

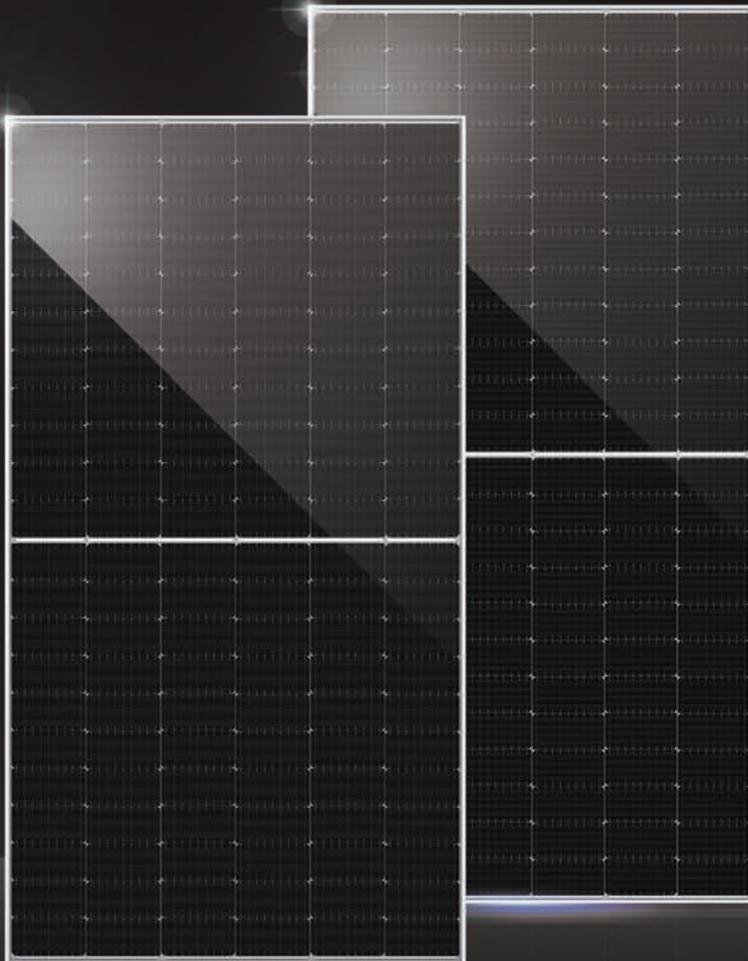
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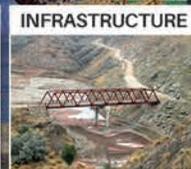


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15th
ANNIVERSARY

ENERGY UPDATE

EXCLUSIVE INTERVIEW OF ENERGY GURUS

TOP MANAGEMENT & PROFESSIONALS

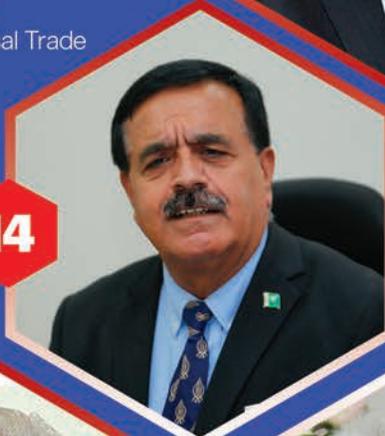
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Chairman, Pakistan Atomic
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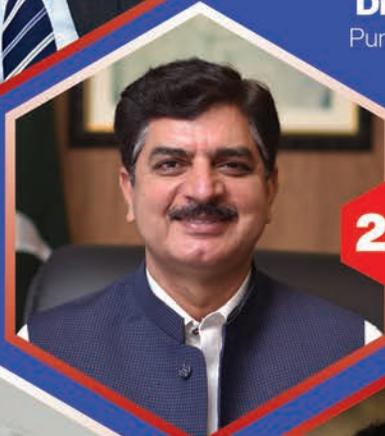
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Sedef Budak
President of Turkish Women in
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K Electric makes Karachiites' lives a hell

Despite all 'hue and cry' by the consumers the ruthless load-shedding is continuing by the K Electric without discrimination as its worst management is unable to spare even those areas that are best-payers list of the power company's consumers. Ironically, the load-shedding has been continuing by K Electric since the last three months on various pretexts. It did not spare a single locality of Karachi except some areas in the Red Zone so that VIPs would not be affected. This is sheer torture by K Electric to its consumer, physically and mentally as well.

More frustrating is the nonchalance shown by the sole power utility corporation, K-Electric, in the face of such outages. In winters, it calls out the Sui Gas corporation for creating a gas shortage. Summer months see the utility claim crippling outages as an unavoidable circumstance of the widening gap between demand and supply. If it's not the heavy rains disrupting transmission line in the monsoon season, K-E conveniently finds time to blame the shortage of furnace oil. It wouldn't be wrong to believe that K-E's performance in the last several years has been underwhelming at best and criminally negligent at worst.

Last year, when most civic authorities were busy trying to come up with measures to alleviate the agony of masses braving the virus pandemic, business continued as usual at Karachi's power corporation. There were the same arduous hours of blackouts. The governing body continued its neglect of electric installations during the monsoon season. Due to which dozens of people had died due to electrocution and criminal negligence by the KE but no amount of compensation has been given to the families of deceased even after the court orders.

KE has no problem with funds availability as it siphons off millions of dollars every month to its parent company in Saudi Arabia. Very recently Prime Minister Imran Khan has ordered the SSGC management not to recover an amount of Rs90 billion from K Electric on the plea that K Electric had donated a big amount to his party PTI during the election campaign. K Electric has not paid another amount of Rs80 billion to its consumers as a price adjustment of fuel it had collected from its consumers.

