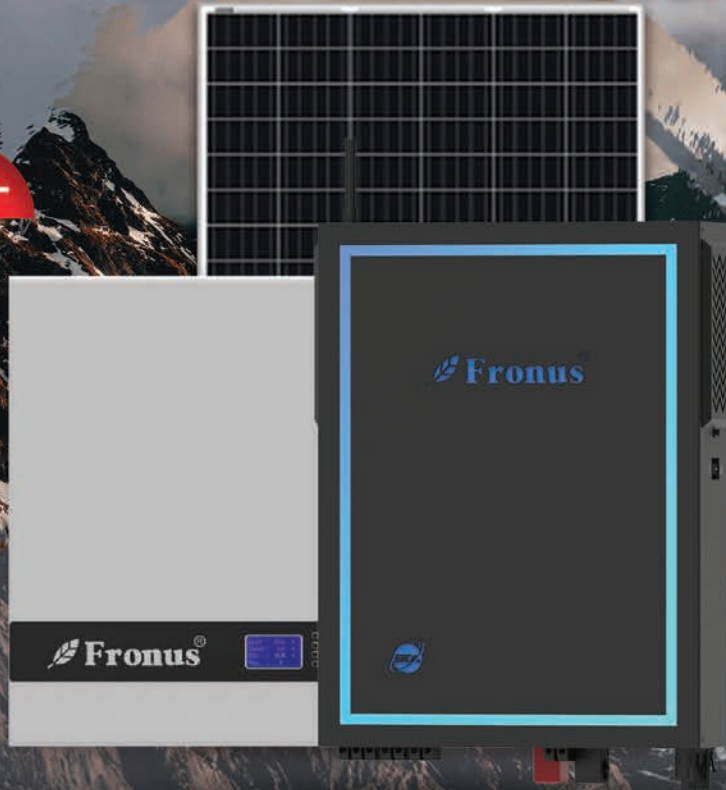
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Worst scenario in energy sector

PTI's bad governance in each and every field is creating hatred with the Prime minister and his team among the general public as the present regime has created new records of incompetence and indifferent attitude towards the national issues. After making life of the common man, a bed of nails, Imran Khan's governance sans-direction, has made another record to create sheer crisis of energy by resorting to load-shedding of power and gas and CNG shut down simultaneously during summer as well. IK's government oblivious of all consequences neither has any control on power generating companies nor on the gas distribution companies. Resultantly, the entire country is suffering from darkness in scorching heat due to want of electricity despite having double to the capacity of power generation and severe gas shortage which is not available to industrial, domestic or CNG sector.

In such a situation, local and foreign energy experts have lashed out at the government's incompetence over the shortage of electricity and gas in the country. While commenting on the PTI government's incompetence and corruption in the LNG sector, everyone was of the opinion that the real cause behind the ongoing load-shedding and gas shortage, is incompetency, no command over the technical and administrative affairs and prevailing corruption among the PM's team.

Renowned Economist, Qaisar Bengali said that at the height of the Corona epidemic last year, the government was offered gas at a price of less than four MMBTU but it refused to buy it at this low price and then in winter the same gas was bought at double price. "In winter the government lied to the nation that short-term agreements were not available. This government's claim was illogical as the country had to pay 20% more on crude oil and gas." He claimed that during the PTI era, about 80% costlier than previous regime gas purchase agreements were made he said that instead of buying cheap LNG, the present government had run power plants on expensive furnace oil and three times more expensive diesel and as the result, revolving credit increased rapidly.

The worst scenario is yet to come as even foreign investors included ExxonMobil, the world's largest energy company has been forced to leave due to corruption in the PTI government forced the company to return its investment, he alleged. He said that despite being in government prevailing for the last three years, PTI has failed to set up any new terminal and agreement with Russia to lay the North-South Pipeline has also been jeopardised.



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Monthly Energy Update

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REGISTRATION # DCO/DDO/LAW/CDGK-41/2006

Published by M. Naeem Qureshi for Energy Update
& Printed at Print Vision, Karachi Cell: 0333-2244586

Destructive powers of politically charged dams

— Nasir Jamal —

The National Transmission and Despatch Company (NTDC) recently submitted the revised Indicative Generation Capacity Expansion Plan (IGCEP) for the regulator's approval. Alongside other revisions, it indicates an increase in the planned hydropower share to more than half of the country's total energy mix by 2030.

The hydropower component of the IGCEP displays an 'alarming trend', according to the comments on the plan submitted to NTDC by the Rural Development Policy Institute (RDPI), a civil initiative aiming to stimulate public dialogue on policies, and the Alternative Law Collective (ALC), a group of lawyers and academics working for causes having a social impact.

"This model would

make future hydropower projects the centrepieces of Pakistan's energy expansion plan. While this may be good news for the global dam industry, and the relevant government agencies as large-scale infrastructures are good for business, this doesn't bode well for the citizen, taxpayers and future generations," the two nonprofits underline in their commentary.

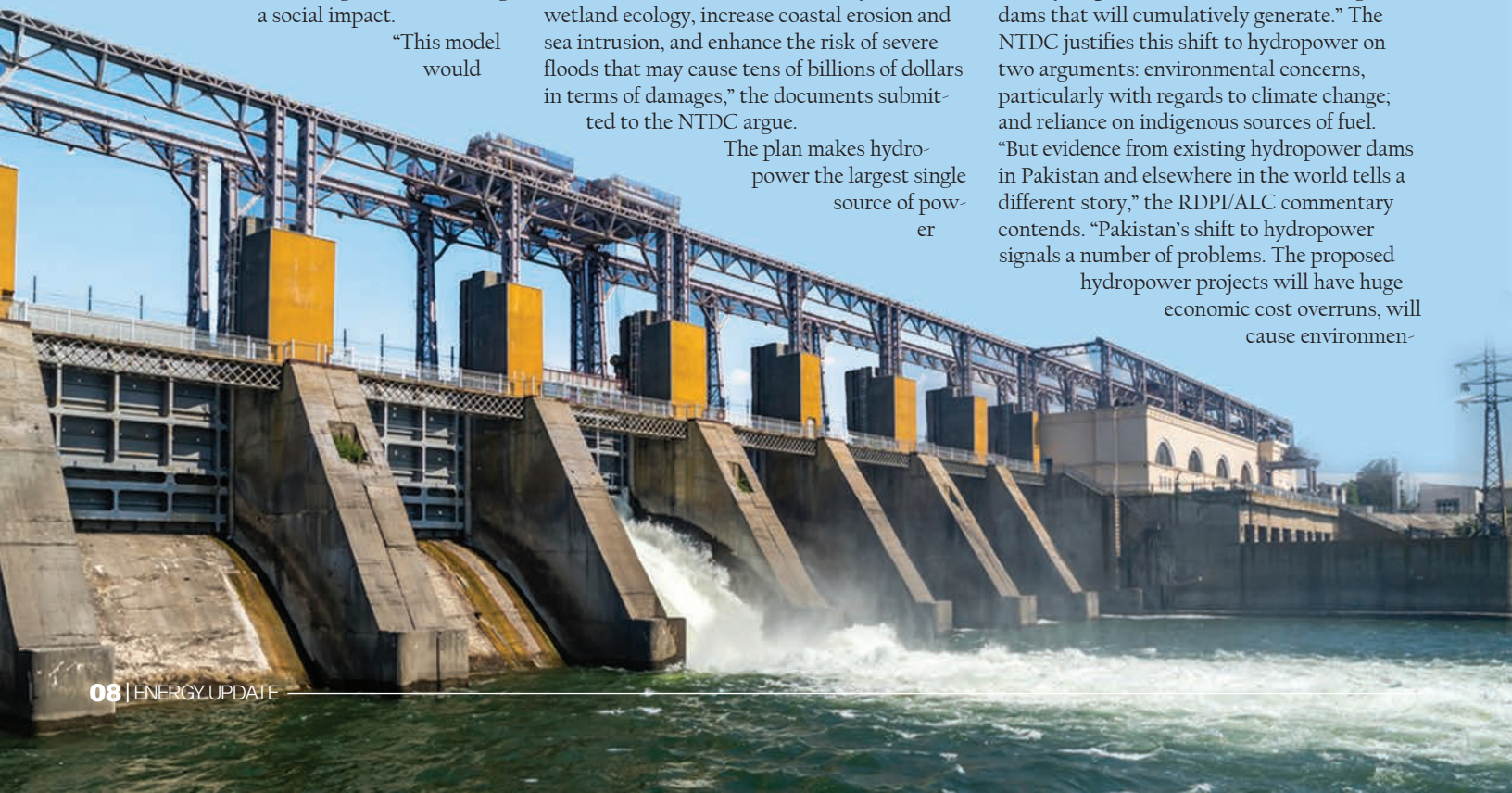
The analysis of the hydropower projects listed in the IGCEP 2021-30 shows that the plan overlooks and hides various technical problems, expected cost overruns, and the social and environmental damages likely to occur. "If these hidden and overlooked costs are included in the planning, most of the hydropower projects do not remain economically feasible. If these challenges are not addressed and the alternatives not explored, the shift to hydropower will worsen the water and environmental crises in Pakistan, increase water distribution conflicts, destroy river and wetland ecology, increase coastal erosion and sea intrusion, and enhance the risk of severe floods that may cause tens of billions of dollars in terms of damages," the documents submitted to the NTDC argue.

The plan makes hydropower the largest single source of power

production with a base generation of 50 per cent followed by 25pc generation from fossil fuel, 13pc from nuclear and 10pc from renewables like solar and wind. In terms of the committed projects, hydropower share is about 60pc. The list of the committed projects shows that NTDC plans to increase generation capacity by 22,180 megawatts by 2030 through 69 projects, with 13,161 megawatts coming through 23 hydropower schemes.

"Most of the hydropower energy will be generated using large dams. At least 10 of the 23 projects involve large dams, including mega dams such as Diamer Bhasha, Dasu, Mohmand and large dams such as Kohala, Suki Kinari, Karot, Azad Pattan, and others.

"While the NTDC report emphasises that the majority of the dams are run-of-the-river with minimal environmental and social costs, 12,718 megawatts, or about 97pc, of new hydropower will come from the large dams that will cumulatively generate." The NTDC justifies this shift to hydropower on two arguments: environmental concerns, particularly with regards to climate change; and reliance on indigenous sources of fuel. "But evidence from existing hydropower dams in Pakistan and elsewhere in the world tells a different story," the RDPI/ALC commentary contends. "Pakistan's shift to hydropower signals a number of problems. The proposed hydropower projects will have huge economic cost overruns, will cause environmen-



tal damage, are unsuitable for the climate and seismic conditions, and will have adverse social and economic consequences for lower riparian groups, particularly the communities of land and water users in Sindh, the Indus Delta, and the riverine communities.

“The ‘fuel’ of hydropower, water, is a scarce and public good that is already severely taxed. By adding more hydropower without considering those with existing legal and established claims on water use, the IGCEP 2021-30 indicates a plan that is likely to increase water conflict in Pakistan. The true cost of hydropower, some of which is highlighted in this brief comment, is huge. It is incumbent upon the National Electric Power Regulatory Authority, NTDC and other responsible bodies to take into account all these various costs.”

The RDPI/ALC analysis of the plan

underlines that the hydropower commitments of IGCEP 2030 seem to neither consider the rapidly changing climatic conditions nor the existing socio-hydrological realities of the river systems, and the millions dependent on the vast mosaic of healthy river ecosystems. “These projects will lock us into costly, technically unsound, environmentally destructive, and politically charged projects. The planners also seem to have ignored what’s happening across the globe. Thousands of dams have already been removed in the US and Europe in the past several decades after careful reflection on their economic, social, and ecological costs. Pakistan must not repeat these mistakes and commit billions of dollars to inefficient and disruptive energy systems.

“Following international best practice as established by the World Commission on

Dams Report of 2000, and insights from subsequent research, all alternative options to a new large hydropower plant should be considered. This includes but is not limited to underwater storage (on the model of ‘water banking’ in the US West), solar power, tidal power, wind power, micro-hydel, and controlling inefficient and consumption of water. Wind and solar offer the greatest potential and must be prioritised instead of costly hydropower.” Last but not least, the government must be prepared to ensure substantial participation of a broad range of stakeholders in the planning process, including communities that are impacted by factors including but not limited to flooding, resettlement, fluctuation of flows downstream, electrification, and changes in the transport network.

Courtesy: Daily Dawn

Govt’s electricity plan faces high governance risks: WB

—◆— Amin Ahmed —◆—

The World Bank says that the implementation of the government’s national electricity policy and the least-cost power generation plan requires political agreement between the federal government and provincial governments, which are not all governed by the same political party.

The bank in a document released for the forthcoming approval of \$400 million loan for development policy financing of government’s programme for affordable and clean energy, says the overall risk rating to achieve the objective to reduce circular debt flow through reducing power generation costs, decarbonising the energy mix, improving efficiency in distribution, and retargeting electricity subsidies, is high.

Governance risks are also high as Pakistan’s system of governance is partially subject to influence by elites, which puts reform implementation at risk when reforms adversely affect the interest of certain groups.

The government has developed a new national electricity policy that governs key principles such as efficiency, transparency, competition, financial viability, and environmental responsibility. Through the new policy, competitive bidding was being introduced for the first time for all generation technologies, except for strategic projects such as large hydropower on the Indus cascade.

According to the document, reduction of power costs and use of captive power and retargeting of electricity subsidies and tariff increase face strong vested interests and will require federal government’s continued strong commitment to implement and sustain.

It is worth noting that the level of commitment that the government has shown for all prior actions has been very robust. Indicator targets have taken into account this commitment but with prudence considering time required to implement some of the reforms and the upcoming elections in 2023.

Political and governance risks are mitigated in part through

extensive consultations with government counterparts at the federal and provincial levels, and with major interest groups, aimed at reaching consensus and aligning priorities.

The government has requested the World Bank for a loan of \$400m for the operation designed to support the country’s comprehensive power sector reform programme. The operation’s development objective is to reduce circular debt flow through reducing power generation costs, decarbonising the energy mix, improving efficiency in distribution, and retargeting electricity subsidies. ■





Energy revolution awaits government policy support in Pakistan

Khawaja Munseb Ali Arshad

Country Sales Director,
Huawei Technologies

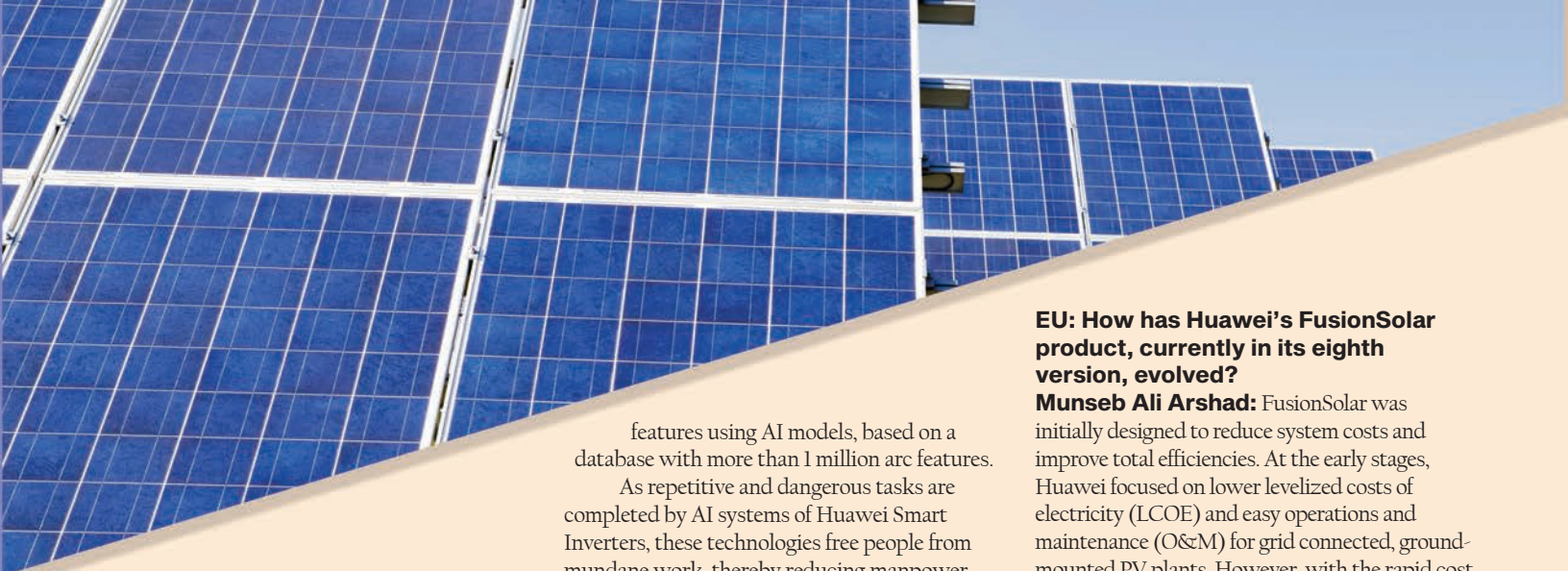
Energy Update: Tell our readers about solar power potential of our country?

Munseb Ali Arshad: Pakistan, solar PV possesses almost infinite potential on the other hand to generate electricity in Pakistan. Lower Levelized cost of electricity generation from different sources of energy as of today in the Photovoltaic (PV) have been causing a number of other power sources to become less interesting and hence strengthening belief that PV is the fastest growing source of power in the world.

According to the Medium-Term Development Framework 2006, Pakistan plans to increase the share of renewable energy technologies (RETs) in the overall energy mix to up to 9700 MW by the end of 2030. The country can achieve these targets and tackle energy crises if it utilizes solar energy resources in a proper and efficient way. Pakistan is located in sun-belt. An enormous solar potential exists in the country. Sindh, Baluchistan and some southern parts of Punjab have abundant solar energy potential. These areas receive 2 MWh/m² solar irradiation and 3000 h of sunshine per year, which are perfect to invest in solar energy to utilize its true potential. Baluchistan alone has tremendous solar energy potential. The average global insolation is 19–20 MJ/m² per day and the annual mean sunshine duration is 8–8.5 h, which is perfect for the installation of solar PV and other solar energy related projects. The average temperature of the country is Celsius 260 -280. Meanwhile, the daily average solar power potential is 5.3 kWh/m². The country has an overall 1,600,000 MW solar power potential. If solar PV panels were installed only on a 100 Km area of Pakistan with 14% efficiency, it could generate 30 million tons of oil equivalent (MTOE) energy in the country.

—◆— Mustafa Tahir —◆—

This was stated by Engr. Khawaja Munseb Ali Arshad, the Country Sales Director of Huawei Technologies Pakistan (PVT) Ltd, in a detailed interview with the Energy Update (EU), wherein he talked about the renewable energy potential of Pakistan, the reforms the Pakistani energy sector required to unlock this potential, and what Huawei has been doing to help our country to maximize solar power production. Following are the important excerpts from his interview for our readers:



EU: What could be the main benefits of solar power for Pakistan?

Munseb Ali Arshad: The distribution and transmission network of electricity in Pakistan is old and weak. Solar energy can relieve this traditional electricity network and turn out to be an alternate to traditional electricity in remote areas, where no grid electricity is available. Solar energy has already gained popularity all over the world. Current work has been going on to improve the storage capacity of the cells used in solar PV. It is also important at this point in time to make effective policies, followed by clear strategies and models to realize solar potential in the country. In this regard, Public-private partnership can turn out to be very fruitful so that this form of energy should become consumer's first choice

EU: Tell us our readers as what Huawei has to offer to the prospective users of solar power in Pakistan?

Munseb Ali Arshad: With Huawei's smart Fusionsolar solutions people have witnessed and experienced the comprehensive integration of cloud, AI and 4G/5G technologies. Huawei's approach includes the transformation of inverters into smart PV Inverters, with the development of AI inference modules and the creation of an AI training and inference platform. Machine learning is also to be incorporated into operations and maintenance, grid management and PV plant design.

Huawei's smart string inverters are improved for high-precision, real-time data collection with real-time control of string-level energy yield optimization, DC arc detection and response to grid-tied control – including real-time inference, execution and self-closed-loop control capabilities.

Huawei string inverters equipped with neural network-based AI training and modeling allow for increased power generation, AI algorithms are also being used to prevent fires, especially those caused by DC arcs through poor contact. Huawei's arc-fault circuit interrupters (AFCIs) solution is already capable of modulating PV system operations when a risk of fire is detected. The technology is able to learn arc

features using AI models, based on a database with more than 1 million arc features.

As repetitive and dangerous tasks are completed by AI systems of Huawei Smart Inverters, these technologies free people from mundane work, thereby reducing manpower input while improving efficiency, speed and accuracy.

EU: What is latest technological innovation by Huawei in the arena of renewable energy?

Munseb Ali Arshad: Huawei brought its new generation All-Scenario FusionSolar + Storage Solution to this year's SNEC. It is a "5+4+1" solution. The "5" means five core Huawei technologies, including watt technology, thermal technology, storage technology, cloud technology, and AI technology, which help to combine the flows of energy and information. The "4" refers to four major application scenarios, including the Smart PV Generator for utility scale solar, residential green power, industrial green power, and off-grid fuel-removal power supply. Finally, the "1" refers to Huawei's energy cloud, which will integrate power generation, energy storage, and consumption load with help of AI management.

Huawei aims to promote these new technologies to contribute to the energy structure reform from conventional energy to a renewable energy system, and to help Pakistan and other countries achieve their carbon emission and carbon neutrality targets.

EU: Does Huawei see digitalization as a key aspect of the energy transition?

Munseb Ali Arshad: Yes. We think there are four essential elements in the building up of a renewable energy system. The first is a high proportion of renewable energy, including the replacement of conventional energy by wind, solar, and storage in the power generation sector. The second is the popularization of electrification on the user side, including electric transportation and electric vehicles. The third is wider utilization of electronics in the electricity power system, and more interaction between power generation, the grid, and electricity users. The fourth is the digitalization and intellectualization of the energy system which can manage massive nodes in the energy internet, including solar PV plants, storage, electric vehicles, and millions of applications. And this point is the core of the system: to ensure its function and security.

EU: How has Huawei's FusionSolar product, currently in its eighth version, evolved?

Munseb Ali Arshad: FusionSolar was initially designed to reduce system costs and improve total efficiencies. At the early stages, Huawei focused on lower levelized costs of electricity (LCOE) and easy operations and maintenance (O&M) for grid connected, ground-mounted PV plants. However, with the rapid cost reduction over the past years, solar power has achieved economic competitiveness compared to other energy. Our new generation FusionSolar is thus focusing on how to reduce the volatility of solar power by better controlled integration of PV and storage. For example, we presented the Smart PV Power Generator concept, which aims to not only reduce system costs, but also make PV power systems generate stabilized power, like traditional hydro and coal power. This will help PV to be a popular power source and connect to the grid on a worldwide scale.

EU: What solar sector will the Smart PV Power Generator initially target?

Munseb Arshad: Huawei has the All-Scenario FusionSolar solution, and we aim to target all sectors with this, from utility-scale PV, off-grid systems, and commercial and industrial (C&I) to residential rooftop PV.

EU: How does Huawei view the building integrated PV (BIPV) market?

Munseb Ali Arshad: Inverter manufacturers should pay attention to this point when marketing and selling BIPV inverters, because the whole market development will be easily hurt or even suspended by fires or explosions if inverters are lacking safety specifications.

EU: 2020 PV inverter shipments for Huawei totaled 42 GW, which is a new record. Is a capacity expansion on the cards?

Munseb Ali Arshad: We have planned for around 100 GW of inverter capacity in 2021. We benefit from production automation, and have plenty of production elasticity, which makes our capacity flexible to market needs.

EU: What are your 2021 shipment targets for PV inverter and storage products?

Munseb Ali Arshad: We aim to ship 60 GW of inverters this year. However, based on the past few months and the booming market, we will probably exceed this figure by the end of the year. For storage, our target is 3 GWh worth of sales in 2021. ■



Climate change becomes threat to mangroves

◆ Sajid Aziz ◆

Coastal mangrove forests help protect communities and habitats from storm surges, but sea-level rise could wipe them out – Climate Change is killing mangroves – the most affected mangroves are the ones in Pakistan’s province of Sindh and in Bangladesh’s Sundarbans forest area, to name two of the South Asian countries which are located on the Arabian Sea and on the Indian Ocean respectively. Both countries fall within the highest global pollution envelope including India in South Asia.

While sounding alarm bell, IUCN says in a recent report the Sundarbans, the world’s largest mangrove forest of which more than half lies in Bangladesh and rest in India in the Bay of Bengal, once again acted as a natural barrier protecting the country from the worst effects of the recent Cyclone Yaas, as it has done countless times before. It bore the brunt of Yaas at a heavy cost. “It takes usually 25 years for a forest to get back to its previous state after a calamity but Sundarbans hardly gets the time as such cyclones have become more frequent in recent years,” said Dr Mahmud Hossain, researcher and vice-chancellor of Khulna University.

“Therefore the magic bullet against climate change is the protection and growth of mangrove,” says a South Asia environmental expert. It’s a fight that’s well worth the time and effort: That’s because mangroves are a valuable weapon in the fight against climate change. “By surface area, mangroves store four to five times more carbon than conventional forests,” explains Dorotee Herr, who’s head of the oceans and climate change division at the International Union for Conservation of Nature (IUCN).

The trees, which have the rare ability to grow in salt water, store carbon dioxide in sediment, explains Herr. “They have sediment deposits that are meters thick in some cases,” she explains.

This trait makes mangrove forests particularly prized as a highly effective nature-based

solution to fight against global warming.

However, these unique trees are endangered: According to an IUCN report, mangroves have been cut down faster than any other forest species in the last half century. Since 1996, the global area covered by mangrove forests, about 146,000sq km, has decreased by about 6.6%, according to the report. This is largely due to mangrove forests – which are found in almost all warm coastal regions – being converted into farmland or ponds for aquaculture or by

encroachment or lost due to marine pollution, erosion due to climate change effects on sea levels. More than 200,000 acre forest lands in Sindh were reportedly encroached in the riverine area of the Indus – the authorities seek forest cover for them after the encroached tracts were vacated.

Efforts are being made to promote mangroves, urban forest and farm forestry in the province – forest schemes at regional level are being prepared. ■

World Bank approves \$800mln for clean energy, human capital

The World Bank’s board of executive directors has approved \$800 million in financing for affordable and clean energy and securing human investments to foster transformation.

The \$400 million Pakistan program for affordable and clean energy (Pace) focuses on measures to improve the financial viability of the power sector and support the country’s transition to low-carbon energy. PACE prioritises actions needed to initiate critical power sector reforms focused on reducing power generation costs, better targeting of subsidies and tariffs for consumers, and improving efficiencies in electricity distribution with the participation of the private sector. Additional medium-term reforms are under development, focusing on subsidies, competitiveness, and power sector sustainability. The goal is to reduce circular debt over the long-term. “Power sector reforms are critical to resolving Pakistan’s fiscal challenges,” said Rikard Liden, task team leader for the Pace program.

“Decarbonising the energy mix will reduce the dependence on fossil fuel imports and vulnerability to price fluctuations because of movement in exchange rates. Pace prioritises action on such reforms, which

must be sustained to address circular debt and set the power sector on a sustainable path.” Another \$400 million second securing human investments to foster transformation program (Shift II) supports a federal structure to strengthen basic service delivery for human capital accumulation. The program will help improve health and education services, increase income-generation opportunities for the poor, and promote inclusive economic growth.

“Strengthening services that build human capital in a coordinated manner between provincial and federal authorities, along with improved targeting of social safety nets, will better support families to recover from the COVID-19 crisis, and pave the way for more robust crisis preparedness in the future,” said Tazeen Fasih, task team leader for the Shift II program. Shift II reforms increase budget reliability for sustainable financing of child immunization and quality primary healthcare programs, promote student attendance — especially for children who are out of school due to COVID-related closures — and support data-driven decision-making. ■

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—◆ Dr Abid Qaiyum Suleri —◆

Back in 1987, 'Our common future', also known as the Brundtland Report, proposed the three main pillars of sustainable development: economic growth, environmental protection, and social.

Back in 1987, 'Our common future', also known as the Brundtland Report, proposed the three main pillars of sustainable development: economic growth, environmental protection, and social equality. A group of deniers, including former US president Donald Trump, challenge the need for coexistence in harmony with nature. They ridiculed the scientific evidence and doubts that ecosystems on planet earth, if not managed properly, can run out of water, oxygen, or reach their spatial limits to accommodate further habitation.

Till last year, many of us have been ignoring the warnings of a pandemic. However, poorly struck with Covid-19, today we know that despite global economic development and

technological advancements, a pandemic can cripple us.

Unlike Covid-19, we don't have to wait for a climatic apocalypse to believe that living in disharmony with nature would be disastrous. Those who followed the frantic calls for oxygen for Covid patients in India last month can imagine the helplessness of losing loved ones due to lack of oxygen. Fast forward the scene, a few decades down the road, the way we are consuming natural resources beyond the planet can replenish, many parts of the world would not be livable anymore.

The rat race of economic growth sans ecosystem restoration may lead us to a stage where future generations of humans may have to carry personal oxygen devices to breathe, just like now we have had to adapt to facemasks. If we don't mend our ways, then living on Earth and Mars, or any other planet, may be a similar experience one day. Imagine our future generations drinking laboratory-prepared water, using synthetic oxygen for respiration, and wearing air conditioned clothes to ward off climate vagaries. Scary, isn't it? That is why the United Nations Environment Program (UNEP) is launching a decade of 'Ecosystem Restoration' from today.

Why today?

Because today is the 5th of June, and it is World Environment Day (WED). This year Pakistan is selected to be the global host for WED. I will come to it later, but first, let us see what a decade of ecosystem restoration signifies? We are only a decade away from the deadline set for achieving sustainable development goals. The UNEP invites us to become #GenerationRestoration and restore our ecosystem for people, nature and climate during this decade; otherwise, most sustainable development goals

would get missed.

Over-exploitation (by 1.6 times) of natural resources (then the planet can replenish) is embedded in economies and governance systems. The resulting degradation is undermining hard-won development gains and threatening the well-being of future generations. From oceans to forests to farmlands, the world's ecosystems are being degraded, in many cases at an accelerating rate. According to the UNEP, people living in poverty, women, indigenous peoples and other marginalized groups bear the brunt of this damage, and the Covid-19 pandemic has only worsened existing inequalities.

While the causes of degradation are various and complex, one thing is clear: the massive economic growth of recent decades has come at the cost of ecological health. It is not about choosing between development and conserving the natural resource bases. It is about development, 'and' environmental conservation, protection, restoration, 'and' working towards social equity. It is not a zero-sum game. We have to take care of this tridimensional developmental objective through our policies and practices. The three are mutually nonexclusive and cannot be dealt with in isolation.

While warning about the severity of the problem, experts also give us the good news that nature has an extraordinary capacity for renewal. While some ecosystems are approaching a tipping point from which they cannot recover, many others can flourish again if we stop the damage and restore their health, biodiversity and productivity. What does it require to replenish nature? The UNEP and FAO ask world governments to deliver on their existing commitments, under the Rio Conventions and the Bonn Challenge, to restore one billion hectares of degraded land and make similar commitments for marine and coastal areas.

Why should the world governments act on this advice? The UNEP and FAO experts describe that restoration is essential for keeping global temperature rise below 2 degrees Celsius, ensuring food security for a growing population (restoration through agroforestry can improve the food security of 1.3 billion people) and slowing the rate of species extinctions. In fact, it is one of the most important ways of delivering nature-based solutions for societal challenges. Let us see how.

Half of the world's GDP is dependent on nature, and every dollar invested in restoration creates up to \$30 in economic benefits. Restoring marine fish populations to deliver a maximum sustainable yield could increase fisheries production by 16.5 million tonnes, an annual value of USD 32 billion.

Actions that prevent, halt and reverse degradation are needed if we are to keep global temperatures below 2 C. Such actions can deliver one-third of the mitigation that is needed by 2030. This could involve action to better



manage some 2.5 billion hectares of forest, crop and grazing land (through restoration and avoiding degradation) and restoration of natural cover over 230 million hectares.

Moreover, with careful planning, restoring 15 percent of converted lands while stopping the further conversion of natural ecosystems could avoid 60 percent of expected species extinctions.

It is not governments alone that would have to take care of the ecosystem. The call for ecosystem restoration is made so all of us play our role. Restoration activities can be done in a backyard plot, a city park, a river valley, a national forest, or a globally threatened ecosystem. This means that everyone can get involved.

Let me also touch upon the honour that the UN system conferred Pakistan: to be the global host of World Environment Day this year. This is in recognition of our latest efforts towards ecosystem restoration, especially our afforestation efforts through billion (and now ten billion) tree plantations. Referring to the prime minister's personal attention to this plantation drive, the UNEP specifically mentioned that natural restoration in countries like Pakistan, China, and Costa Rica had been driven by political will.

However, political will sans financial resources would not help us achieve the objectives of the UN decade of restoration. Like many other developing countries, Pakistan is one of the least polluters and carbon emitters in the world. Under the principle of "Common but differentiated responsibilities and respective capabilities", countries like Pakistan require help from the developed world (whose share in global CO₂ emission is much larger) to take the agenda of restoration forward. On the global front, the public and private financial institutions (including bilateral and multilateral development partners) and regulatory bodies should, in line with the call of the UN, develop and strengthen instruments and mechanisms to ensure that finance flows support restoration efforts.

On the domestic front, we would have to ensure that we don't put our environmental stability and sustainability at stake while pursuing economic growth. Otherwise, our growth would not be clean and green. It goes without saying that even clean and green economic growth is not sustainable until it takes care of social equity, the third pillar of sustainable development. ■

(The writer heads the SDPI)

If Govt willing, gas crisis can be over easily

— Khalid Mustafa —

Amid the gas crisis across the country, Pakistan Gas Solutions Limited (PGSL) has once again come up with its offer of fast track gas availability of up to 750 mmcfd in 10 months if the government gives a go ahead for initiating construction work on its second LNG terminal of \$500 million at Port Qasim.

The second LNG terminal by the Pakistan Gas Port Limited (PGPL), in collaboration with Fauji Oil Terminal Distribution Company Ltd (FOT-GO), will be established at Mazhar Point, Port Qasim. "The project, upon commissioning, shall be saving around US\$ 1 billion per annum in import substitution in comparison to furnace oil, create large employment and make affordable energy available to the industry which is their long-standing demand. And the project will be completed in 10 months from its start with no government guarantees and the entire funding is expected to be made from abroad and has been firmed up." "The land has already been leased and rent is being paid for many years. More importantly, all requisite studies are ready and so much so the pipeline capacity for evacuation of RLNG from terminal to SSGC Delivery Point has already been developed. A construction contract for LNG Terminal-II of

PGSL has been signed with a Chinese company. Under the undertaking from the EPC contractor, the project will be completed in 10 months from ground-breaking. The project has been funded through equity and requires no government guarantees for off-take of gas. The entire risk is being taken by the sponsors."

This all has been disclosed in a letter of Pakistan Gas Solutions Limited written on June 17, 2021 to secretary Petroleum. "Despite repeated requests in writing, Port Qasim Authority (PQA) continues to deny our contractor's access to the site or allow the FBMS (Full Bridge Marine Simulation Study) to be conducted," says PGSL in the letter. The PGCL also urged the PQA to honour the already signed Implementation Agreements and allow the US\$500 million project to proceed forward immediately.