The public demand to reverse KESC's privatization and take it back into control as a public sector entity.



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Email: info@energyupdate.com.pk

Web: www.energyupdate.com.pk

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

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

15th ANNIVERSARY

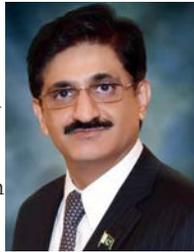
ENERGY UPDATE

Messages & Felicitations

— Syed Murad Ali Shah

Chief Minister Sindh

I would like to warmly congratulate the editorial team of the 'Energy Update' publication on completing its 15 years. I am immensely pleased to know that 'Energy Update' is the only monthly print publication in Pakistan dedicated to covering the energy sector, operating from the capital city of Sindh- an energy-rich province of Pakistan and the host to the country's only wind corridor. However, we do need more such specialised publications focusing on the issues of energy in Pakistan. The Government of Sindh has been fully committed to utilising the abundant energy resources of the province and has been making all-out efforts to tap both, the conventional and the clean energy resources to maximize output and benefit the consumers. The maximum utilisation of the province's energy resources could ensure uninterrupted electricity at the most inexpensive rates to the power consumers not only in Sindh, but across the country. The Sindh government in pursuance of this mission joined hands with the private sector to undertake the historic project of extracting vast reserves of coal in Thar for massive electricity production. The government of Sindh also established, in a first, a provincial Transmission and Dispatch Company in the country. I would like to conclude by commending the Energy Update for achieving this milestone and pray for its continuous success.



— Tabish Gauhar

Special Assistant to the Prime Minister
Power and Petroleum

Congratulations to "Energy Update" magazine for celebrating its 15th anniversary this month. Such domain-specialized publications are a key independent source of information for governments in formulating holistic policies in the interest of all stakeholders. Energy Update provides a useful platform for public and private sector experts to exchange ideas and share long-term solutions for the energy sector. Keep up the good work and please continue to provide the government with constructive feedback and content in the energy space.



— Mr. Zakir Ali

CEO Inverex

I truly appreciate the hard work of ENERGY UPDATE Team for producing a magazine of international standard that is attracted to all stakeholders of energy sector. It carries an essential reading material for all formations including energy industry, corporate sector, policy and decision making in the government, bringing latest news and insight in an exciting and interactive format. It stands out uniquely when it comes to in depth analysis of key issues, real world success stories, market trends and latest technological development. Especially there focus on Solar Energy, they always support and promote the solar energy. Keep it up Energy Update! Finally, I would like to congratulate the management of Energy Update for successfully publishing the 15th Annual Edition of Energy Update Magazine.



— Kamran Arshad Inam

Deputy Managing Director and Technical Head
Head Office, EFU General Insurance Ltd

Congratulations on completing 15 years of remarkable research and writing on industrial development of Energy Sector globally. Energy update have given thought-provoking, yet practical, insights for the energy sector to explore ways to aids in the development of renewable energy policies and provides support for the deployment of renewable energy technologies across Pakistan. The monthly magazine provide excellent knowledge on facts and figures, the analysis on different ways of producing electricity from geothermal energy technologies. Best wishes to the entire team of Energy Update for future endeavors and greater success for the magazine as it continues to contribute to the development of Alternative and Renewable Energy in Pakistan.



— Usama Qureshi

Chairman Bolts Private Limited

It is heartening to note that the Monthly "Energy Update" is celebrating its 15th anniversary. I would like to congratulate the founder Mr Naeem Qureshi and his team on this great achievement. There is no doubt about it that energy update journal provides in depth content about the Energy industry verticals. I wish best of luck to the entire team of Energy Update and hope that in future this specialized publication will continue to grow and prosper. Best wishes



15th ANNIVERSARY



Muhammad Arif Habib

Chairman **Arif Habib Group**

I congratulate Energy Update Magazine on its 15th Anniversary. The Energy Industry is vital to the prosperity of Pakistan and Energy Update Magazine plays an integral role in educating the masses of the developments taking place in the industry through its well researched and analytical articles. I wish the entire team of Energy Update well and look forward to its continued success.



Dr. Shamshad Akhtar

Chairperson **SSGC**

On behalf of SSGC, it gives me great pleasure to felicitate Mr. Naem Qureshi and his entire team of monthly 'Energy Update' on the magazine's 15TH anniversary. Ever since its inception, the magazine has carved out a reputation for publishing informative and insightful articles and news related to local and global energy sector to its readers. It is encouraging to note that through your periodical, Country's energy sector enjoys a dedicated and well-round representation of perspectives and analysis. I am pleased to note that the magazine is being circulated amongst thousands of industry experts across the World. I appreciate the magazine contribution for coverage of many transmission and distribution projects undertaken by SSGC and highlighting the importance of its role in the energy sector particularly in the supply chain of Regasified Liquid Natural Gas (RLNG). Once again, I warmly congratulate the editorial team of Energy Update for completing fifteen prolific years and wish that future brings even greater success for the magazine as it continues its journey to shape the readers' thoughts and opinions.



Ahsan Zafar Syed

CEO, **Engro Energy Limited**

I would like to extend my heartiest congratulations to the entire team of the Energy Update Magazine for completing 15 years of successful publication. The Energy Update Magazine is playing a huge part in educating its readers about not only the developments in the local energy industry but also about the trends, opportunities and challenges that exists in the energy ecosystem world over. Through its regular updates it has created a space to become an important voice in the energy industry of Pakistan. Keep up the good work!