In a letter to secretary petroleum dated June 17, 2021, Pakistan Gas Solutions Limited (PGSL) said: "All geophysical and other needed studies have been completed, except for one computer-based study — Full Bridge Marine Simulation Study (FBMS), which is to be done by Lloyd's of London, at our cost, but requires the participation of Port Qasim Authority (PQA), which has been withheld to date." Pakistan Gas Solutions Limited has obtained the no objection certificate (NoC) from the Ministry of Defence and the PQA Board. ■

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Circular debt soars to Rs2.327 trillion

— Khaleeq Kiani —

With power sector circular debt touching Rs2.327 trillion as of June 30, 2021, the Cabinet Committee on Energy (CCoE) ordered expeditious implementation of the oil crisis report including transfer of additional powers to Oil & Gas Regulatory Authority (Ogra) to regulate the oil marketing sector.

Presided over by Planning Minister Asad Umar, the CCoE also desired a final position of all the stakeholders on allocation of pipeline capacity and tie-in mechanism before the next meeting to secure final investment decisions (FIDs) from investors of two additional merchant LNG terminals. It was noted that discouraging signals were going out to the investors who had paid different fees and made other expenditures so far which was not a good omen. The Power Division presented its monthly circular debt report that reported total power sector circular debt at Rs2.402tr at the end of May 2021, showing an increase of Rs251bn from Rs2.153tr carried forward on July 1, 2020.

The report provisionally projected circular debt at Rs2.327tr as of June 30, 2021 on the basis of Rs90bn payments to independent power producers (IPPs) a few days ago. As such, the power division reported an increase of Rs177bn in circular debt during the entire 2020-21 when compared with Rs541bn surge in fiscal 2019-20.

The report said a major chunk of the increase in circular debt of Rs130bn because of unbudgeted subsidies out of Rs177bn total increase and about Rs70bn on account of interest on delayed payments to IPPs. "The committee noted that the circular debt build-up had substantially reduced in comparison to the pre-

vious years," said an official statement, adding the Power Division was directed to continue with its efforts for further reduction.

Sources in the Petroleum Division said Secretary Petroleum Dr Arshad Mahmood submitted a progress report on implementation of decisions of the federal cabinet and the CCoE on 2020 petroleum shortage crisis. He reported that some of the policy, legal and administrative actions had been completed while remaining such steps will take some time to complete while physical implementation could take 3-5 years, for example in upgradation of refineries and storages etc. The report said the stakeholders had reached consensus that a lot of powers currently vested with the Director General of Oil have to be transferred to Ogra for which an agreed draft of revised rules — Pakistan Petroleum (Refining, Blending and Marketing) Rules 1971 — had been pending with Law Division for vetting and then clearance by Cabinet Committee on Legislative Cases (CCLC).

Under the said mutually agreed draft, powers under rules 7, 8, 9, 20, 30, 30B, 31, 39 and 43C would stand transferred to Ogra with the ratification of the cabinet. Under rule 7, every refinery shall now submit its production programme for the next half of fiscal year one month in advance to the regulator as required under the economic interests of the country and its own ability to meet the demands of the market as economically as possible.

Under rule 8, Ogra would now approve the said programme of production which such modifications, if any, as it may indicate in its order of approval keeping in mind the ability of the refinery to make adjustments. Under rule 9, every refinery shall carry on its production in accordance with the programme of production approved under rule 8 without any change, departure or modification unless with prior approval of the regulator.

Likewise, the rule 20 would empower Ogra that every blending plant, grease plant, reclamation plant and white oils production plants shall submit their bi-annual production plans including any change or alteration in such plans. Under rule 30, no

agreement relating to the supply, purchase, sale, storage or export of any imported petroleum products shall be entered into by any person without the prior approval of the regulator. Under Rule 30B, where the production of petroleum products by the local refineries is found insufficient, the regulator would have powers to impose conditions from time-to-time for a marketing company to import such products. The regulator will have powers under rule 31 to prohibit the sale or disposal of any product in any area. Under rules 39, every refinery, blending plant, (reclamation plant) and marketing company shall give to the regulator a 7-day prior notice for closure or stoppage of operations along with the reasons and the period for which it is likely to continue.

Under 43C, Ogra will have powers to direct any refinery, marketing company or its agent or dealer or a blending plant (or reclamation plant) to supply such quantity of any petroleum product to such person as may be specified in the order. The committee directed speedy implementation on above steps and also directed Federal Investigation Agency (FIA) to update the CCoE in its next meeting on the progress of its investigations, assigned to it by the cabinet. ■

Courtesy: Daily Dawn





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ELECTRIC VEHICLE SECTOR OF PAKISTAN TO WITNESS A TURNAROUND IN FIVE YEARS



Usman Sheikh
Founder and Chief Executive Officer,
Jolta Electric

The idea came from Tesla when it made history and became an emerging automobile company in the world. We conceived this idea because of the fact that Pakistan has a very serious problem of environmental pollution mainly due to harmful carbon emissions. It was a four years-long journey. We struggled so much all along this period to achieve this cause. At that time, there was no EV policy in the country, no SRO issued for the import of the EV kits. In the last one to two years, much progress has been made in this regard as we worked on the draft EV policy as later on it was approved by the government. Finally, in December last year the SRO was issued for the import of EV kits. We applied for the first license to manufacture EVs in the country in December and got it. We started our production in March 2021 and now we have achieved the production rate of 1,000 units per month. On July 8 this year, Prime Minister Imran Khan inaugurated our first electric bike. It was a great honour for us that the Prime Minister himself graced the occasion of launching of Pakistan's first electric bike.

Co-founder and CEO of Jolta Electric, as he gave an exclusive interview to Energy Update soon after the successful launch of Pakistan's first electric bike by his company. Prime Minister Imran Khan unveiled Pakistan's first electric bike on July 08, 2021 in Islamabad. In the interview, Mr. Sheikh talked about the present state of the EV industry in the country and its future prospects. Following are the important excerpts from his interview.

Energy Update: What is your company, the Jolta Electric, catering for in the energys sector?

Usman Sheikh: Jolta Electric is the first electric vehicle company of Pakistan. We started with the R&D of our product in 2017.

EU: What is the future of the EV sector in Pakistan?

Usman Sheikh: I believe that in the next five years the Electric Vehicle sector of Pakistan is going to witness a turnaround much

— Naeem Qureshi —

“The Electric Vehicle sector of Pakistan is going to witness a turnaround in just five years' time, much like the revolution of smartphones in the world that happened in just a couple of years.”

This was stated by Usman Sheikh,

like the case of smartphones as people in just a couple of years abandoned the conventional cell phones of very famous companies like Nokia and started using the smart phones. I believe that people in Pakistan will switch to EVs in the same manner. It will happen after people get plenty of awareness about EVs and their several benefits. People will start using EVs after developing trust in its exclusive qualities like being economical and a clean and environmentally friendly mode of transportation. So it's just a matter of time before this happens.

EU: What incentives you have been getting from the government since you started working.

Usman Sheikh: We have been receiving the incentives, which have been mentioned in the EV policy of Pakistan. It is imperative that all the relevant state and government institutions should implement this policy. We have been facing certain difficulties in this regard as we have started working with the authorities concerned to get them resolved. For instance, we have encountered difficulties in getting implemented the policy that there is going to be only one per cent duty on the import of EV kits as there will be no sales or advance tax on it. We have been facing hardships in this regard but we are quite hopeful that these problems will soon be over. Moreover, I would like to inform the readers of your magazine that except for the benefits included in the EV policy, we so far have not been getting any additional incentive from the government but we are hopeful about such incentives in near future.

EU: Do tell us the price of your electric bike product

Usman Sheikh: The price of our electric bike is less than the Honda motorcycle but



slightly more than the Chinese two-wheelers available in the local market. No doubt, the upfront cost of our product is slightly higher than certain motorcycle brands available in the country but an electric vehicle is highly beneficial for its users in terms of much lesser fuel and maintenance cost as compared to a conventional motorbike. The battery recharging cost of our electric bike is just 1/3rd of the monthly fuel price of a conventional motorcycle. The owner of an electric bike will recover its cost in just two years. There is no maintenance cost to use our electric bike as there is no moving part in it.

EU: Do tell our readers the mission of your company.

Usman Sheikh: We have to take along with us the "Made in Pakistan" brand. Our mission is to improve our product regardless of the difficulties we face. Our dealers have recognized the fact that our electric bike has undergone 90 per cent improvement since the first time the prototype of our product was introduced in the market. We aim to bring the leftover 10 per cent improvement in just one month to make it a stable and improved product. We are going to introduce charging stations for our product. We have been working to improve our Made in Pakistan brand on the lines of Chinese ideology. We have to compete with the best brands of the world.

EU: What incentives do you want to receive from the government to promote usage of electric bikes in Pakistan?

Usman Sheikh: If you want to promote the electric bikes as a convenient mode of personal transportation then you have to give the same set of incentives as has been given in India. Such incentives could include waiver of parking fee and charging no toll tax.

EU: What strategy have you adopted to market your electric bike product?

Usman Sheikh: We have appointed 100 dealers and distributors all over Pakistan to sell our products. Their contact numbers are available on our website. Our electric bikes are available for test drive in the showrooms of Karachi, Lahore, and Islamabad.

EU: What are your plans to attract more investment in your company?

Usman Sheikh: If more investors are willing to invest in our ecosystem, in our Jolta Electric, we would welcome them. It is because we want to serve Pakistan. It is not that we just want to make money out of our product. We are working on the "Clean and Green" vision of Pakistan. We want to resolve the issue of environmental pollution in Pakistan. We want people don't require combustion engines. We will carry forward this mission. We want that the entire Pakistan contributes to this mission in whatever way it is possible.

EU: What are the future plans of Jola Electrics?

Usman Sheikh: We are not merely an electric bike manufacturing facility. We are not merely an electric bike assembler. We have done extensive research and development in the field of EVs. We have aimed to introduce different variants of the EVs after successful launching of our electric bikes as these would include three-wheelers, four-wheelers, buses, trucks, and loaders. We will bring all these variants of the EVs. We have the mission of producing 100,000 units of EVs in a month. ■



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The discord over water

— Ali Tauqeer Sheikh —

Pakistan's water leadership has brought the country's water security to the brink. Supply-side management has historically driven our water institutions. Primarily designed to distribute water, a resource that was once available in abundance, these institutions have continued to build one case after the other for higher water quantities, at no or very little cost to themselves, instead of finding ways of efficiently managing unbelievably large quantities they already have at their disposal in both Punjab and Sindh.

Water-related institutions have become bystanders in the face of long-term critical trends: they have closed their eyes to the changing crops and expansion of water-intensive cropping, growing urban and out-of-basin usage, and altered patterns of monsoons causing water variability. Also, agriculture has steadily moved

from subsistence level to water-intensive commercial cropping, draining the country's surface and sub-surface waters. The new agro-industries influence water decision-making at all levels. The result? Water prices are static like the fuel needle of a non-moving car.

With the Indus Waters Treaty, prestigious engineering marvels have become the key drivers of our water and nation-building policies. This fascination has dominated our water management approach. Instead of finding economic virtues in water saving and efficiency, we continue to invest in infrastructure that only helps us imagine abundance. The Water Apportionment Accord (WAA) is a good example of living in this fantasy world.

The WAA laid the principles for water distribution of 114.35 MAF among the four provinces, a high-quantity figure that has never been available since 1991 when the accord was inked. This notional level is not possible unless new reservoirs are built upstream in Gilgit-Baltistan that is otherwise not a part of the accord. The undercurrent is the construction of at least one large dam for full implementation of the interprovincial agreement. In several ways, this task is at the heart of the water conflict

between Punjab and Sindh.

The WAA has left it to the Indus River System Authority (Irsa) to figure out how to manage lesser quantities in various months for various crops. The WAA has, however, left two basic questions unaddressed: i) what if there was no agreement on the construction of new reservoirs, and ii) how the growing scarcity would be managed in the interim. Real life is more complex: the WAA had not envisioned the prospect of a Seraiki province in southern Punjab and the political importance of providing water through the Taunsa-Panjnad canal during acute scarcity. Also, it was not envisioned that Punjab would lose most of its 9.3 MAF water to India from the Beas, Ravi and Sutlej, leaving about 3 MAF — and that too mostly during the monsoons — to become even less flexible with Sindh in the Irsa meetings.

Irsa data shows that during 20 out of 29 years of the accord, the shortages in the Indus have fluctuated between 10 per cent and 28pc, while for the remaining nine years it was less than 9pc. Simply put, an average 9pc water savings in agriculture of the two provinces would have given us almost a decade without any shortfall. Or, about 28pc less water application in two provinces could help us manage within the existing water budget, without any additional storage capacity. This



line of thought alone can give the accord a lease of life for another 30 years. The message for Pakistan's water leadership is simple: managing water scarcity is a function of judicious use in the most wasteful sector — agriculture — rather than shouting at each other for additional supplies.

A series of ad hoc decisions during the 2021 pre-monsoon scarcity reveal the bankruptcy of water decision-making that vacillates between hope and despair. Knowing that the shortfall had previously touched 28pc on several occasions, it was simplistic, if not naïve, to hope that the crisis could be averted with a 10pc reduction in supplies. Later, the cuts were increased incrementally to 23pc and 32pc. The reservoirs were allowed to hit dead level knowing that refilling can jeopardise canal flows risking Kharif crops and halt energy production in Tarbela during the peak demand season. Instead of taking responsibility for poor policies, Irsa blamed continued low temperatures in Skardu, late rains in the upper reaches and climate change.

Concurrently, Irsa took several last-minute but important decisions that in future can serve as the basis for long-term scarcity management by the provinces. This includes facilitating early sowing of wheat in Sindh during April and disallowing rice cultivation in the areas between the Guddu and Sukkur barrages. In fact, long-term scarcity management would require two additional steps. First, phasing out of paddy between the Sukkur and Kotri barrages; second, curtailing direct outlets downstream Guddu, particularly in the upper districts of Jacobabad and Sukkur on the one hand, and Khairpur and Naushahro Feroze on the other. Over-consumption there leaves precious little for the districts in the lower regions.

In the WAA's lexicon, "record of actual average system" uses data for 1977-82 that forms the basis for Irsa to share shortfalls and surpluses. In 1991, it was the only data set available. New data sets have not been entertained. The system failed with the first serious shortfall when, in 2000, the flows shrunk to 102.73 MAF. Sindh and Punjab started invoking different clauses of the accord to get additional supplies. Irsa created a three-tier formula for Punjab and Sindh, leaving KP and Balochistan out of this arrangement. In 20 years, Irsa has failed to convince Sindh. Going forward, it is clearly time for Irsa to break the stalemate and find some new basis for scarcity management. Oddly, Irsa still monitors surface water flows manually rather than using available telemetry technologies.

The accord is based only on the principle of historical usage for water distribution. Punjab and Sindh need to work together to create policy space by exploring such actions as i) economic efficiency in usage including water trade, ii) population size that relies on surface water supply, iii) special needs because of droughts, iv) environmental flows for the delta and creation of wetlands, and v) climate-induced variations in water flows. ■

Churna Island facing serious ecosystem degradation

Due to depletion of precious exotic species of corals due to environmental and anthropogenic damages, the Island's conversion into a Marine Protected Area (MPA) could help overcome the crisis. Churna Island is one of the scenic and unique adventure sports tourism attractions offering unforgettable experiences of corals and underground water sports. It is facing depletion due to damage bore by the unique marine life existing in the Coastline.

Corals are one of the most productive ecosystems found at thriving scale at different coasts around the globe whereas in Pakistan, they are found in limited and isolated patches around 990 kilometers long coastline of the country, said Senior Technical Advisor to WWF-Pakistan Muhammad Moazzam Khan in an exclusive interaction with APP who had also coauthored an special report highlighting emerging threats to Corals in the area.

He told that apparently corals were healthy in Churna Island where an individual in 2020 observed coral degradation at Mubarak Village on Sindh coast. In the north-eastern part of Churna Island during October 2020, bleaching was observed whereas in some areas, large patches of bleaching were observed which were limited in some other parts, he added.

There has been complete bleaching of Porites which has turned them totally white indicating that it is already dead because of bleaching. It seems that bleaching is spreading around Churna Island, however, there is no information and record of similar bleaching from other areas along the coast of Pakistan,

he added. Khan said coral reef is a complete ecosystem and was a dominating one found in Maldives, India, Sri Lanka, Thailand, Australia and other countries around the globe. He said, "Corals have a great significance due to ecotourism and its protection is necessary both to ensure marine life protection, sustainable growth of environment and preserving a flourishing source of employment through ecotourism."

Elaborating on the phenomenon of Coral Bleaching, he said negative environmental conditions, such as abnormally warm or cool temperatures, high light, and even some microbial diseases, can lead to the breakdown of the relationship (symbiosis) between coral and zooxanthellae. "In such conditions, corals expel the algae (zooxanthellae) living in their tissues causing the coral to turn completely white. This is called coral bleaching," he said. Although, he said coral do not die immediately and can survive a bleaching event, but begin to starve after bleaching.

"Another coal powered plant is being established for which infrastructure is being developed. Cumulative impacts of these activities may be responsible for coral bleaching in Churna Island. There are plans in place to establish liquid petroleum gas (LPG) terminal at Churna Island which will incur excessive dredging in the area. If such facilities are established at Churna Island, its impacts will not be confined only to coral bleaching but it will wipe out coral from the area," he warned. Khan mentioned that Churna Island in the past few years became a major attraction for recreational purposes particularly for snorkelling and SCUBA diving. ■



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Solar energy companies should also be given tax relief on the import

—◆— Engr. Nadeem Ashraf —◆—

Q: What would you like to tell about yourself and the reason you stepped in the field of solar energy?

A: Feroze Power (FPL) belongs to the Feroze Group of companies established since 1912. Our companies have been dealing with advanced medical equipment and pharmaceuticals. Introducing many new technological devices in Pakistan related to the medical field. Solar technology is a growing field with an abundance of market growth in Pakistan. Understanding the market potential and future opportunities is what made us step into the field of solar energy.

Q. What are the challenges you are facing in the solar energy business?

A: The challenges we are facing in this industry is the lack of awareness in the general public regarding this technology, enabling many to buy misleading and low quality products in the market. There needs to be a lot of work done in educating people about solar energy. At Feroze Power, we provide a solar energy solution specifically catered to the customer's needs.