Farman Lodhi

CEO **Solis energy solutions**

On behalf of Solis Energy Solutions (pvt) Ltd, I would like to congratulate Mr Naem Qureshi and the entire Energy Update team on their 15th anniversary. EU through its publications and conferences has played an anchor role in promoting and presenting voice of the energy industry in Pakistan. It provides a stakeholders a platform to express their views, discuss their issues, and contribute in finding viable solutions. Over the number of years it has been around, the industry has benefited from its balanced perspectives, in depth analysis, and insightful dialogs. With its wide spread circulation and active promotion of energy related events, it has contributed immensely to the sectors value. I wish the team even greater success in the future.



Faaz Diwan

Director **Diwan International Pvt Ltd**

I would like to praise Energy Update Magazine on completing successful 15 years. It has been the only credible magazine that has served Pakistan's energy sector by keeping the energy track up to date with local developments and international trends in Solar Industry. My heartiest congratulations to Energy Update team for pulling up these 15 years of success.



Sohail Butt

Energy Consultant and **Ex DMD PSO**

It gives me a great pleasure to convey my heartiest greetings to Energy update team who are celebrating 15 years of journalistic success for the most critical segment of our economy - The underperforming energy sector that requires pooling of talent and their collective wisdom that is so important for the resolution of issues confronting the sector. Such a challenging task undertaken by the energy update team is being achieved through hard work, commitment and missionary zeal of the team very ably led by their self-motivated and hardworking leader Mr. Naem Qureshi. The energy update team has taken many initiatives in the field of journalism, academic research, event organisation and management for various segments of energy sector value chain in the last fifteen years.



15th ANNIVERSARY



— Hammad Amjad

Vice President Commercial Operations, Middle East & Africa Region & Local Business Manager – Electrification Business Area, Pakistan ABB Power & Automation (Pvt.) Ltd.

“We congratulate Energy Update magazine and its team on magazine’s 15th Anniversary. EU is not only good source of information on energy sector but also made remarkable contribution in highlighting critical issues and developments. Energy Sector has an important role in the development of our country and especially with the rising awareness on digitalization, climate change-clean energy and shift to sustainable and green energy resources, the role of such publications is even more essential in ascertaining the way forward.

ABB, being the pioneer in power sector globally, has also been playing its part in Pakistan by implementing innovative solutions encompassing latest digital technology and round the clock services. We are working with all the major utilities, industries, infrastructure, and institutional customers offering power solutions from Power Generation to Socket and playing our part in the development of Pakistan. We wish Energy Update every success and have confidence that they will continue to play their role in identifying the key aspects related to energy sector.”



— Iqbal Z. Ahmed

*Chairman and CEO
Associated Group*

Pakistan has just a handful of business magazines and one of the few which has distinguished itself over the past decade is Energy Update. As the country’s new sectors develop such as LNG, Energy Update has been ahead of the curve in informing readers of the benefits of embracing new technologies for sustainable economic growth—a case in point has been its championing of green technologies which the LNG sector has ushered and also correspondingly brought in sizeable savings for the Government and people of Pakistan by switching our country’s power plants from expensive and dirty furnace oil towards LNG. Under the stewardship of Naeem Qureshi, Energy Update has brought forth wide-ranging perspectives from the energy sector through its publications as well as public events. These endeavours have resulted in formulating opinions among the key stakeholders for making Pakistan an energy-secure country.



— Asad Alam Khan Niazi

*Chief Executive Officer
Burshane Group [Burshane Petroleum (Pvt.) Limited. +
Burshane LPG (Pakistan) Limited.]*

“It gives me a great pleasure to convey my greetings to Energy update team who are celebrating 14 years of unparalleled success achieved through hard work, commitment and missionary zeal and of course very ably led by their self-motivated leader Mr. Naeem Qureshi. My best wishes and prayers for the Energy Update team in pursuing the principle objective of bringing people together for streamlining the energy sector of Pakistan and helping the country to attain its goal of energy self-sufficiency, leading to revival of economy and development of the country on a sustainable basis.”



— Shaaf Mehboob

CEO Adaptive Technologies

Always a pleasure to read through energy Update. Kudos to Naeem Qureshi Sb and his team for always putting together an up to date and well documented edition of the magazine that covers all sectors of the energy portfolio comprehensively.



PM Imran inaugurates 1,100-megawatt Kanupp-2 nuclear power plant

— EU Reports —

Prime Minister Imran Khan virtually inaugurated the 1,100-megawatt Karachi Nuclear Power Plant Unit-2 (Kanupp-2) on the 70th anniversary of the establishment of diplomatic relations between Pakistan and China. "The project will produce 1,100 megawatts of clean energy, which is particularly important for us because Pakistan is one of the 10 countries most affected by climate change."

"Our glaciers are melting fast, our future generations will be up against a challenge if we do not reverse the process at the same pace," the premier added. The premier further said that the project will also be a good omen for the manpower at home and people to people contacts. "Also, I am glad that it is being inaugurated as we celebrate 70 years of diplomatic relations with China." "We, he added, are fortunate to have a progressive friend like China whom we can learn a lot from. "We can benefit from your experience of urban and population management, elimination of extreme poverty and corruption."

"China has also taught us about taking to task those who are powerful and involved in corruption," PM said. According to a statement issued: Kanupp-2 is a generation III, state-of-the-art plant with improved safety systems, especially internal and external accident

prevention ability and enhanced emergency response capability. The plant has a 60-year life expectancy, extendable to 20 more years. It is designed with higher plant availability and capacity factors, and extended refuelling cycle.