Q: What are the suggested steps to help speed up the process of going green with solar in Pakistan?

A: In order for everyone to convert to solar faster, the government must provide every incentive to the consumer to promote local manufacturing of panels in Pakistan, to reduce the cost of goods and make the product even more feasible for the public. Solar energy companies should also be given tax relief on the import of wires and frames to further reduce the cost of the overall system.

Q: our government's conditions for net-metering are appropriate or would you like to offer some suggestions?

A: There is much room for improvement in this segment as there are many delays and often times customers get irritated with the long waiting process for Net Metering. I suggest, to have one unified governing body that provides net metering inspection and licensing, instead of processing it through local DISCO's.

Q: Would you enlighten us with some of your company's CSR activities?

A: Feroze Power Limited is focused on promoting green energy with megawatts of solar electricity generated from our installed solar energy systems. Feroze Power is committed to reducing its carbon footprint by only providing green energy solutions. FPL is affiliated with educational and charitable organizations, providing education and career sessions for fresh graduates looking to enter the solar energy field. ■

Sohail Feroze

Chief Executive Officer, Feroze Power



The LNG fault lines

—◆ Khaleeq Kiani —◆

The fragility of the liquefied natural gas (LNG) value chain has been exposed that sent shock waves in the power corridors. The fault lines whilst hidden acted like sleeper cells and the first strike made the decision-makers lose their sleep. The end consumers suffered the most in killing hot summer amid the return of the countrywide power cuts of various scales and durations.

Any lesson: how weak and frail is the value chain. The fault lines were well known but small jolts in the form of a dry dock created a crisis which should now initiate a serious re-think in the decision-making circle — what leverage do they have when the value chain is in the hands of a few? Better late than never but they need to identify the perils ahead and measures necessary for a flourishing, stable gas market.

At present, the Pakistan LNG chain comprises two LNG terminals with 320,000 metric cubic meters of physical storage and a base-load regasification throughput of 600 million cubic feet per day (mmcf) each and a peaking capability of 690mmcf. Both operators have pledged their capacities exclusively for the government's sole use (for which they receive approximately \$190 million per annum) unless Third Party Access (TPA) is allowed.

Down the line, an LNG pipeline network of 1800 mmcf in the Sui Southern Gas Company franchise and about 1200mmcf for the Sui Northern Gas Pipelines Limited franchise — system augmentation through swapping allows an additional 400mmcf for the franchise up north heavily relying on regasified liquefied natural gas.

From the supply-side, long-term LNG contracts will ramp up in 2024 to about one billion cubic feet (9 cargos from Qatar and one from ENI). The weighted average price of LNG after the expiry of the first Qatari contract will be a very competitive 10.35 per cent of Brent. As reported by the public sector companies, the existing terminals are operating at 84pc and more compared to roughly half the utilisation rates of terminals in the global markets. To put things in context a terminal operating at 600mmcf requires six cargoes per month per terminal. This means that a single LNG cargo must be re-gasified within five days to make room for the next. If the terminal

throughput is increased to a throughput of 900mmcf this would mean the terminal and the system will have to re-gasify a cargo in three days instead to make room for another cargo. A feat not achieved anywhere in the world, as a baseload.

By international standards, the minimum send out on LNG terminals is a minimum of 10 days. This leaves no flexibility for operational constraints. Thus demurrages are a common occurrence — a cost of an inefficient value chain added and borne by the customers in Pakistan.

Another important element of the LNG value chain is storage and the most important is underground storage, followed by pipeline line pack, contractual flexibility and lastly LNG storage as LNG is already compressed 600 times. In the case of Pakistan, the odds stack up against us with no underground storage, limited line pack, zero contractual flexibility by virtue of Take or Pay contracts and a meagre 320,000cubic meter of LNG storage — over utilised by two times the global average. An often forgotten panacea is that of diversification, may it be sources of supply, and sources of energy or the dependence on monopolies, in the case of LNG terminals in Pakistan a duopoly. This came as a rude awakening for Pakistan last week where a terminal operator gave the notice to proceed for dry docking during the peak demand season. Without going into the merits or the faults of poor planning, one thing became abundantly clear that lack of options left little leverage to policymakers on the terminal operator who threatened to sail away leaving behind an energy crisis with no solution, a reason as explained by the energy minister why they had no choice but to agree.

For the last many years, on the other hand, there has been talk of the development of two additional terminals which are yet to break ground. The government's intent on bringing in terminals with zero 'take or pay' risk has so far not materialised. Despite very recent regulatory approvals to new terminals, the sticking point remains the necessary gas transportation agreement with the Sui compa-



nies who resist opening the market to private importers who challenge the state's monopoly. This could take away their valued customers and lead to the demise of state-owned enterprises as seen in the case of airlines, telecoms and so forth. To make matters worse, the existing terminal operators are pressing for TPA to the limited pipeline capacity so they could maintain their duopoly. Without pipeline access, the new terminals will not break ground. In the midst of this, the petroleum division has not been able to solve either problem. It has been unable to develop a policy framework for a fair market and private investments.

These issues are not unique to Pakistan and similar situations have been witnessed in multiple nations, the difference has been a robust policy framework that provides clear lines for promoting healthy competition. So what are the potential solutions?

On terminal capacity, enough data is available globally to ascertain the maximum allowable base-load throughput from LNG terminals. By way of comparison, a terminal with 150,000 cubic meters of storage tanks may not be allowed more than 3-3.5 million tonnes per annum of long term LNG throughput. Additional throughput (peaking) is allowed on a three months rolling basis as is customary on all regulated terminals across Europe. These terminals are mandated by law to maintain a 25pc allowance to cater for operational constraints. In the case of a floating storage regasification unit, this is more important. Sadly in the case of Pakistan, this requirement was initially included but subsequently removed for reasons unknown. On pipeline capacity, a proportionate throughput quota on the LNG pipeline could be awarded on a per terminal basis (about 400/500mmcf) on a firm basis and the remaining on an "available basis". Again a policy framework similar to one of oil marketing companies' storage and LNG terminals across the world provides data points to ascertain the right level of pipeline capacity to be dedicated per terminal.

More importantly, market liberalisation is the way forward — the essence of TPA provides customers with the choice to choose their own supplier. Customers may be won over by the quality of service from the supplier rather than the supplier's control over the franchise. Multiple examples of market liberalisation in the telecom, airline and banking sector are just a few examples of benefits to the consumer and the economy. TPA rules have been made by the Oil & Gas Regulatory Authority but their implementation is missing. Firefighting can seldom lead to a sustainable policy framework. It requires clarity of thought and the ability to develop an enabling environment to follow through on its success. ■

Courtesy Daily Dawn

Govt's electricity plan faces high governance risks: WB

— Amin Ahmed —

The World Bank says that the implementation of the government's national electricity policy and the least-cost power generation plan requires political agreement between the federal government and provincial governments, which are not all governed by the same political party.

The bank in a document released for the forthcoming approval of \$400 million loan for development policy financing of government's programme for affordable and clean energy, says the overall risk rating to achieve the objective to reduce circular debt flow through reducing power generation costs, decarbonising the energy mix, improving efficiency in distribution, and retargeting electricity subsidies, is high.

Governance risks are also high as Pakistan's system of governance is partially subject to influence by elites, which puts reform implementation at risk when reforms adversely affect the interest of certain groups.

The government has developed a new national electricity policy that governs key principles such as efficiency, transparency, competition, financial viability, and environmental responsibility. Through the new policy, competitive bidding was being introduced for the

first time for all generation technologies, except for strategic projects such as large hydropower on the Indus cascade.

According to the document, reduction of power costs and use of captive power and retargeting of electricity subsidies and tariff increase face strong vested interests and will require federal government's continued strong commitment to implement and sustain.

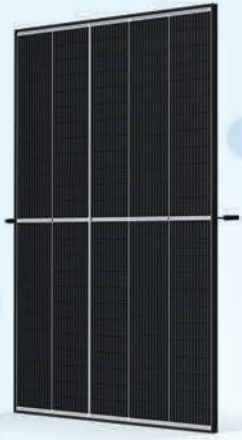
It is worth noting that the level of commitment that the government has shown for all prior actions has been very robust. Indicator targets have taken into account this commitment but with prudence considering time required to implement some of the reforms and the upcoming elections in 2023.

Political and governance risks are mitigated in part through extensive consultations with government counterparts at the federal and provincial levels, and with major interest groups, aimed at reaching consensus and aligning priorities.

The government has requested the World Bank for a loan of \$400m for the operation designed to support the country's comprehensive power sector reform programme. The operation's development objective is to reduce circular debt flow through reducing power generation costs, decarbonising the energy mix, improving efficiency in distribution, and retargeting electricity subsidies.



Courtesy: Daily Dawn



Vertex S 410W

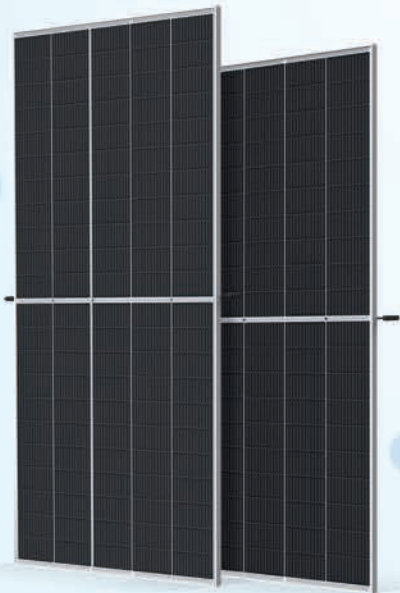
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6 Production Bases



Minister Energy Sindh Imtiaz Ahmed Shaikh, Country Manager Huawei Pakistan Robin Xing, CEO AEDB and MD PPIB Shah Jehan Mirza, Chairman NEPRA Tauseef H. Farooqui, Managing Editor Energy Update M. Naeem Qureshi and CMO Energy Update Engr. Nadeem Ashraf Addressing at the inaugural Session of the conference

1st International Conference and Showcase: Solar Clean Energy Pakistan-2021

Solar power is a ray of hope for 60 million Pakistanis

Solar power is like a ray of hope for some 60 million people of Pakistan who don't have access to electricity as the abundantly available source of renewable energy should be used to energize thousands of off-grid homes in the country.

This was suggested by the Chairman of National Electric Power Regulatory Authority (NEPRA), Tauseef H Farooqui, as he was addressing the "1st International Conference and Showcase: Solar Clean Energy Pakistan-2021" as the guest of honour of the event. The Energy Update organized the conference.

Also on the occasion, top renewable energy companies showcased their latest equipment and technology for prospective user of solar power in the country.

The NEPRA Chairman urged the energy sector companies dealing in solar power to provide innovative energy solutions to energize the houses of 30 per cent of the Pakistani population that were deprived of electricity.

"Do come up with an innovative solution to provide electricity to these off-grid people as it is a huge untapped electricity market for you," said the NEPRA chief while addressing the solar companies' top officials present on the occasion.

He said the NEPRA had been doing its best to promote the usage of Net metering system for greater reliance on renewable energy sources in the country. He informed audience of the conference that owing to the efforts of NEPRA the hydroelectricity as per the global norm would also be counted as a renewable energy source in Pakistan. After this inclusion, Pakistan in coming years would be in the position to generate up to 60 per cent of its national electricity mix on the basis of alternative means of power. He said that owing to the

efforts of the NEPRA the power sector companies had been motivated to do welfare activities for disadvantaged people in their respective licensed areas.

In his keynote address on the occasion, the CEO of Alternative Energy Development Board (AEDB), Shah Jahan Mirza, said that renewable sources of electricity still accounted for only six per cent of the national energy mix. So, much efforts have to be made to increase this ratio to 30 per cent till the year 2030 in accordance with the revised Renewable Energy policy of Pakistan, he said.

He said the AEDB had completed the formalities to introduce the system of competitive bidding to facilitate the installation of new solar



Head of Admin and Accounts Energy Update Ruqiya Naeem presenting memento to the SAPM on Maritime Affairs Mehmood Moulvi, Samir Mir Shaikh and Anis Younis also seen in the picture



and wind power projects in the country. He said the AEDB had also been working on the project to operate 14,000 tube wells in agricultural lands of Balochistan on the basis of solar energy.

Addressing the conference as its chief guest, Sindh Energy Minister, Intiaz Ahmed Shaikh, said that the solar power could play an important role in curbing harmful carbon emissions in the country in accordance with the Paris Agreement of which Pakistan is a signatory. He said that Sindh was blessed with the only functional wind corridor in the

entire area of the province was also most suitable for solar power generation. He said the Sindh government had also launched the World Bank-assisted project to provide solar home systems to 200,000 off-grid households in the province. He said the same project would be used to install solar power systems at 35 big government-run hospitals in the province. The Energy Minister said the Sindh government had allocated 55,000 acres of land of the province exclusively for installing renewable energy projects.

He said the relevant federal authorities shouldn't impede the efforts of the Sindh government to install new wind energy projects for overcoming the countrywide electricity shortage. He said that Pakistan surely needed more renewable energy projects to overcome the issue of grave energy shortfall equally affecting both urban and rural areas. The Sindh Energy Minister appealed to the federal government not to impede prog-



ress in installing new renewable power projects merely on the pretext that Pakistan had already been generating surplus electricity.

Robin Xing, Huawei Pakistan Country Manager, said that efforts were being made in the energy sector the world over to achieve the goal of carbon neutrality that brings with it broad and profound eco-social transformation.

He said the all major global forces including China, the European Union, the The USA, and Japan had been making efforts to achieve this goal.

He said that clean resources of energy, especially wind and solar power, had become the main source of electricity generation all over the world.

Mr. Xing said the power industry should be revolutionised as it should use green energy as its main source for electricity generation.

He said electric vehicles would become the major means of travelling the world over as this practice would be

helpful in further decreasing the harmful carbon emissions to safeguard the environment.

Naeem Qureshi, Energy Update's Managing Editor, said the conference had been organised as an excellent networking opportunity for all the concerned stakeholders that had been working to promote usage of solar energy in the country.

He hoped that the deliberations and recommendations of the





Group Photo of speakers, sponsors and all participants with SAPM on Maritime Affairs Mehmood Moulvi

conference would go a long way in achieving the goal of greater reliance on renewable energy sources in Pakistan for power generation with least harm to the environment.

He said the regulatory authorities, the relevant government agencies, and the private sector should sit together to adopt the most viable and productive policy regime for renewable resources to maximise clean energy generation in the country.

Noted energy expert, Irfan Ahmed said that the per capita electricity consumption of Pakistan was not more than one-fifth of the world average.

He said that Pakistan's potential to generate solar-based electricity was 2,000 GWs as against it the country was merely generating 0.5 GWs solar power.

He said that 66 per cent of electricity generation in Pakistan was based on thermal power. Pakistan's oil import bill is as high as US \$ 17 billion.

Mr. Ahmed said that 80 per cent of Pakistan's area had solar insolation of around 2,000 KWh/square metre/year. The solar insolation in the vast majority area of Pakistan is one of the best in the world.

"If you have such excellent solar insolation like we do have in Pakistan then you don't need to think about the economy and finances as you just simply need to install solar energy projects," he said.

Mr. Ahmed said that Germany with much less solar insolation had been generating much more solar-based electricity that is far greater than what is being generated in Pakistan.

"This shows that we have a massive resource of clean electricity and we are not utilizing its true potential. This is like denying a massive God's blessing available to us," he said.

He said the government and relevant policy-making institutions

should take care of this aspect to enable Pakistan to fully utilise solar power.

He said the renewable energy is a distributed generation resource so it is best handled locally i.e. by the provinces not by the federal agencies. The implementation of the RE policy should lead to job creation in the country, he added.

Faaz Diwan, Director of Diwan International Pvt Ltd, said the markets in major cities in the country including that of Karachi, Lahore, and Rawalpindi, were full of substandard solar products.

He suggested that the government should order crackdown against selling of substandard solar products in the local markets.

Wasif Laeeq of Orient Energy Ltd said the government should adopt effective policies to check quality of solar equipment being imported from abroad. "We have been importing all types of solar equipment from abroad without knowing about their life expectancy and actual functionality," he said.

He said the solar equipment should be installed after due inspection of standards

while necessary systems like fire detection systems should also be made a part of the package of installing such new renewable energy projects.

He said the solar systems installed without the due standards became defective quite soon and caused distress to the users. Raza Feroze of Feroze Power Ltd, said that good policies and effective implementation of standards would surely benefit solar companies doing their work with much hard work. Waqas Moosa, who represents Pakistan Solar Association, informed audience of the conference about the efforts of his association to enforce internationally accepted standards in the Pakistani solar industry. ■



Panel Discussion include Ms. Tayyaba Rasheed, Shaff Mehboob and Farman Lodhi with Moderator Anis Younis



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Huawei

Founded in 1987, Huawei is a leading global provider of information and communications technology (ICT) infrastructure and smart devices. We are committed to bringing digital to every person, home and organization for a fully connected, intelligent world. We have approximately 197,000 employees and we operate in over 170 countries and regions, serving more than three billion people around the world.



Huawei's mission is to bring digital to every person, home and organization for a fully connected, intelligent world. To this end, we will: drive ubiquitous connectivity and promote equal access to networks to lay the foundation for the intelligent world; provide the ultimate computing power to deliver ubiquitous cloud and intelligence; build powerful digital platforms to help all industries and organizations become more agile, efficient, and dynamic; redefine user experience with AI, offering consumers more personalized and intelligent experiences across all scenarios, including home, travel, office, entertainment, and fitness & health.

We are a leading global ICT solutions provider. Our solutions, products and services are used in more than 170 countries, serving over three billion people around the world.