The construction of Kanupp-2 commenced in November 2013, whereas its fuel loading started on December 1, 2020 after approval from the Pakistan Nuclear Regulatory Authority (PNRA). A series of cold and hot functional commissioning tests related with plant operation and safety were conducted, before achieving criticality at the end of February this year. After further reactor physics tests, the plant was connected to the national grid on March 18, 2021, for trial operation and power escalation tests. The Pakistan Atomic Energy Commission is now operating six nuclear power plants in the country. Two of them are located in Karachi namely Kanupp-1 and Kanupp-2, while four are at Chashma, in Mianwali district, named as Chashma Nuclear Power Plant Unit 1-4.

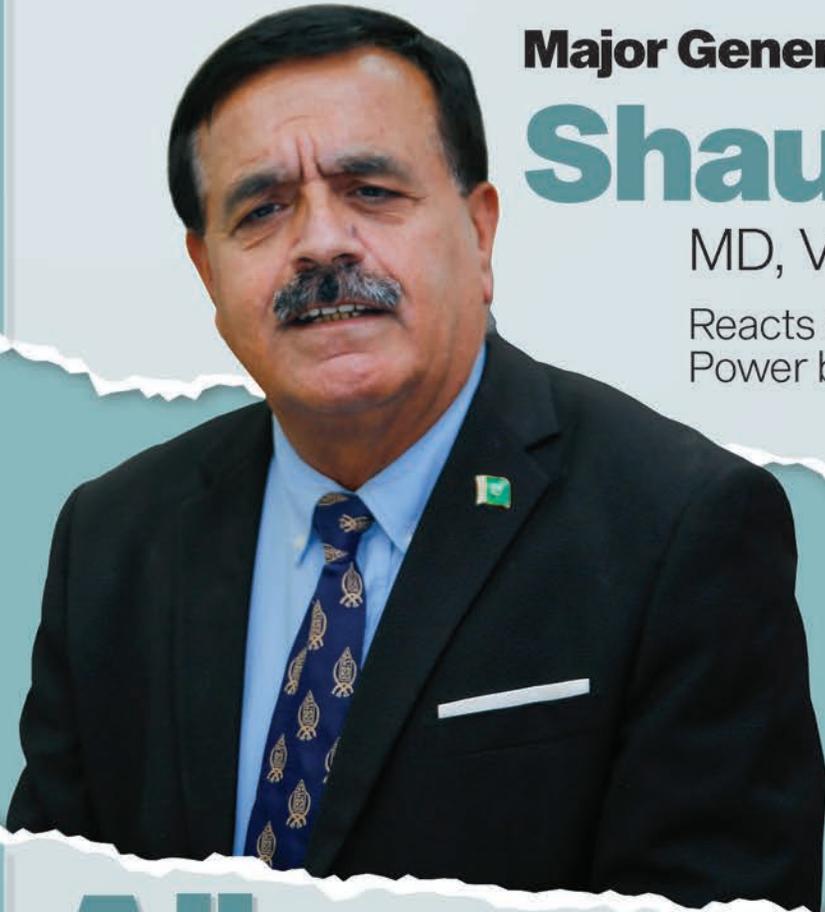
Earlier, the collective generation capacity



Prime Minister Imran Khan inaugurates Karachi Nuclear Power Plant Unit-2 (K-2), at Islamabad on May 21, 2021

of all PAEC operated NPPs was around 1,400 megawatts. The inauguration of Kanupp-2 having 1,100MW capacity will nearly double these figures, substantially improving the overall share of nuclear power in the energy mix. Meanwhile, Kanupp-3, with similar capacity is also in the commissioning phase and is expected to start production during the first quarter of 2022. It is worth mentioning that the addition of clean, reliable and cost-effective nuclear power, in the energy mix, would greatly benefit the society and country at large. ■





Major General (retd)

Shaukat Iqbal

MD, Venture Universal Trade

Reacts over neglect of Solar Power by Government

All educational institutions, hospitals, industries in Pakistan should be solarised

—◆— Halima Khan —◆—

“My aim is that we should solarise all the educational institutions, hospitals, and industrial units in Pakistan”.

This was stated by Major General (Retd) Shaukat Iqbal, who is the Managing Director of Venture Universal Trade (Pvt) Ltd, during an exclusive interview session with the Energy Update. In the interview, he talked in detail about the present scenario and future of the Pakistani solar industry. Following are the important excerpts of his interview for our readers:

Energy Update: How did you venture into the field of solar industry in Pakistan?

Shaukat Iqbal: I started working in the solar industry in 2015 after my retirement from the army. I served in the army for 40 years. In these 40 years, I had the experience of serving in Europe, in the Middle East, and in the Far East. I had such a vast experience of both the developing and the developed world. I had a passion for green energy. This passion has roots in Germany. In Germany, the sunlight is for a very few hours in a day but even then 23 per cent of their electricity comes from solar energy. Whereas in Pakistan, we have massive solar power but we have not been able to generate even one per cent of our electricity using the sun. So on the basis of this passion, I started working in this field. Unfortunately, initially I was not very successful because of the business environment

prevailing in Pakistan. People generally don't have much confidence in the solar power. I personally feel that solar energy is a passion, it is a revolution. Therefore, everyone in Pakistan should try to work in this field and ultimately make Pakistan a country rich in green energy.

EU: Lately, is there any positive change in the solar sector of Pakistan?

General Iqbal: I personally feel that there is now awareness among the people as they now go for the quality solar products. It is because of certain acts of the government like setting up of organisations like the Alternative Energy Development Board. There is going to be healthy competition in the market if people start looking for quality products. Then the elements involved in cheating people by selling products of substandard quality will automatically be eliminated. Ultimately, the day will come when solar energy is consumed everywhere. Now, here in the DHA area, out of 100 houses, only one is solarized. Hopefully, in the next five to 10 years, 100 percent of these houses will be solarized.