Go Solar with Huawei

Huawei offers leading Smart PV solutions harnessing more than 30 years of expertise in digital information technology. By integrating AI and Cloud, Huawei further incorporates many latest ICT technologies with PV for optimal power generation, thus making the solar power plant to be Highly Efficient, Safe & Reliable with Smart O&M and Grid Supporting capabilities and builds the foundation for solar to become the main energy source. For solar energy users, Huawei launched advanced solution for C&I and residential customers based on the 'Optimal Electricity Cost and Active Safety' concept. By improving the utilization of solar power, Huawei has helped to power millions of residents and hundreds of industries globally. Huawei will continue to innovate and enable renewable energy to empower each individual, home, and organization.

Feroze Power

Helping smart people with Better Integrated Solar Solutions for controlling your Energy Production. We provide sustainable, reliable energy solutions to our customers. Our core strength is our relentless services in this competitive business environment which makes Feroze Power, a distinct company in the energy sector. Feroze Power Private Limited provides a full solar solution for your energy needs. With On-Grid, Off-Grid, and Hybrid, solutions available depending on the requirement. We also provide Net metering and one-year free service to ensure maximum system running time.



Greaves Solar

Ghulam Faruque Group (GFG) ranks amongst the most prominent commercial and industrial houses in Pakistan. The group is recognized for its entrepreneurial skills and valuable contributions to the economy of Pakistan.



Since inception of the Ghulam Faruque Group, we have continuously strengthened and diversified its line of operations, which are:

Faruque (Pvt.) Ltd - A Group holding & Investment company

Cherat Cement Company Limited - A leader in manufacturing of Portland Cement

Mirpurkhas Sugar Mills - Leading manufacturer of cane sugar

Cherat Packaging Limited - Engaged in the manufacturing and marketing of PP & paper bags

Greaves Pakistan (Pvt.) Ltd - Provides specialized engineering products' sales and services

Greaves Air-conditioning Private Limited - Offers sales & services associated with air conditioning products

Zensoft Private Limited - Information systems service provider specializing in business software solutions

Unicol - Joint venture for distillery producing ethanol

Greaves Pakistan launched its Solar division in 2014 being the related diversification, as the company was engaged in power business for last 60 years. Greaves Solar was formed to offer nationwide reliable and environmental friendly energy solutions. We also offer complete EPC solutions to our valued customers. Since inception, we have worked across Pakistan and installed numerous megawatts of renewable energy projects along with efficient O&M services and after-sales support. Greaves Solar provides reliable solar systems for residential, commercial and for large-scale industrial projects. We provide on-grid, off-grid and hybrid solar solutions with the lithium-ion battery. We offer end-to-end solar solutions and services from assessment, design, installation, commissioning, post-project monitoring, maintenance and technical services with dedicated after-sales and O&M services across nine cities of Pakistan. Our head-office is located in Karachi, with regional offices in Lahore, Islamabad, Multan and Peshawar. We also have sales and after-sales centers located in other cities throughout Pakistan.

Greaves Solar partners with customers to deliver the most innovative solutions with quality pre and post sales services. Following are some of our valued customers, who experienced reliable solar energy solutions.

Sungrow

Sungrow Power Supply Co., Ltd (“Sungrow”) is the world’s most bankable inverter brand with over 154



GW installed worldwide as of December 2020. Founded in 1997 by University Professor Cao Renxian, Sungrow is a leader in the research and development of solar inverters with the largest dedicated R&D team in the industry and a broad product portfolio offering PV inverter solutions and energy storage systems for utility-scale, commercial, and residential applications, as well as internationally recognized floating PV plant solutions. With a strong 24-year track record in the PV space, Sungrow products power installations in over 150 countries. As a leader of innovation in the solar industry, Sungrow possesses a dynamic R&D team which consists of over 1800 employees. The Company has also invested its own in-house testing center approved by UL, CSA, TÜV Rheinland, and TÜV SÜD. In 2019, Sungrow launched the world’s largest inverter factory. The Company’s global annual production capacity reaches 90 GW, including 10 GW of India factory.

Offering a wide range of solutions and services, Sungrow is committed to providing clean power for all and is steadfast in its efforts to becoming the global leader of clean power conversion technology.

Trina Solar

As a global leading provider for PV module and smart energy solution, Trina Solar delivers PV products, applications and services to



promote global sustainable development. Through constant innovation, we continue to push the PV industry forward by creating greater grid parity of PV power and popularizing renewable energy. Our mission is to boost global renewable energy development around the world for the benefit of all of humanity.

Trina Solar has delivered more than 66 GW of solar modules worldwide, ranked “Top 500 private enterprises in China”. In addition, our downstream business includes solar PV project development, financing, design, construction, operations and management and one-stop system integration solutions for customers. Trina Solar has connected over 5GW of solar power plants to the grid worldwide. In 2018, Trina Solar first launched the Energy IoT brand, and is now aiming to be the global leader of smart energy.

Faysal Bank Limited

Faysal Bank Limited was incorporated in Pakistan on October 3rd, 1994 as a Public Limited Company under the Companies Ordinance,



1984. The Bank’s shares are listed on Pakistan Stock Exchange. Faysal Bank is engaged in Commercial, Retail, Corporate and Islamic banking activities. Faysal Bank’s footprint now spreads over more than 200 cities with over 550 (including 414 Islamic) branches. With total assets in excess of PKR 601.974 Billion, placing it amongst the significant players in Pakistan’s banking industry. Faysal Bank’s aim is to achieve leadership in providing Shariah-compliant products and services to its customers. Faysal Bank Limited has been duly licensed as a commercial bank by the State Bank of Pakistan (SBP). Faysal Bank is on track to convert the entire bank, including its branch network, into a full-fledged Islamic Bank. Our branch network of 555 branches includes 414 Islamic branches and 141 conventional branches. Faysal Bank carries on banking business activities in line with the Banking Companies Ordinance, 1962

Diwan International

Diwan Group is established in 1993, Diwan International is recognized as the most respected and dynamic group with expanding and diversifying



businesses, sustaining competitive returns to stakeholders. The tradition of the family could be described as conservative.

Diwan International is situated in Karachi, and has been dealing in solar products and Batteries, textile products, building material, mobile accessories, dairy and cattle farming and food commodity.

Diwan International Private Limited operates under the firm belief that organizations should focus as much on sustainability and social responsibility as on pure business performance.

Actually this is a success story that would not be possible without the contribution of our customers and dedicated employees who have been a vital part of our incredible journey so far. We look forward to continue to serve and engage with them as well as others in the future. We appreciate the ongoing support received from those who are interested in Diwan International Private Limited’s activities and pledge to continue with our efforts to exceed expectations.

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Inverex

Inverex is the right solar systems for your energy needs. Inverex is one of



the leading solar company providing all range of customized, integrated solar solutions and home products to the customers in all sectors. After its success in the solar sector, Inverex is now pleased to introduce its new range of household appliances such as refrigerators, air conditioners and instant geysers.

Technical knowledge, skill with quality products and commitments are the key factors leading us to enhance our customer database. Market knowledge, dedicated and well-trained professional teams have given us the opportunity to operate as one of the best source in solar solutions and household products.

Our commitment to you is that we treat your project professionally, technically and we keep providing after-sale service not only to run system smoothly but for better understanding in using the system for optimum performance. We believe that value and return are important, whether large or small, local or international. Our unique combination of knowledge, experience and commitment ensures that your project achieves the most advanced, productive, reliable and cost-effective outcome possible.

Mesol (Pvt) Ltd

Mesol (Pvt) Ltd' was formed with the objective of becoming the premier choice in providing Solar PV energy and backup solutions. We believe in hard work as a way of life on the road to success, and follow the principle of "Business through Trust" in our day-to-day operations.



Our Vision

Empower citizens through independent energy production, enriching lives with solar energy.

Our Mission

Solve the energy crisis in Pakistan by providing sustainable and cost-effective power solutions.

Our Goals

Achieve success through quality, innovation, integrity and customer satisfaction.

Zi SOLAR (Pvt) Ltd

Zi SOLAR (Pvt) LTD was established in 2015 to offer tailor-made optimum solutions in the Renewable (Solar) sector. Our Expertise is to provide a complete solution from basic concept to final commissioning of all types of requirements related to solar sector.



We have catered to several organizations in the past and have had a good working relationship with all of them, with no complaints from our clients. As a company, we offer you services that are of the highest standard and at extremely competitive rates. Concerning our business service, we are partnered with world-renowned solar product manufacturers. For Solar PV Module, we are the sole authorized distributor of Hyundai PV Module. We also offer the TRINA Solar module which is a TIER-1 Brand whereas In Solar Inverters, we have acquired a working partnership with SMA, HUAWEL, and CHINT. Hence we integrate the best possible solar solution with maximum output to our valued Customers. To maintain state-of-the-art technology, we have also established the after-sales service center in Karachi.

EXIDE Pakistan Limited

EXIDE Pakistan Limited, was incorporated in 1953 as a private limited company in association with Chloride Group Plc of United King-



dom. Chloride had its associates in 35 countries of the world and was supported by chloride Technical. EXIDE ultimately got listed on the Karachi Stock Exchange, now known as Pakistan Stock Exchange in 1982 and received the top 25 Companies Award eight times till date. Sound professional management was also recognized by the Management Association of Pakistan that awarded Corporate Excellence Award to it three times. The Company believes in customer satisfaction through continuous uniform quality and after-sales services providing a wide range of products for various applications.

ACT Solar

The Group has already established its name in the area of wind power and is now moving towards investment in solar energy. ACT Solar is formed to establish a 50MW solar power project in Sindh. The Letter of Intent was issued by Alternative Energy Development Board in connection with the Federal Government. The company is currently in its preliminary phase and is expected to achieve financial close by December17.



PROFILES OF SOLAR CLEAN ENERGY PAKISTAN 2021 SPONSORS

Ideal Power Solutions Pvt. Ltd.

Ideal Power Solutions Pvt. Ltd. is a solar systems installation and maintenance company; specializing in providing a comprehensive solution to various energy problems faced by consumers.

The backbone of Ideal Power Solutions remains our professional network of experienced solar panel installers, engineers, and contractors who have invested years in perfecting their craft.



Our Mission

Ideal Power Solutions' (IPS) mission is to create awareness about renewable energy sources and cater to the consumers' needs by providing high-quality and cost-effective energy generating products and solutions. Our team of professionals is built on trust, commitment, and accountability by building an environment that promotes leadership development. Guaranteeing quality workmanship, we stand by our promise to deliver you services that exceed expectations. At IPS we intend on outliving our set goals by providing our clients with unrivaled services, ensuring a positive impact on the environment, and becoming a trusted provider of power solutions in Pakistan.

Our Vision

At Ideal Power Solutions we aim to provide efficient energy solutions that you can depend upon for all years to come. We promise to bring maximum value to our clients. Our solutions are dedicated towards optimizing the value in energy planning and helping our clients save money through eco-friendly technologies.

Total PARCO Pakistan Ltd. (TPPL)

Total PARCO Pakistan Ltd. (TPPL) is a joint venture between Total Energies -Marketing & Services and PAK ARAB REFINERY LTD (PARCO). It is one of



the largest international oil marketing companies in Pakistan. Total PARCO is at the service of both retail and B2B customers in Pakistan. In 2015, Total PARCO acquired the Chevron retail network, making it the second largest OMC operating in Pakistan. Total PARCO Pakistan Limited is committed to human development, quality, reliability and operational safety for its employees, contractors and business partners. Total Energies is a broad energy Group, which deals with not just markets fuels, natural gas and electricity but a wide range of other energy solutions. Our 100,000 employees are committed to better energy that is safer, more affordable, cleaner and accessible to as many people as possible. Active in more than 130 countries, our ambition is to become the responsible energy major. The Marketing & Services division of Total Energies develops and markets products primarily derived from crude oil, along with all of the associated services. Its 32,000 employees are present in 107 countries and its products and services offers are sold in 150 countries. Every day, Total Energies - Marketing Services serves more than 8 million customers in its network of over 15,600 service stations in 71 countries. As the world's fourth largest distributor of lubricants and the leading distributor of petroleum products in Africa, Total Energies - Marketing Services has production sites all over the world, where it manufactures the lubricants, bitumen, additives, special fuels and fluids that sustain its growth. Total PARCO has the 2nd largest network in the country with more than 800 retail outlets in Pakistan, targeting an addition of more than 20 service stations per year. TPPL is an employer of choice with more than 1000 highly trained Pakistani employees (450 direct and 600+ indirect). TPPL is also the 1st Asian non-export blending plant to launch the PURE project, which is essentially revamping and optimizing the packaging of Total PARCO's lubricant ranges.

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SCAN ME

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◆ Khaleeq Kiani ◆

Eight years on, the \$2.5 billion gas pipeline from Port Qasim — the centre of liquefied natural gas (LNG) import terminals — to Lahore to meet the energy needs of industry upcountry remains in the air. The project justifies the feasibility of new upcoming LNG terminals to create gas transportation capacity from ports in the South to consumption centres in the North.

It should have been completed by 2017-18, according to original plans. However, the timelines to finalise the contractual agreements with Russia on a 'strategic government-to-government' basis have changed six times between 2015 and 2020. Yet, the authorities are now rethinking if Pakistan's own entities — Sui Southern and Sui Northern Gas Companies — should develop the project on their own with limited external technical or financial support albeit even if with a lower capacity or to chip in UAE's Mubadala — a \$250bn investment firm of the royal family.

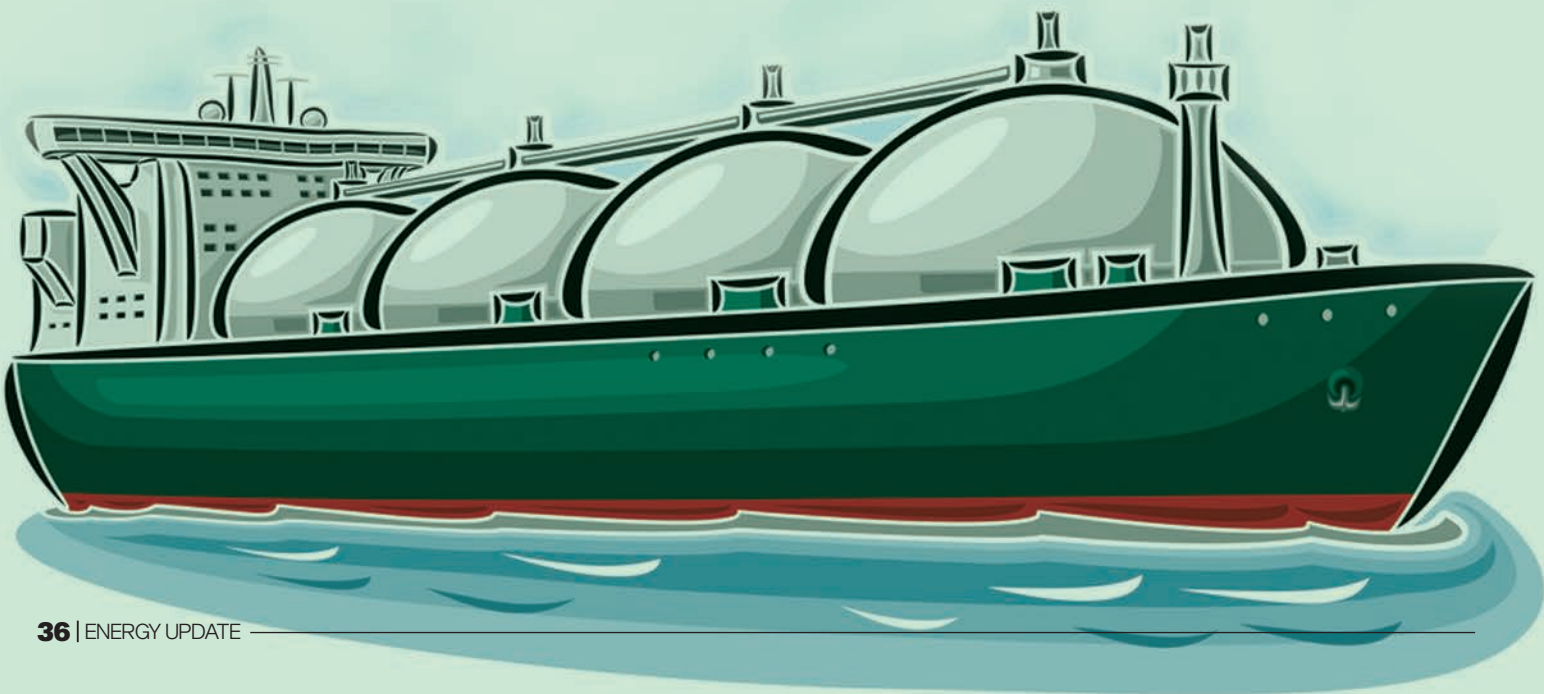
The Cabinet Committee on Energy led by Planning Minister Asad Umar took up the case last week and asked the Ministry of Energy to conclude within 8-10 days if it is really feasible for Sui companies to take up the job with or without external advice and expertise to help make a final decision. "It cannot be kept in the limbo for more than a fortnight", was the message in view of a deadline agreed with Russia to finalise a shareholders agreement (SHA) by July 27. At this stage, key challenges include finalisation by July 27 of the SHA for which the Petroleum Division is yet to engage a professional legal team. A Technical Team comprising officials has been notified and a negotiation strategy is also under deliberations through "Heads of Terms" and SHA, to safeguard the commercial and economic interests of Pakistan. For that, the project structure needs to be finalised at the earliest, according to the petroleum division.

A decision about pipeline diameter also needs to be made in light of long term energy needs and lifecycle costs. Sui companies are capable of handling 42-inch diameter pipelines but if the decision is for a 56-inch diameter

pipeline, Russians appear to be the only options. Decisions about Pakistani companies' participation in Engineering, Procurement and Construction (EPC) contract (local or international joint venture) also need to be made.

Moreover, the Gas Infrastructure Development Cess (GIDC) component of financing worth Rs321bn deposited in Federal Account No-1 needs to be assured for the project. Route alignment and land acquisition need to be finalised. Formal project feasibility is not yet ready which can be done fast through National Engineering Services Pakistan for which a case for exemption from Public Procurement Regulatory Authority rules is in process. Work on the alignment of the project with the Commercial Operation Date (CODs) of new LNG terminals is also underway.