EU: Tell our readers about your personal efforts to promote solar energy in Pakistan.

General (retd) Iqbal: I have written letters on the utilization of solar energy to almost 500 big prospective clients, industrialists, educationists, healthcare professionals. My aim is that we should solarise all the educational institutions, hospitals, and industrial units in Pakistan. Then in the next stage, we should go for solarizing our residential units. If we are able to solarise the maximum number of our industries, then we will be able to end pollution, we will be able to use green energy, and we will be able to save a lot of money as the power tariff will be reduced. Resultantly, we will become a country which is rich in green energy. So I have gotten a very good response in this awareness campaign. In my letter, I inform its recipients about saving energy and money and reducing pollution in the country if they just opt for the clean energy option in the form of solar power. I am now getting so many projects as a result of this campaign.

EU: How many mega solar energy projects are you going to build in Pakistan?

General Iqbal: Lately, we have been approached by one of the investors based in Saudi Arabia who has invested in India to do projects of solar parks. He has established three solar parks of 500 MWs generation capacity in India. The investor was interested to do something in Pakistan. He said that he was going to invest US \$ 200 million in Pakistan. He asked us to act as a local partner

“

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to do projects of solar power in the country. I have just recently signed an MoU with him for a 100 MWs solar power project in Pakistan.

EU: What are the chances of starting local manufacturing of solar panels in Pakistan?

General Iqbal: I have one such partnership here in Pakistan. We have been trying to utilise the option of local manufacturing of solar panels in the country. We have land and we have some feasibility reports for the purpose. I am of the view that if a foreign solar power company comes here and does the investment for the purpose then the project of local manufacturing of solar panels is going to become feasible. If any foreign company is interested to start a venture here, we can provide them with the land, local expertise, logistics, and security for doing such a project. Pakistan has a lot of capacity to do such local manufacturing as the foreign companies could easily utilise this capacity.

EU: How do you see the future of Pakistani solar industry?

General Iqbal: The solar industry in Pakistan has a very good and bright future. The successful model in this regard will be that a leading foreign solar panel company like Longi comes here with its products and starts the collaboration with a local partner to build solar parks in the country. This will be helpful in producing clean electricity in the country on the basis of solar power and then sell it to the national grid on the government-determined tariff.

EU: In what manner a leading Solar companies could provide help to a country like Pakistan to produce most of its electricity on the basis of renewable sources of energy?

General Iqbal: The key to successfully adopting renewable energy like solar PV in Pakistan is to make the energy affordable. With the expansion of industry and technological advancement, the cost of energy generation has decreased by 75% from 2009 to 2018, with a further 27% decrease forecasted by the end of 2022.

The cost of PV generation in the USA,

Germany, Australia, Spain and Italy is already cheaper than the cost of generation from fossil fuels. By 2021, China will accomplish grid parity as well.

EU: Do tell us about the advantages of any leading Solar Company to energise the off-grid rural areas in the country.

General Iqbal: There are many factors to be considered to generate the most yield, including irradiation, temperature, design, efficiency, system compatibility, equipment reliability and O&M, etc.

Pakistan already has one of the highest solar irradiation levels in the world, however high temperature will cause additional yield loss.

As far as my perspective, LONGi Solar's product has better performance and reliability. LONGi's modules have one of the lowest temperature coefficient ratings, meaning the loss of energy yield is minimized under high temperature environments. LONGi's modules adopt the most popular 182mm wafer size design. The size of the module using such design is compatible with all branded inverters and structures, making the system design very flexible based on client's requirements.

In addition, PV modules are shipped to all parts of the world mainly by container. By adopting 182mm design, modules can be loaded into a container vertically in landscape orientation, this is calculated against various parameters, taking into consideration the risk of cracks and other damages during transportation.

EU: How do you rate LONGi's products?

General Iqbal: There are many companies making solar products. As per my experience and knowledge, LONGi's solar modules are the best seller in 2020, with over 24.5GW of global shipment, accounting for 19+0% market share.

Notably, LONGi Solar has recently introduced its revolutionary N-type TOPCon module series Hi-MO N. With up to 22.3% exceptional efficiency, higher bifaciality, lower degradation and better temperature coefficient (-0.31%/°C), allowing project investors achieve higher yield and return. I'm looking forward to see the positive impact on the Pakistani solar market with such technology. ■

Demolition of OGRA through act of parliament

When the PM would implement
Petroleum Commission's
recommendations

— Sajid Aziz —

Yet another anti masses move by the Oil and Gas Regulatory Authority (OGRA) has been rejected by the prime minister by rejecting the summary of raise in POL prices up to Rs10 per litre, proves that this organization established to act as a watchdog on oil and gas marketing companies and suggest the government to make nation friendly decisions in a situation of shortage crisis or price hike of the POL and gas, the OGRA has taken to a path to fully support OMC's irregularities, market manipulations, illegal profit making and hoarding at a juncture when the consumers facing very difficult time besides suggesting the government to increase price unwisely and unrealistically mount further pressure on the consumers.

OGRA instead of accepting its shortcomings, massive corruption prevailing in its arms even tried to create a mess among the petroleum division and the government to declare Petroleum Commission's inquiry report as controversial.

The inquiry commission report on shortage of petroleum product had exposed that much of the mess that abounds in the oil industry pertains to OGRA and the related laws/rule. The inquiry commission report uploaded on the Cabinet Division website revealed that in May and June 2020 witnessed the apathy of certain culprit OMCs which imported oil but hoarded or slowed down the supply to their retail outlets till the government increased the prices on June 26, 2020. The crisis of shortage erupted in Pakistan in the month of June 2020. Sad story of how an opportunity was transformed into a crisis starts in March 2020 with the irrational decision of 'import cancellation' by Ministry of Energy and Petroleum Division (MoEPD) spanning over a month whereby the OMCs were asked to cancel their cheap



international purchases. Instead of enforcing the OMCs to lift their local quota of purchases from refineries, the MoEPD went for the blanket import ban.

The report noted that the OGRA was never in a position to execute and enforce these rules and constantly shunned away from the very responsibility that had been bestowed upon OGRA through OGRA Ordinance 2002 and Oil Rules 2016. Having been created in 2002 and given some powers to regulate oil industry in 2006, it took OGRA a long 14 years to even formulate its rules (Pakistan Oil Rules 2016).

The role of this white elephant was not more than a silent spectator before or during the crisis of shortage of petroleum products. Catalogue of failures of OGRA since 2002 includes dishing out licenses (25 in last 14 years while 32 wait in line) to OMCs without ensuring actual enhancement of storage facilities, zero inspections of relative adherence to minimum stock requirements by OMCs, imposition of ritual fines on OMCs for drying out their retail outlets during the month of June 2020. The Commission is of the considered opinion that formation of a regulatory body like OGRA, perhaps in line with modern markets of developed countries, was not aligned with the ground realities of Pakistan. As such, the Inquiry Commission strongly recommends dissolution of OGRA through an act of parliament within next 06 months.

The modalities of how the present staff and function of OGRA would be utilized can be made a part of the proposed act. This is a strong recommendation but given the landscape of problems that OGRA has put the oil industry in, no other alternative would be viable. The Commission recommends strict penal/departamental action against those involved in illegalities, especially in issuance of unlawful provisional marketing licenses/marketing permissions. This includes the Chairpersons (incumbent and the previous ones) and their associated members (Oil, Gas, Finance) that constitutes the 'Authority' under section 3(3) of OGRA Ordinance 2002. To accurately assess the illegality on part of each person is a matter of further investigation/probe. Ministry of

Energy, Petroleum Division (MoEPD) has not fared much better during the last decade and in the June crises in particular.

The story of MoEPD is also rife with apathy, incompetence flavored with malpractices, and disregard to laws/rules. However, the Commission recommends that, to get out of the present predicament of utter confusion, MoEPD must be empowered to take the matters into its own hands with a consolidated approach. The dire straits of oil industry can only be straightened out with a unified authority.

The Commission strongly recommends departmental/ penal action against the incumbent DG Oil for passing flagrantly illegal orders regarding allocation of import/local quotas.

Strong departmental/penal action is also recommended against Imran All Abro and the other associates who had been maneuvering the unlawful affairs in the Petroleum Division.

Imran Abro is reportedly the king pin in the Petroleum Division and calls the shots on behalf of his superiors. He has been serving in MoEPD for the last 06 years without any legal ground. Under the Rules of Business, a contract employee of private company (Inter State Gas Systems (Pvt. Ltd) under MoEPD) cannot serve on deputation/attachment. All such 'Stand-out-bad-characters' must not go unpunished.

The role of Secretary MoEPD cannot be ignored. Apparently, he remained encapsulated in a vacuum, both prior to and during the crisis period. The Commission also recommends a strict action against officials of Department of Explosives (working under MoEPD) found involved in issuance of unlawful forms to retail outlets and storage depots respectively. Monetary losses forced upon PSO, a state-entity, during the days of shortage must be equitably recovered from the OMCs which creamed off the unlawful profits through hoarding, slowing

down or drying out their retail outlets.

The Commission recommends that all such unlawful gains be recovered from OMCs by the federal government as these profits rightfully belonged to the general consumers at large. The Commission recommends that a monitoring cell must be established in the MoEPD. The cell should collect all relevant data from OMCs (import, local uplifting, daily/monthly sales of OMCs, refinery import/production program etc.). This cell would record data of every aspect of OMCs just like OCAC. Only this data would have legal sanctity and the OMCs could also be held accountable in case of spurious figures. Presently OCAC has a total staff of 12 persons. This cell may operate with twice that number but all data would be directly available to the MoEPD and the government whenever required.

To inspect and examine any premises, facility or installation owned or operated by an OMC or refinery and to conduct enquiry so as to find any infractions or violations, is the responsibility of the Deputy Commissioner (DC). The Commission finds them conspicuously absent from the panorama until forced by the acute shortage of petroleum products in the month of June 2020.

The commission also recommended closing of illegal retail outlets, establishing strategic storage, and transportation with strong recommendation that all other private OMCs develop this automated transportation system. In modern age of digitization, this step would not incorporate much expense. Further, the OMCs may be directed to submit this automated data to the proposed monitoring cell in MoEPD. This would help in process of data verification on monthly/annual basis. More importantly, this initiative would be first important step in curbing smuggling as well as automated gauging system. ■





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Silver Lining in Bleak Scenario

Govt Should make strong grip over natural resources

◆ Sajid Aziz ◆

In such a bleak scenario in the country during present regime there is a silver-lining of a recent verdict of the High Court of Justice in the British Virgin Islands (BVI) ruled in favour of Pakistan in a case initiated by Tethyan Copper Company (TCC) for attachment of assets belonging to the Pakistan International Airlines Investment Ltd (PIAIL), including hotels in New York and Paris, as part of its efforts for the enforcement of the Reko Diq award.

“Pakistan has won the BVI case initiated by TCC to enforce the ICSID [International Centre for Settlement of Investment Disputes] award,” stated the International Disputes Unit (IDU) housed inside the Attorney General Office within the premises of the Supreme Court of Pakistan, adding that all ex-parte orders obtained by the TCC earlier had been set aside.