Based on the latest situation, the petroleum division has three options. In the first case, there may be the Russian EPC Contractor along with an external funding partner, and Pakistani firms may get some business in the supply of raw materials, labour, operations & maintenance (O&M) etc. Russia may enhance its equity contribution along with O&M



contract post COD. Pipe manufacturing and compressor stations are to go under Russian control as these are to be manufactured outside.

In the second case, a consortium of local and international companies is formed which take a significant stake in the EPC contract along with enhanced financing exposure. In the case of local manufacturing of the pipeline (that is possible up to 42-inch diameter), the project will deliver enhanced local technical and human resource contribution, like Sui Northern Gas Pipelines Limited (SNGPL) and Sui Southern Gas Company Limited (SSGCL) while an international partner may take a long term O&M contract.

In the third case of a situation where Russians are no more interested in the project, the government has to be ready with a contingent plan. In this case, the government has to put together a consortium of local and international companies for EPC contract along with enhanced financing exposure. Local manufacturing of pipelines may be introduced to ensure maximum local technical and human resource contribution and SNGPL and SSGCL along with international partner take long term O&M contract.

The government has to decide within a couple of weeks to take a policy direction on SHA negotiations, project structure and financing arrangements as well as give a strong signal to local firms to form joint ventures, ahead of the selection of EPC contractors. It needs to send signals to the local steel manufacturing industry to prepare for this forthcoming challenge based on a firm commitment from the finance ministry for advance release of GIDC instalments, commensurate with project expenditures alongside a contingency plan in case of deadlock with Russia.

Under an Inter-Governmental Agreement (IGA) signed in October 2015, the governments of Pakistan and Russia agreed on the cooperation of a milestone project to develop gas transmission infrastructure of 42" to 56" pipeline diameter, costing \$2.25-2.5bn to enhance the energy security of Pakistan. From Port Qasim to District Kasoor, spread over 1,040km length of trunk pipeline, the project is considered the most essential conduit between the installation of new LNG terminals and industrial growth and to secure sustainable gas supply infrastructure for the next 40 years.

Pakistan Stream Gas Pipeline Project (formerly known as North-South Gas Pipeline) was announced in a Joint Statement of the Pakistan-Russia Inter-Governmental Commission in November 2014. With relevant approvals on both sides, the IGA was signed in Islamabad by petroleum ministers of both sides on October 16, 2015. In April 2015, ECC cleared the project model and constituted a price negotiation committee and then approved a financing model of 1.2 billion cubic feet per day capacity pipeline (LNG-III) by Sui companies.

No progress still, the ECC in February 2020 decided to fund the project through GIDC. The Supreme Court decision on GIDC followed in August 2020 for the utilisation of GIDC on such development projects. The Federal Cabinet ratified it. Meanwhile, an amended IGA has been signed on May 28 to replace the October 2015 IGA. At present, the structure of the Russian consortium that has been finalised is the seventh version in the last five years for which a Russian nominated entity has been identified as FSUE (Russian Ministry of Energy), ETK (Execution specialist) and PAO TMK (Production specialist) — with a company namely, PAKSTREAM LLC. ■

Courtesy Daily Dawn

Byco Implements Pakistan's First SAP Ariba DSN & Sourcing Suite



Pictured (Left to Right): Mr. Azfar Saeed Baig, Vice President Information - Byco Petroleum Pakistan and Mr. Wasil Amjad, CEO - Excellence Delivered Pvt. Ltd.

Byco Petroleum Pakistan Limited, Pakistan's largest oil refining company, has signed an MoU for the first-ever implementation of SAP Ariba DSN (Digital Supplier Network) and Sourcing Suite in Pakistan. The initiative will automate the procurement process enabling a paperless process, significantly eliminating errors and unnecessary delays, as encountered in traditional procurement to the payment process.

The MoU was signed by Mr. Azfar Saeed Baig, Vice President Information - Byco Petroleum Pakistan and Mr. Wasil Amjad, CEO - Excellence Delivered Pvt. Ltd. The ceremony was attended by Mr. Fayaz Ahmad Khan, Vice President Commercial - Byco Petroleum, Mr. Rashid Badruddin, Vice President Operations - Byco Petroleum, Mr. Zafar Shahab, Vice President Finance - Byco Petroleum, and Mr. Muhammad Adeel, Account Director - SAP

Pakistan.

Mr. Fayaz Ahmad Khan, said at the ceremony: "Byco has always been at the forefront of innovation and implementation of processes that are in line with global best practices. The deployment of SAP ARIBA DSN and Sourcing Suite will be another first by Byco as an industry leader in Pakistan. It will not only improve efficiency in procurement processes but will also promote transparency and visibility within the organization and benefit all stakeholders."

The initiative will notably enhance the company's strategic and operational capabilities while also increasing efficiency and reducing processing time. SAP Ariba Sourcing is a comprehensive e-tendering solution to provide an easy and transparent bidding process, as well as bid evaluation. This implementation will significantly reduce turnaround time and therefore increase the overall efficiency of the company operations.

Prioritizing environmental protection

◆ Foqia Sadiq Khan ◆

In our obsession with political news, we often forget the more pressing issues that confront the quality of life in Pakistan. Climate change, air pollution, water scarcity, coal-based power plants, poor sanitation stare at us every day and rob the citizens of this country of their lives and quality of their lives. Yet, there is not much public discourse on this. We are going to refer to Kulsum Ahmed's chapter on the quality of life in Shahid Javed Burki and others' 2019 edited book 'Pakistan at Seventy' in this article.

Pakistan's urban population increased from 22 percent in 1960 to 39 percent in 2016. Of course social scientists like Akbar Zaidi and Reza Ali estimate urbanization to be much more widespread than that. Even going by official figures, Pakistan is the most urbanized country in South Asia. Yet, the basic facilities for life like safe drinking water and sanitation are denied to the million in both urban and rural areas. Despite some improvements over the decades, 27.2 million citizens cannot access safe drinking water and 52.7 million do not have adequate sanitation cover within their reach.

Similarly, air pollution leads to almost 11 percent of all global deaths. Ahmed refers to a study that looks into the correlation between higher air pollution levels and visits to the hospitals and accident and emergency in Karachi. The study finds that this correlation is valid and consistent with other data on air pollution.

Air pollution can be both indoor and outdoor. In 2016, the WHO collected data on air pollution in all major cities of Pakistan and found high levels of "particulate matter". This has many adverse impacts on health and is known to have caused lots of deaths. In some Pakistani cities, air pollution levels are even higher than Beijing, a city known for its pollution. This

speaks of the adverse pollution conditions in Pakistan.

Climate change is also going to wreak havoc in the country in the years and decades to come – primarily on the fronts of rising temperatures and water scarcity which in turn will also have an adverse impact on food and energy security. Pakistan has already experienced two catastrophic floods in 2010 and 2012. On the Climate Risk Index of 2015, Pakistan is ranked seventh globally in terms of countries that had to bear the dreadful effect of climate change.

According to the FAO, the 2010 floods in Pakistan had a terrible impact on the livelihoods of 4.5 million workers; two-thirds of them were employed in the agriculture sector. Over 70 percent of farmers' income was reduced by more than half. Due to climate change, a lethal combination of heat and humidity will adversely affect the agricultural Indus river basin. Also the rainy season will be pushed forward due to glaciers melting early. This means that when the crops would need water, there would be scarcity and droughts. Pakistan needs to take climate change risks really seriously.

Water scarcity could most critically affect the quality of life in the country. At the time of independence, Pakistan had 5,000 m³/caput of water and it was a water-rich country; now it is only 1,000 m³/caput and is a water-scarce country. A huge amount of freshwater (94 percent) is used for agriculture. In 2017, Pakistan only had 30 days worth of storage of water, only ahead of Ethiopia in terms of water storage.

Rainwater harvesting is not practised. The irrigation canals network is dilapidated and not well maintained, despite being highly subsidized – leaving so little space for initiatives to save water. British-era colonial regulations still govern the provincial

irrigation departments with little innovation and modernization to bring the water governance infrastructure up to date.

Drip irrigation is needed to reduce the huge water usage and wastage in the agricultural sector. Drought-resistant varieties of seeds need to be introduced for high-value crops to encourage better farming practices. The industrial pollution of water needs to be checked. Some of the bigger industries still claim to have environmental consciousness; it is the small and medium enterprises that need the most help and technical expertise to treat waste water properly. Unlimited groundwater access to water also needs to be regulated as over 60 percent of water used is being pumped through the groundwater.

In 'Shehla Zia and others vs Wapda', the Supreme Court gave a landmark ruling in 1994 and accepted the right to a clean environment as a fundamental right of the citizens of Pakistan protected by the constitution's Article 9 on the right to life. Pakistan has an environmental governance structure in place in terms of the Pakistan Environmental Protection Agency (Pak-EPA), other environmental bodies, and the Pakistan Environmental Protection Act of 1997 to enforce National Environmental Quality Standards. Much of this environmental governance and the Ministry of Environment has been decentralized post the 18th Amendment.

Environmental Impact Assessments are a prerequisite according to the environmental laws. Yet, much of this governmental environmental machinery is sluggish with "poor record of action and poor technical capacity". What is needed is not more government departments and laws, but a pro-citizen-rights' implementation of environmental governance. We need better water, air, and sanitation for the welfare of this generation and for the future generations as well.

In Pakistan, extreme events and disasters catch sound-bites. The need of the hour is that the government, the judiciary, the media, the education sector, health sector, agriculture sector, and industrial sector need to make environmental protection a priority and work on it on a day to day basis by institutionalizing citizens' right to life on a continuous basis. ■



Power sector ‘racket’ unearthed by World Bank

—♦— Mushtaq Ghumman —♦—

The World Bank has unearthed a “racket” of 23 Pakistani companies which were awarded all contracts of projects undertaken by the Distribution Companies (Discos) and National Transmission and Despatch Company (NTDC). This report has been prepared by the World Bank Group (WBG) Integrity Vice Presidency (INT), which provides the findings of an administrative inquiry into allegations of corrupt, fraudulent, collusive, and/coercive practices.

According to the report, in July 2008, the International Bank for Reconstruction and Development (IBRD) entered into a loan agreement with the Government of Pakistan (GoP) for the Electricity Distribution and Transmission Improvement Project, financing of which was supplemented by two International Development Association (IDA) credits. The Project closed in February 2014.

The Project sought to: (i) strengthen the capacity of distribution and transmission networks to meet the increasing electricity demand in selected areas; and (ii) strengthen the institutional capacity of selected distribution companies and support other priority areas of power sector reform. The project was implemented by Pakistan Electric Power Company and multiple regional electric power distribution companies.

The INT initiated its inquiry in response to a report regarding a “cartel” operating in the electricity sector in Pakistan. The Report stated that at least 23 companies had organized themselves into “cartels”. The INT’s administrative inquiry focused on six Project-financed contracts to supply certain electricity transmission equipment. Bidders of the companies have been described by the authors of the report as “cartel members”.

According to the World Bank, “evidence” indicates that for years, the publicly procured market in Pakistan for certain electricity transmission equipment was controlled by a group of companies; specifically, “evidence” indicates that Group members arranged in advance which companies would win particular contracts, including World Bank-financed contracts, and collaborated on bid prices.

“Evidence” indicates that the Group covered all tenders for this type of equipment by electric power distribution companies, including those financed by the project. “Evidence” indicates that prior to 2007, four companies had captured close to 80 percent of the market. Four companies formed the Group, decided to avoid competition, and divided public contracts among themselves. Subsequently, two then-new entrants to the market joined the Group.

Although the Group was an informal association,

without legal status or offices, it was the platform to settle or cooperate on prices for upcoming tenders, and to designate contract winners. The group members appear to have allocated contracts among themselves to ensure that each member received its predetermined market share. Specifically, evidence indicates that allocation was based on company size and production capacity. When a Group member’s market share deviated from its agreed-upon allocation, the member would either be allocated or not allocated future tenders accordingly.

“Evidence” indicates that bid prices were set either during a Group meeting or before a bid opening, so that the other companies knew what price to quote in order to support the collection-selected contract winner. In some instances, the predetermined winner would instruct other Group members on appropriate bid prices.

The World Bank Group further states that “evidence” indicates that the Group was headed by a Chairman and whoever convened a Group meeting acted as Chairman for that meeting. The group meetings appear to have been convened by either a phone call or a fax to members and were generally held after the official announcement of a tender, but before the tender opening date.

“Evidence” indicates that Group members arranged the winner and price for contracts through manipulation or recommended for rebid.

“Evidence” indicates that at a Group meeting in July 2009, members agreed that so and so company would be the lowest bidder and would thereby win contract; if the Group had initially allocated the contract to another company member it agreed to reallocate the contract to a third company because, at the time, one company was lagging behind its agreed-upon market share. In October 2010, the contract was awarded to third company.

Initially, the Group allocated a contract to one company. Although the company had quoted the lowest price, when the one percent federal excise tax included in another company’s bid was deducted from the bid price, its bid became the lowest. “Evidence” indicates that at a subsequent Group meeting, third contract was allocated to the second number company. Evidence also indicates that the first company considered this a simple error by the second company and did not contest the award as it expected to be compensated in other tenders. In May 2009, the second company was awarded the contract.

The World Bank imposed administrative sanction of debarment with conditional release on Third number company (company C) and the successor entity to 2nd company (company B successor). These sanctions extend to any legal entity that the companies directly or indirectly. ■

Courtesy: Business Recorder

Govt to renegotiate deals with 12 independent power producers

—◆— Khaleeq Kiani —◆—

Reversing earlier decisions and agreements, the government on Thursday decided to 're-negotiate' once again power purchase agreements (PPA) with about a dozen independent power producers (IPPs) set up under Policy for Power Generation 2002 to recover 'excess payments' they had secured from the government.

The Cabinet Committee on Energy (CCoE), presided over by Planning Minister Asad Umar, took this decision on the advice of the National Accountability Bureau (NAB) for recovery of about Rs52bn including about Rs8.4bn from Nishat Chunian project of Mansha Group. The committee also revived an implementation committee led by the finance minister with the addition of a representative from law division which had concluded agreements with about 47 IPPs in February this year.

The government had paid first instalment of about Rs90bn to all other IPPs about two months ago but withheld payments to about a dozen IPPs as NAB had taken cognisance of their deals and alleged illegal gains they had secured over the period of their operations. Under the February agreements, the two sides had agreed on local arbitration to settle the issues pertaining to excess payments or illegal gain.

The CCoE approved a proposal of the Power Division that "the agreements with IPPs set up under the power policy 2002 finalised by the implementation committee be reviewed in the light of NAB advice in the M/S Nishat Chunian Power Ltd case," said an official statement, adding the "the revived Implementation Committee will re-negotiate the Master Agreements with IPPs of 2002" and submit outcomes of re-negotiations to the CCoE.

On Sept 24, 2020, the CCoE had constituted an implementation committee led by then energy minister Omar Ayub Khan to effectuate into formal agreements the revisions in various terms and conditions. On Oct 10, Dr Hafeez Shaikh, then adviser finance, replaced Mr Ayub as head of the implementation committee, while Tabish Gohar replaced Shahzad Qasim in the committee.

Other members of the committee included Babar Yaqoob Fateh Muhammad who led



the negotiations with the IPPs, the secretaries of power and finance, Barrister Qasim Wadud and the chief executive of the Central Power Purchasing Agency Guarantee Ltd.

Various forums, including CCoE, ECC and the federal cabinet approved the payment mechanism finalised by the implementation committee and agreements with IPPs in February. However, NAB intervened into the matter as an earlier commission led by former SECP chairman Muhammad Ali had alleged excess gains by the 2002 policy IPPs.

Finally, in May this year, the cabinet allowed payments to all IPPs under the Pre-1994, 1994 and 2006 Power Policy but excluded 12 IPPs under Power Policy 2002 till the conclusion of the NAB investigation.

The NAB has now contended that illegal gain of Rs8.36bn had been established against Nishat Chunian Power. It advised the Power Division to proceed with the subject but made legal exceptions to revised agreements which should be vetted by the Ministry of Law to secure the established excess payments to 12 IPPs of 2002 policy.

The Power Division told the CCoE that agreements with the 2002 IPPs, finalised by the implementation committee, did not provide for deduction of illegal gains and agreements already inked with IPPs had to be reviewed and the same process be followed again including re-negotiation by the implementation committee, approval of its recommendations and agreements with the IPPs and

the formal ratification by the cabinet.

The Power Division had, therefore, asked the CCoE to revive the implementation committee on IPPs and assigned the task of renegotiating the master agreements with IPPs established under 2002 Power Policy as advised by NAB and the outcomes of the re-negotiations by the implementation committee may be submitted for consideration and approval by CCoE. ■

Courtesy: Daily Dawn



International Renewable Energy Conference

Wind, solar projects soon to account for 7pc of electricity generation in Pakistan

The renewable energy production in Pakistan is getting increased and will soon account for seven per cent of the total electricity generated in the country.

This was disclosed by the Chief Executive Officer of the Alternative Development Board (AEDB), Shah Jahan Mirza, while speaking at the International Renewable Energy Conference organised here at a hotel.

The CEO of AEDB informed audience of the conference that at present the functional wind, solar, and some other renewable energy projects in the country had been producing 2,000 Megawatts of clean electricity.

He said the under-construction wind and solar projects in the country would produce another 850 MWs of renewable energy.

He said that at present renewable energy projects accounted for six per cent of the electricity generated in the country as this contribution would increase to seven per cent after commissioning of the new wind and solar power plants. He said the AEDB had been making progress to introduce the system of international competitive bidding to promote electricity generation through clean resources



in the country. “Although we have an ambitious target of clean electricity generation in the country but we will try our best to achieve it,” said the AEDB chief. He said that they had been waiting for the finalization of the generation expansion plan by the government as this would be helpful to determine the exact year-wise need to generate clean electricity to overcome the energy shortfall in the country.

He assured the participants that more

electricity would be drawn from the wind and solar power projects already functional in the country with an increase in nationwide energy demand.

Mr. Mirza said that the solar and wind projects alone were not facing the issue of non-payment of dues against electricity produced by them as the issue is of general nature pertaining to all the power plants in the country owing to the problem of circular debt. ■

Collaborating for Change

—♦— Mustafa Tahir —♦—

Corporate Pakistan Group (CPG) organized the Safe Karachi conference on the topic of “Collaborating for Change” in Karachi, aimed to create awareness about the challenges faced by Karachi especially during adverse climatic conditions. Focus on the key problems faced by the city’s administration, its residents, service providers (specifically utilities) and businesses.

Addressing these concerns on a public platform enabled a robust dialogue amongst the participants which included Governor of Sindh, Mr. Imran Ismail, Syed Nasir Hussain Shah, Minister for Local Government, Housing, Town Planning, Information and Chairman, KWSB, Mr. Faisal Sabzwari, Senator and Chairman Standing Committee on Industrial and Production, Senate of Pakistan, Dr. Miftah Ismail, former federal minister for finance and

revenue along with other notable and prolific stakeholders of the provincial capital.

Speaking at the conference, CEO K-Electric, Mr. Moonis Alvi said, “I am very pleased to be part of such an illustrious panel and have an insightful discussion. As a born Karachiite, I believe that we need to come together, collaborate, and share our ideas on the vision we have for a safer and better Karachi. In fulfillment of this vision and as part of the very fabric of the city, KE remains committed to investing around PKR 140 billion in the distribution network alone in line with our seven-year tariff period from 2017 to 2023. Subject to regulatory approvals, we also plan to simultaneously invest in our Generation and Transmission businesses to power Karachi to newer heights, Insha’Allah. Given the complexity of challenges that we face, climate change being one of the important most, I look forward to all the custodians of the city not just taking an active interest but

also urgent and immediate action.” Karachi is the economic hub of Pakistan, contributing an upward of 25% to the national GDP. The city’s economic potential is illustrated in its diverse culture and demographic make-up which garners large-scale migration on an annual basis. While being one of the top ten most densely populated cities in the world, Karachi’s development has been unable to match the pace of its quantifiable increase, and as a result it is also ranks quite high on the ‘least livable cities’ index. Karachi is in dire need of service/infrastructure management, a coordinated master planning, a special focus on utility provisions and above all, the prioritization of community ownership. Governor of Sindh, Mr. Imran Ismail while expressing his views at the Safe Karachi Conference said that Karachi was a planned city. Industries left the city due to lawlessness. Army, rangers, and other law enforcement agencies work together to restore peace and law and order in the city.

Infusion Group: A new era in energy storage solutions

A chat with Waseem Ashraf Qureshi, CEO, Founder & Partner, Infusion Group & Kilowatt Labs

◆ Naeem Qureshi ◆

In 2015, Kilowatt Labs was established in the United States of America, creating a storm in the power electronics market with the registration of a patent that would change the world of energy storage for the near future. Sirius Energy Storage is a super battery if you like, using graphene based supercap technology. It is able to charge in seconds, have a prolonged life for almost 45 years without degradation and work in extreme temperatures to share just a few of its unique features.

In 2019 Founder, Inventor and Group CEO, Waseem Ashraf Qureshi then went on to build the largest Supercap Module Manufacturing facility in the world under the name of Infusion Power Industries LLC, right in the middle of Dubai's manufacturing hub Dubai Industrial City (DIC). Many asked the question, why in the UAE. "Well, it's simple really, this region is the future of renewable energy technology and the UAE has the best to offer any manufacturer in the region, and we are proud to be a part of this euphoria," says Qureshi.

For those who don't know what Supercap Modules are, well they are simply a replacement of your standard battery. "However, we don't call them batteries, as the definition of a battery is one or more cells used to convert chemical energy into electricity," says Qureshi. "We don't use chemicals, our storage is 100 per cent chemical free, however we can store energy for longer. Sirius Supercap has a 45-year product life and charges extremely quickly. In fact our EV battery can charge in less than 5 minutes, we operate in extreme temperatures -35 degrees Celsius to +85 degrees Celsius, are non-detrimental to the environment and deliver almost all the energy stored without wastage."

The group of companies is basically divided into 4 main divisions. Kilowatt Labs, based in the US holds the patent rights for Sirius Supercap and Centauri Energy Server, the two flagship products of the group, whilst Infusion Power is the manufacturing arm of the group, with its main facility spread across 6.7 acres of land in Dubai. Infusion Solar Energy Systems LLC is the Exclusive Global Stockist and Re Seller for the Group, currently operating in 45 countries around the world whilst PERCO is



the Rental, Leasing, Pay as You Go and PPE arm of the entity.

The group has significantly evolved, in particular over the past year when it grew its footprint significantly. "It was a matter of time as both the industry and key players started to realise that this is the most advanced and cost-effective form of storing energy, whilst maintaining an essential balance to the environment," says Bilal Sheikh, Infusion's Chief Operating Officer. "We have seen phenomenal growth with our partners and re-sellers capitalising on what is eventually going to take over from the conventional battery market," claims Sheikh. Infusion, responsible for selling Sirius, the brand name given to its supercap energy storage device, has managed to clock up almost 20MWH of sales in the last 8 weeks, a 500 per cent jump in sales from this time last year.

"Our Domestic Sirius Wall product (that interacts with Solar Systems seamlessly), the new OFS concept that allows our partners to integrate their solutions with our baseline supercap technology, and our EV Module and Charging station have all been a part of this success. Now, as we continue to see these products added to our growing portfolio, we



are expecting these numbers to further grow," says a proud Qureshi, who saw his business expand from a humble shed in Al Qusais, Dubai where he first invented the supercap module, to become the empire it is today.

To grasp the potential of supercaps, it's necessary to first consider the markets they will disrupt: lithium-ion and lead-acid batteries. First, even when maintained under perfect conditions, they do not last long enough and require replacement within an unacceptably short period of time.

Anything from our children's toys to smartphones, iPads, cars, computers and electric cars are powered by these rechargeable cells. Qureshi's ultimate goal is to bring reliable, renewable energy to the masses in developing countries, but he had to look beyond lithium-ion for a variety of reasons. "It can't be achieved with standard chemical batteries without causing long-term environmental damage; there are exponential, long-term consequences.

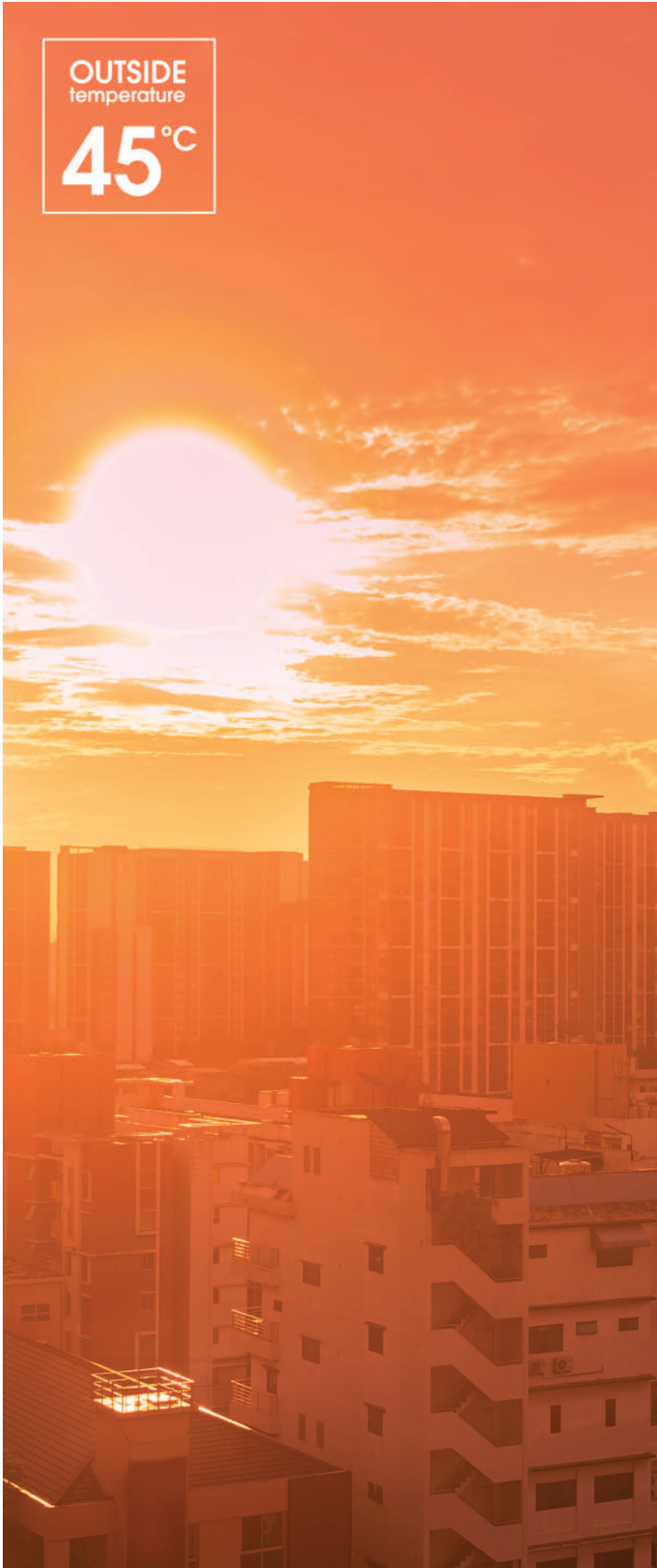
These batteries, which have a much shorter lifetime (than our supercap-based "Sirius" modules), are usually disposed of in landfills, causing more environmental harm." Although lead acid batteries are currently being discarded, lithium-ion battery recycling is in the works. Both, according to Qureshi have a significant carbon footprint during the manufacturing process. "Despite the fact that lithium-ion and lead acid are highly hazardous to dispose of, the world seemed to be entirely reliant on them as a storage medium before we developed our alternative "Sirius" module using supercap technology.

"It's very nice to make a product with a recyclable sign on it, but hang on a minute – you take that product away after three months (because that's the life of the product), put it into a facility that melts it down and produces so many carbon emissions, after you've shipped it halfway around the world... is that really sustainable? Are we truly helping the environment or causing it more damage?" ■



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Presidency gets solar-power

President Dr Arif Alvi on Wednesday inaugurated the one megawatt Solar PV (photovoltaic) at the Aiwan-e-Sadr, making it among one of the few presidencies in the world fully powered by green energy. The solarization project, under the President's Green Initiative, was kicked off in partnership with Engro Corporation where a net metering system will contribute 100 percent surplus energy to the national grid. The initiative will lead to an annual decrease of 1450 tons of CO2 emissions and an annual contribution of Rs 32 million to the national exchequer.

Addressing the ceremony, President Alvi said Pakistan remained committed to realizing the untapped renewable energy potential – in hydro, solar and wind – and to shift its energy mix to 60 percent clean energy by 2030. He stressed the need to utilize alternate sources for power generation to fully achieve the goals of clean and green energy. He said switching to renewable energy was vital to reduce the impact of climate change. President Alvi mentioned that the Billion Tree Tsunami project by the government of Prime Minister Imran Khan was another step in the right direction to preserve the natural resources of the country, facing vulnerability to climate change. He said a balanced ecosystem strategy was important to control depletion of natural resources.

In line with further green measures for the Aiwan-e-Sadr, the President said plantation of 10,000 saplings was under-consideration besides raising a vertical forest by one of its walls. Also, the restoration of roof-window panels of the presidency that were earlier meant to



get sunlight, is on cards to save natural resources, he added. He said plantations at the select parks of Islamabad in Miyawaki style would prove conducive for the environment. The President said private industrial setups had a responsibility upon them to contribute towards betterment of society. He lauded the efforts of Engro Corporation in supporting the President's Green Initiative and said the inclusion of the private sector in development endeavours could prove helpful in areas particularly energy security. President Engro Corporation Ghias Khan said green strategy was an important pillar of development, adding that the contribution of Engro would positively contribute to the mitigation of environmental hazards. ■

Key grid project under CPEC termed a milestone

The Matiari-Lahore transmission line project is another example of how the China-Pakistan Economic Corridor (CPEC) has contributed towards improving people's livelihood and economic development in Pakistan.

"The project will offer local people access to stable and high quality electricity and it's of great significance to breaking the bottleneck of South-North power transmission in Pakistan," Chinese Foreign Ministry's Spokesperson Wang Wenbin said during his regular briefing.

According to media reports, the first power grid project on CPEC, the Matiari-Lahore transmission line project contracted by the State Grid Corporation of China, has started power transmission from June 25. This is the first direct current transmission line in Pakistan. In the vast desert in eastern Pakistan, a 900-kilometer line stretches from Matiari to Lahore, spanning most of the areas in Sindh and Punjab. This is the ± 600 kV HVDC transmission line, a power project with the highest voltage and the only direct-current transmission in Pakistan. It is also the only key grid project under CPEC.

The spokesperson said, as an important

pilot project of the Belt and Road Initiative (BRI), CPEC has made significant progress in various sectors including energy since its launch. This has not only boosted Pakistan's faster economic and social development but also played a positive role in promoting regional connectivity. He remarked that the Belt and Road Initiative (BRI) came from China but it created opportunities and good results for all and benefited the whole world.

"Now, up to 140 partner countries have signed BRI documents with China. Trade between China and BRI partners exceeded USD 9.2 trillion and the direct investment surpassed \$130 billion," he added. He said, the BRI has become the world's broadest-based and the largest platform for international cooperation. They were ready to share more development opportunities and dividends with all. Matiari to Lahore ± 660 kV HVDC Transmission Line Project is developed in the 'BOOT' (Build, Own, Operate, and Transfer) mode. With a total investment of \$1.6 billion, it will transfer the power in Southern Pakistan to the Load Center, providing electricity for the people in Punjab and the capital region and creating 5000-7000 jobs.

'Mitsubishi to build Rs47.5 bn LNG terminal in Karachi'

Federal Minister for Maritime Affairs Ali Zaidi Tuesday said that Japanese company Mitsubishi would install the fourth Liquefied Natural Gas (LNG) terminal in the country at Karachi's Port Qasim.

Taking to Twitter, Ali Zaidi said that Mitsubishi would invest \$300 million (Rs47.52 billion) for setting up the LNG terminal at the city's port. "After Energas, Taber Energy (Mitsubishi) also close to finalising their FID to set up the [fourth] LNG Terminal," he said in his message on the micro-blogging site.

The terminal will be installed at Port Qasim and the project will be completed within two years, he said, adding that 90 LNG cargo ships could dock at the terminal at a time. The federal minister further shared that a 24-kilometer gas pipeline would also be laid for the supply of the LNG from the terminal.

Pakistan, IDB sign \$4.5b oil deal

—◆ Shahbaz Rana —◆

Pakistan and the Islamic Development Bank (IDB) signed a \$4.5 billion framework agreement for a commercial loan to finance oil and gas imports amid only 55% utilisation of a similar three-year facility.

The International Islamic Trade Finance Corporation (ITFC) signed the three-year framework agreement for a cumulative amount of \$4.5 billion with Pakistan in order to provide financing for the import of essential commodities such as crude oil, refined petroleum products, LNG and urea, the Ministry of Economic Affairs announced.

Jeddah-based ITFC is the financing arm of the IDB for trade activities. The financing will help Pakistan meet energy requirements for the period 2021 to 2023. It will allow the country to finance vital imports of crude oil and refined petroleum products. The fresh facility has been obtained at an average rate of London Interbank Offered Rate plus 2.5%, said the sources. The previous three-year facility had been drawn at Libor plus 2.5% to 2.75%.



Under the umbrella framework agreement, separate commercial agreements will also be signed that will determine the exact interest rate. However, the government could not take full advantage of the 2018-2020 similar facility. Only \$2.5 billion or 55% could be utilised against the \$4.5 billion facility, said an official of the Ministry of Economic Affairs. The government could utilise on an average \$833 million as against the annual financing envelope of \$1.5 billion.

The ministry blames the Covid-19 out-

break and low oil prices for the lack of utilisation of the facility. The country imported \$8.5 billion worth of petroleum products including gas during the 11-month period (July-May) of the current fiscal year, according to the State Bank of Pakistan (SBP). Last week, the government also announced a Saudi oil facility of \$1.5 billion per annum on deferred payments, which was half the amount that Saudi Arabia had given in November 2018 under a three-year agreement. But the three-year facility was prematurely terminated within the first year. Payments against oil imports are settled overseas, which takes off the pressure from the rupee in the inter-bank market. The rupee has also come under pressure in recent days and is being traded around Rs158 to a dollar.

Within the context of its trade-integrated solutions approach, the framework agreement also covers ITFC's support for trade-related technical assistance projects in Pakistan, which will be selected jointly by both the parties according to the national economic priorities and development plan of Pakistan, said the ministry.

Twin energy crisis to take heavy toll on economy

The avoidable twin energy crisis is set to wreak havoc on the economy as gas and power blackouts will bring business, commercial, and manufacturing activities to a standstill. The messed-up energy crisis means no gas for productive sectors of the economy like, industry and transport.

Both Sui companies have further tightened gas availability in view of shrinking supplies. Sui Northern Gas Pipelines Ltd (SNGPL) under its load management plan for the period of June 29 to July 05, 2021 announced on Monday to suspend gas/Regasified Liquefied Natural Gas (RLNG) supply to Compressed Natural Gas (CNG) sector, cement industry and non-export industrial sector across the franchised area of gas utility including Punjab & Khyber Pakhtunkhwa. Besides, RLNG supply to both Punjab-based fertiliser units would be stopped from midnight of June 29, 2021 till midnight of July 05, 2021.

Consumers of Sui Southern Gas Company (SSGC) have been facing hardship for the last about a couple of weeks and the situation is feared to be further aggravated as far as availability of natural gas is concerned.