As per the court orders, the detachment of PIA’s two hotels i.e. Roosevelt Hotel and Scribe Hotel, Paris while fine of \$5.97 billion would be reversed. The TCC had initiated the case for the enforcement of the July 12, 2019, \$5.97 billion award against Pakistan by the ICSID in the Reko Diq litigation.

According to Attorney General of Pakistan said all the orders earlier passed against PIAIL — a company which is also incorporated in the British Virgin Islands — had now been recalled by the BVI High Court, adding that it had also removed the receiver appointed for the Roosevelt Hotel, New York, and the Scribe Hotel, Paris. The cost of litigation was also awarded.

On December 16, 2020, the BVI High Court through an ex-parte order had attached the assets belonging to the Pakistan International Airlines Investment Limited, including the company’s interests in the Roosevelt Hotel in Manhattan, New York, and Scribe Hotel in central Paris as well as froze 40 per cent interest of PIA in a third entity, Minhal Incorporated. The BVI court in its Dec 16

order had also appointed the receiver on an interim basis. The IDU said the BVI High Court had ruled that it had no jurisdiction to decide the matter and the receiver appointed had been discharged with immediate effect.

Prime Minister Imran Khan has also appreciated and lauded the efforts of the IDU and the office of the AGP that helped in securing a great victory for Pakistan, the IDU said.

It said that the provisional charging order against PIA’s companies was also set aside entirely, while TCC was also ordered to pay costs of the present proceedings. Thus the “attempt to steal Roosevelt and Scribe hotels has been frustrated”, the IDU said.

“Justice prevails!” said PIA in a tweet after the verdict became public. “By the grace of Allah and with the prayers of all our countrymen, courts in BVI decide in favour of PIA, releasing all hard-earned assets i.e., Roosevelt NYC & Scribe Paris intimated information about the attachment proceedings.

At the time, the AGP office had said Pakistan would vigorously pursue proceedings initiated by TCC in any jurisdiction and that the government reaffirmed its commitment to protecting national assets. TCC is a 50-50 joint venture of Barrick Gold Corporation of Australia and Antofagasta PLC of Chile. The Reko Diq district in the southwest of Balochistan is famed for its big reserves of gold and copper.

The ICSID tribunal had taken up the dispute between Pakistan and the TCC after the latter claimed \$8.5bn when the mining authority of Balochistan rejected its application for a multi-million dollar mining lease in the province in 2011.

According to details available on Tethyan’s website, the Reko Diq Mining Project was to build and operate a world class copper-gold open-pit mine at a cost of about \$3.3 billion. The company says its 1998 agreement with the Balochistan government entitled it to the mining lease, subject only to routine government requirements. The project stalled in November 2011 after the application was rejected. Pakistani officials

said the mining lease was terminated by the government because it was secured in a non-transparent manner.

By then, the company had invested \$220 million in Reko Diq. The mining company sought help from the World Bank arbitration tribunal in 2012, and it ruled against Pakistan in 2017, rejecting an earlier decision by the Supreme Court. The tribunal then opted to use a formula for calculating damages for the cancelled lease based on the assumed profits Tethyan might have earned from the mine over 56 years. In July 2019, the tribunal slapped a \$5.97 billion award against Pakistan for denying the mining lease to the company. The fine, including the damages award and interest, is equal to about two per cent of Pakistan’s GDP.

Immediately thereafter, the TCC had commenced proceedings for enforcement of the award. In November 2019, Pakistan had challenged the award and initiated proceedings seeking its annulment. In March 2020, the AGP office announced that it had filed a request on November 8, 2019, for the annulment of the award rendered by the ICSID on July 12, 2019.

Pakistan was granted the provisional stay upon initiating annulment proceedings after which a hearing to confirm the stay order took place over ‘video link’ in April last year. On September 16, 2020, the tribunal finally ruled in favour of Pakistan, confirming the stay on the enforcement of the award. However, on November 20, 2020, the company moved a separate case in the BVI High Court for the enforcement of the award which included attachment of the assets belonging to PIAIL, a final decision in Pakistan’s favour.

The same contract with TCC had been cancelled by the then Chief Justice, Iftikhar Muhammad Chaudhry considering it sheer against the nation’s interest, saving billions of dollars’ wealth.

The ICSID is still considering Pakistan’s appeal against the penalty over its decision to cancel the Reko Diq mining lease for the TCC and a final hearing will take place in 2021. ■



PUNJAB TO DO MOST UTILIZATION OF SOLAR ENERGY IN ENTIRE ASIA BY 2023

Dr Akhtar Malik
Punjab Energy Minister

—◆ M. Naeem Qureshi ◆—

“Inshallah, by the year 2023, Punjab will be doing most utilization of solar energy as compared to any other region in entire Asia”.

This was disclosed by Punjab Energy Minister, Dr Akhtar Malik, during an exclusive interview session with the Energy Update. In the interview, Dr Malik talked about the plans of the Punjab government for greater reliance on the renewable energy sources for clean and

inexpensive power generation in the province. Following are the important excerpts from his interview for our readers:

Energy Update: Tell our readers about the renewed policy guidelines for the Punjab Energy Department.

Dr Akhtar Malik: After assuming charge of the ministry, we changed the policy from using imported fuel to exploiting the indigenous sources for energy generation. Using imported fuel for power production does have an impact on the national economy as this practice is also against the global norm as rest of the world is moving fast towards clean and green energy. The previous government also placed a ban on further utilization of the renewable energy sources for electricity production in the country. We requested the federal government to change this policy and lift the ban. The federal government accepted our request. This allowed the present Punjab government to add more renewable electricity to the system.