Power sector is also feeling the heat of fuel shortage, facing serious issues on generation sides. According to sources, power generation would be curtailed by 5000MW to 7000MW in the next week or so. Lahore Electric Supply Company (LESCO) announced a Load Management Programme with up to seven hours of outages in the five districts of the central Punjab. Moreover, there will be a four-hour consecutive power cut next week for the steel furnace industry.

Getz Pharma takes the LEED

Getz Pharma Pvt. Ltd. announced that its new manufacturing facility, named Astola, has been awarded the First LEED Platinum Certification for a pharmaceutical plant in South Asia, by the U.S. Green Building Council.

With this achievement, Pakistan has proudly become the first South Asian country to have received the LEED Platinum Level Certification for a pharmaceutical plant. Achieving the highest LEED rating for this state-of-the-art facility is a testament to Getz Pharma's commitment towards playing its part as a corporate citizen, for preserving and protecting the environment.

Getz Pharma believes in forward-thinking by constantly taking environmentally conscious efforts for a more sustainable world. With the completion of this plant, Getz Pharma has achieved their goal of promoting sustainability and efficiency in building design, construction and operations. It is not the first time that Getz Pharma has laid down a foundation for communities and corporations to follow. Ever since its inception in 1995, Getz Pharma has put preservation of environment on the forefront of its CSR activities and actively promotes initiatives in this field, while adopting several green practices in their office as well. As the second-largest pharmaceutical company in Pakistan, Getz Pharma's Head Office is also WWF Green Office Certified.

Every year the World Environment Day is observed on June 5 by the United Nations to spread awareness about preventing, halting and reversing the damage that has been caused to nature. This year, the baton was passed down to Pakistan with the theme being 'ecosystem restoration', focusing more on creating a good relationship with nature.



Power Division to retain some 'inefficient' power plants

—◆ Mushtaq Ghumman —◆

The Power Division (PD) has reportedly decided to retain some "inefficient" public sector generation plants known as Gencos for stabilisation of the system and meeting demand of some specific areas.

On June 17, 2021, the Cabinet Committee on Energy (CCoE) was reminded that in September, 2020, it had approved the proposal of the Power Division for closure of operational and non-operational power plants /units of Gencos in two phases. According to the plan, in Phase-I certain units /plants of Gencos having aggregate capacity of 1796 MW were approved to be closed immediately and certain power plants were retained for the system requirement, which will be closed as per approved timelines. Phase-I of the approved plan for closure has been implemented. Keeping in view the system requirements and to ensure system stability, Power Division has proposed following revisions in the earlier approved timelines for the implementation of phase-II of the approved closure plan with relevant technical requirements.

I-TPS Jamshoro units 1 and 4 RFO/gas 400MW: CCoE decided on September 10, 2020 that the plant was to be retained till COD of first unit of coal- fired power project tentative date for which is Sept-2022. In this regard, the Power Division has proposed that the plant was presently required during low wind generation in summer season to meet Discos & KE load demand. This requirement will cease when the



first unit of Jamshoro coal- fired project (tentative date Sept 2022) and 500 KV grid station KKI is commissioned (tentative date March-2023). So the earlier decision of its closure by September 2022 may be revised to June 2023.

II- Siemens Block /Guddu Unit 11 to 13- Gas 415MW: As per CCoE decision of September 10, 2020, the plant was to be closed till restoration of Steam Turbine (ST). In this regard, it was proposed by the Power Division that the process for repair of Steam Turbine (Unit-13) has been initiated and will take 18 months after which this power plant will be a cheap source of energy. So, no revision in the earlier decision of CCoE was required.

WAPDA generates 37 billion units of hydropower in 20-21

The hydel power stations of Pakistan Water and Power Development Authority (WAPDA) cumulatively generated 37.147 billion units of low-cost and environment-friendly electricity during fiscal year 2020-21, ending June 30. Hydropower generation by WAPDA was almost equal to that of fiscal year 2019-20 and 3.08 billion units more if compared with the average annual generation during the last 10 years. According to WAPDA data, Tarbela Hydel Power Station generated 12.61 billion units, Tarbela 4th Extension 3.42 billion units, Ghazi Barotha 6.89 billion units, Mangla 5.40 billion units, and Neelum-Jhelum Hydel Power Station generated 4.79 billion units during FY2020/21.

Data showed that the rest of the generation i.e 4.03 billion units - was contributed by other hydropower stations of WAPDA. Hydropower is the cheapest electricity produced in the country. That is why it plays a pivotal role in economic and social development, as it stabilises the overall power tariff for consumers.

Its impact on the national economy can be gauged from the fact that WAPDA's generation cost of hydropower stood merely at Rs2.82/unit, while generation cost from thermal sources was Rs13.14/unit on average during fiscal year 2020-21.

At present, WAPDA owns and operates 22 hydropower stations, including Neelum Jhelum, with cumulative installed generation capacity of 9,406 megawatt. It is pertinent to mention that WAPDA is vigorously implementing a least-cost energy generation plan to enhance the share of hydroelectricity in the national grid. A number of mega projects being constructed in the sector are scheduled to complete from 2023 to 2028-29. These projects would double the installed hydropower generation capacity from 9,406MW to 20,591MW. Likewise, WAPDA's contribution of green and clean hydroelectricity to the national grid would also increase from the existing 37 billion units to more than 81 billion units per annum. ■

GO Pakistan Ltd launches GO lubricants

Pakistan's fastest growing oil marketing company, Gas & Oil Pakistan Limited (GO) proudly launched its premium



range of GO Lubricants in Lahore. The company also held its Dealer Reward Programme to recognise the profound efforts and services of its dealer partners. The high performing partners of GO were rewarded with various prizes that included SUVs, cars, motorcycles, and hundreds of home appliances. Speaking at the occasion, Zeeshan Tayyeb, Chief Operating Officer said, "This is a huge milestone for GO. GO Lubricants is an expansion of our product offerings and is a testament to our vision of providing the best quality products to our customers. I am proud to announce that GO has also recently achieved its 800th retail outlet milestone, making it the largest oil marketing company in the private sector." Ammar Ali Talaat, Chief Strategy Officer shed light on GO's latest fuel additives and said that effectively enhance fuel quality that is an environment friendly alternative that meets EURO-5 specifications.

Future directions for VRE deployment in Pakistan

Experts from the energy sector have emphasised that for a sustainable energy transition, Pakistan needs to incorporate global best practices in its energy sector, especially in Variable Renewable Energy (VRE) sector related policies.

Speaking at a webinar on 'Future directions for VRE deployment in Pakistan - A discussion on the findings of the World Bank's VRE report', the experts discussed prospects of grid integration and locational study conducted by the World Bank for energy sector of Pakistan, and major challenges for revised version of Indicative Generation Capacity Expansion Plan (IGCEP) 2030.

World Bank Senior Energy Specialist Oliver Knight shared various aspects of studies conducted by the World Bank on 'Variable Renewable Energy Integration and Planning' and

'Variable Renewable Energy Locational Study' with the participants. Based on the outputs of both reports, Knight said the most optimum capacity expansion pathway for Pakistan is through increased expansion of solar and wind capacity as it will decrease the utilisation of existing generation facilities, which are no longer competitive. He opined that achieving targets of 30% renewable energy by 2030 would require some investments in transmission capacity of Balochistan.

National Transmission and Despatch Company (NTDC) Power System Planning Manager Shahbaz Ahmad, while providing details on revised version IGCEP 2030, informed the participants that wind and solar in plan are added at around 4,000MW due to displacement of expensive thermal power plants. Alternate Energy Development Board (AEDB)

Director Policy Syed Aqeel Hussain Jafri was of view that while the policy targets dictate an increasing share of renewable energy in the energy mix, any development has to be based on the outputs of IGCEP once it is approved. The revision of IGCEP should be carried out after every two years to incorporate the decreasing cost of technologies, he added.

Amin Lakhani, Director of Clean Energy Projects on the USAID funded Sustainable Energy for Pakistan (SEP) project, highlighted that 88% of capacity expansion in plan was due to committed projects and NTDC. He suggested that revision should include the definitions of committed projects to those that have achieved financial closure, reducing the entry size of mega projects to facilitate the least cost optimisation, and using the RLNG price as the fuel cost for all natural gas plants. ■

Pakistan, Russia to lay Karachi-Lahore steam gas pipeline

Pakistan and Russia have signed an agreement of technical cooperation to lay the 1100-kilometre steam gas pipeline from Karachi to Lahore at an estimated cost of \$2.5 billion. The agreement was signed by Secretary Petroleum Division Dr Arshad Mahmood and Deputy Director of Russian Energy Ministry Alexander Tolparov, a news release said. The signing ceremony was attended by Minister for Energy Hammad Azhar, and representatives of the Petroleum Division and Russia's Energy Ministry. Energy Minister Hammad Azhar said the project faced delay since 2015, and now the agreement

had been signed for technical cooperation in the construction of the pipeline that would be completed by 2023 costing \$2.5 billion. He said the gas steam pipeline from north to south of Pakistan was of great importance. The pipeline would be laid by the local companies, while the project material would be imported from Russia. With the completion of the project, the minister said the gas would be supplied from north to south to meet the needs of the consumers efficiently, adding the pipeline tariff would be determined by the Oil and Gas Regulatory Authority. Hammad said the agreement would help promote cooperation between the two countries in the economic and energy sectors. The Russian delegation termed the pipeline project of great significance for Pakistan. Deputy Director of Russian Energy Ministry Alexander Tolparov said the project would prove to be a milestone for Pakistan's progress and energy security. ■



Virtual pipeline firms granted licenses

—◆ Zafar Bhutta ◆—

In a new development, Pakistan's private sector is going to introduce an innovative concept of virtual pipelines through cryogenic bowzers. Currently, Pakistan has two floating liquefied natural gas (LNG) terminals in Karachi with handling capacity of around 1.3 billion cubic feet per day (bcfd) of LNG.

With the new concept of virtual pipelines, the government will open up the LNG market for the private sector to ship gas through such pipelines. Under this project, the private sector will not have to lay pipelines for gas transport.

In a move towards gas market liberalisation, promotion of competition in the gas market, boosting country's economic growth and ensuring reliable energy supply to the consumers of natural gas, the Oil and Gas Regulatory Authority (Ogra) has granted "provisional licences" to two virtual pipeline companies.

These will enable and facilitate them in completing all formalities under the provisions of Ogra Ordinance 2002, LNG Policy 2011 and LNG Rules 2007 and then apply for a licence for carrying out regulated activities. LNG Easy (Private) Limited and Daewoo Gas (Private) Limited shall pursue the LNG virtual pipeline project for gas supply through cryogenic bowzers. They are planning to use a berth at Karachi Port and another at Gwadar Port respectively for the



import of LNG cargoes, and to fill, transport, market and distribute LNG under the "Integrated LNG Project Structure" as per Article 2(a) of the LNG Policy 2011.

These will be the first projects in Pakistan and facilitate supply of natural gas mainly to off-grid consumers, hence, pushing up national growth. In addition to the two companies, Gwadar GasPort Limited (GGPL), a joint venture formed by Pakistan GasPort Limited, Al-Qasim Gas and Jamshoro Joint Venture Limited, is also interested in bringing LNG through virtual pipelines. GGPL has already inked an agreement last month with Gwadar International Terminals Limited to move LNG onto special purpose trucks for regasification at various industrial

sites across the country.

GGPL will start engineering work at the existing berth 3 at Gwadar Port for LNG shipment from a floating storage unit to trucks for transport to compressed natural gas (CNG) stations, textile mills, fertiliser plants and other such large commercial and industrial units across the country. At present, state-run gas utilities have complete control over import, sale and marketing of LNG in the country. The private sector had been seeking idle capacity of LNG terminals and pipelines owned by the gas utilities, which discouraged the entry of the private sector in the LNG market. This is despite the fact that the consumers are forced to utilise expensive gas due to lack of competition. ■

7 regional countries sign for Gwadar's development

Seven regional countries including Saudi Arabia, Kuwait, Oman, United Arab Emirates, Egypt, Kenya and Qatar expressed their commitment for cooperation in the development of Gwadar.

With their respective ambassadors present at a ceremony attended by Prime Minister Imran Khan, the regional countries showed their support for the development of Pakistan's port city. The Prime Minister on the occasion also witnessed the signing of two Memoranda of Understanding with the government of China for carrying out development projects in Gwadar. The accords included the implementation agreement on setting up of 1.2 MGD desalination plant to resolve the shortage of



drinking water for the residents of Gwadar. Other agreements included China's grant for solar generators for South Balochistan, and the groundbreaking of North Gwadar Free Zone and Enterprises.

Also on the occasion, the Chinese investors through video-link from Shanghai

showed the 'Expression of Commitment for Investment'. Those who pledged to invest in Balochistan's different sectors included Huang Weiguo (textile), Huang Daoyuan (prefabricated technology), Fang Hongyan (agriculture), Shen Jian (wool spinning), David Dia and Chen Yi (dairy processing) and Bao Dequan (textile).

The factories inaugurated on the occasion included chemical fertilizer factory, Gwadar Animal Vaccination factory and lubricant factory, besides the opening of Gwadar Tissue Plant Laboratory. Earlier, Chairman Gwadar Port Authority Naseer Khan Kashani briefed the ambassadors on the model of Gwadar Free Port Zone and the facilities being provided at the seaport. ■



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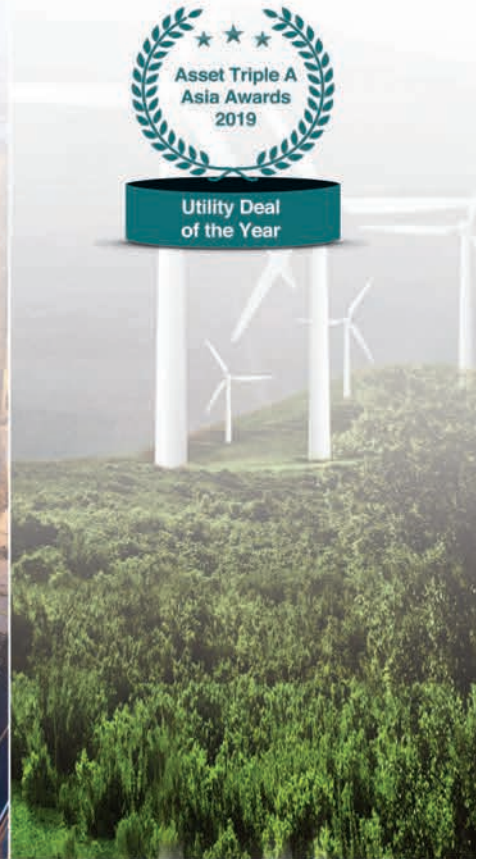
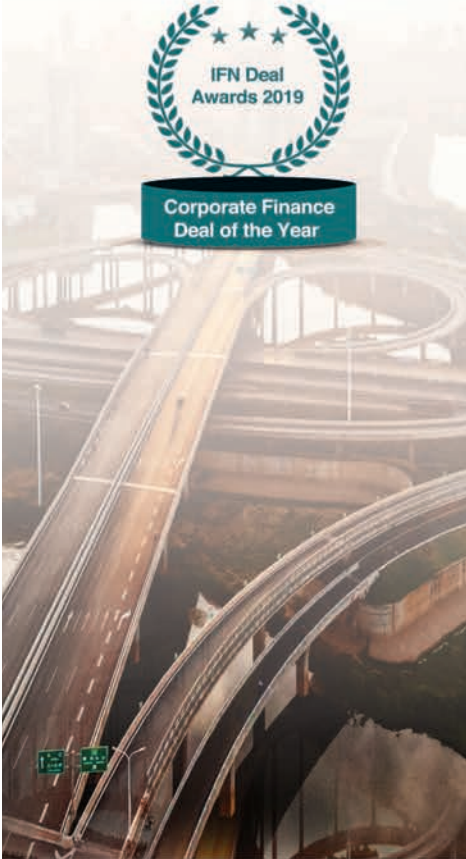
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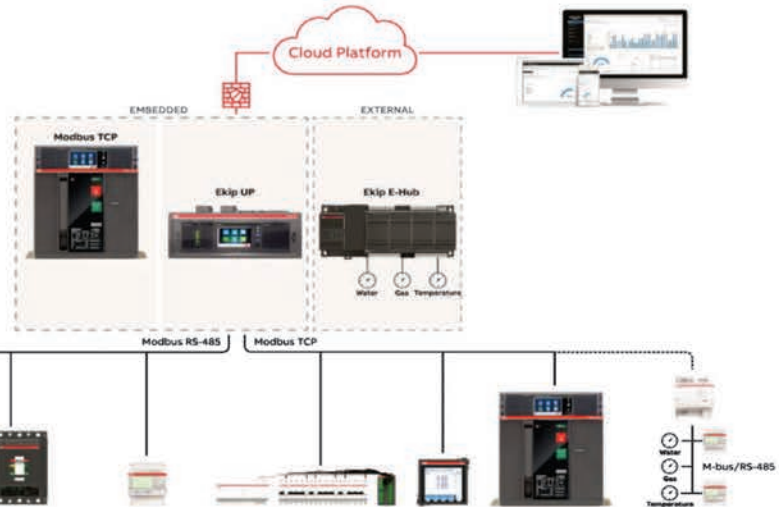


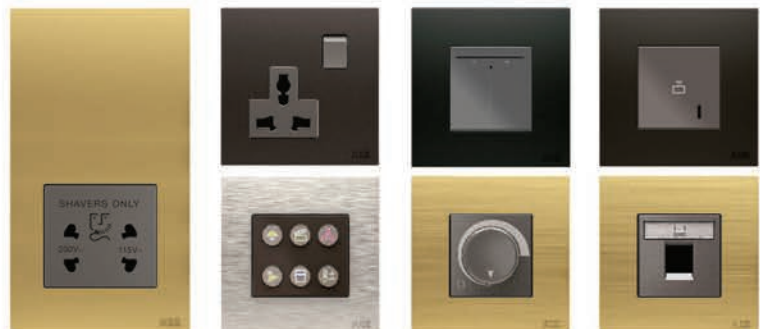
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