EU: What efforts are being made by the Punjab Energy Department to promote utilization of solar power in the province?

Dr Malik: There are around 95,000 public sector electricity connections in Punjab. The Punjab Energy Department has planned to carry out gradual shifting of these connections to solar energy. You must be glad to know that the Energy Department has already solarized 11,000 government-run primary schools in South Punjab. The tendering process has already commenced for another 4,500 schools. Soon, they will also be solarized. The Energy Department has also launched the project to solarize 2,400 basic health units in Punjab. Prime Minister Imran Khan himself launched this project. Then we will also shift nine of our district headquarter hospitals to solar power this year. Rest of the DHQ hospitals will be converted to solar next year. Then the Punjab government has also reserved the budget to solarize 20 shrines of Auqaf Department in the province. Moreover, the Energy Department has also engaged the private sector to install solar energy systems in the public sector universities and colleges of the province. Neither the government nor the educational institution itself spends any money to do these projects. Earlier, these educational institutions were getting electricity at Rs26 per unit as the cost of power has now come down to as low as Rs 8 to Rs 10 per unit.

EU: What are the other main efforts of Punjab government to utilize other sources of renewable energy?

Dr Malik: Two projects of hybrid energy involving bio-gas and solar energy, are also near completion in Punjab. These projects are for large villages where there is a greater demand for the natural gas and electricity is

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THE ENERGY DEPARTMENT HAS ALSO LAUNCHED THE PROJECT TO SOLARIZE 2,400 BASIC HEALTH UNITS IN PUNJAB. PRIME MINISTER IMRAN KHAN HIMSELF LAUNCHED THIS PROJECT. THEN WE WILL ALSO SHIFT NINE OF OUR DISTRICT HEADQUARTER HOSPITALS TO SOLAR POWER THIS YEAR. REST OF THE DHQ HOSPITALS WILL BE CONVERTED TO SOLAR NEXT YEAR. THEN THE PUNJAB GOVERNMENT HAS ALSO RESERVED THE BUDGET TO SOLARIZE 20 SHRINES OF AUQAF DEPARTMENT IN THE PROVINCE

also required for operating the tube wells. Then there also is the need for fertilizer for cultivation. This single hybrid project will fulfill all the above needs. These hybrid plants are being built as pilot projects in Vehari and Sumandari as later on they will be replicated elsewhere in Punjab.

Apart from this, nine canal sites have also been identified in Punjab for launching mini-hydropower projects. These projects are in the tendering process as the prospective private investors have approached the government for these schemes. This is the part of our long-term planning for the energy sector as the Energy Department has planned to use canal system of Punjab to produce cheap electricity on captive mode for industries to be established nearby the sites of these projects. These project will create employment opportunities and will also be used for power supply to the nearby residential areas.

EU: What is the ultimate target of Punjab in the energy sector?

Dr Malik: Inshallah, by the year 2023, Punjab will be doing the most utilization of solar power as compared to any other region in entire Asia. Inshallah, also by 2023, Punjab will have the maximum number of projects based on solar energy. Punjab will also contribute most to the goal of the present government i.e. 30 per cent of the national energy mix to be produced on the basis of renewable sources by the year 2030. Punjab will produce total 7500 MWs of electricity using the alternative means of power generation.

EU: Is there a way that the provinces in Pakistan could get together at a common platform to share with each other their experiences in the energy sector post-18th Amendment?

Dr Malik: Before the outbreak of Covid-19 pandemic, the Punjab Energy Department planned to do an energy conference by sending invitations to all the provinces. The planned energy conference would have been attended by the Energy ministers and secretaries of all the provinces. The proposed conference was aimed

at sharing with each other the experience of every province in the energy sector. This would have enabled one province to get benefit from the experience of another. The Covid situation delayed the conference. The Energy Department still has the plan to conduct such a conference after improvement in the situation of pandemic. Such a conference will be beneficial for the entire country. Moreover, like Sindh, Punjab does also have the plan to establish its own grid company as this project is in the pipeline.

EU: What efforts are being made to promote industrialization in Punjab for creating greater demand for electricity?

Dr Malik: Punjab is in the process of establishing 13 new industrial economic zones as the biggest one among these is being constructed in Faisalabad. Then the revival of sick industrial units is also taking place especially in the textile sector. The shuttered industries are being revived all over the country. All these factors will hopefully increase manifold the demand of electricity in the country. The estimates show that Pakistan will need 50,000 MWs electricity by 2025. With passage of time, electricity demand in the country has to increase with rapid industrialization.

EU: What efforts are being made to energize off-grid villages in Punjab?

Dr Malik: It is a fact that a big portion of our rural areas is still off-grid. These include faraway areas like Cholistan and Thal in Punjab. The Punjab government is installing solar projects for hilly areas in the province in Dera Ghazi Khan and Taunsa. The solar projects are being installed for the clusters of the village settlements there. Then the Energy Department is also introducing solar solutions for individual houses in the off-grid areas. These projects will allow people in rural areas to independently install the solar systems. This project will enable the government to save on the cost of transmission lines while such solutions are also implemented in the shortest possible time with minimum effort. ■



◆ Tabish Gohar ◆

We all know that the main reason for the forced increase in base power tariff is the “tsunami” of expensive and excess power capacity contracted by the previous PML government on “take or pay” basis that has hit the sector hard. The previous government also did not pass on any tariff increase in its last years and left that burden to this government. Due to Covid-19, no increase in base tariff was allowed by the PTI government in 2020 to avoid burdening the consumers (which inevitably added to the circular debt build-up). The Rs1.95 tariff increase that is now being passed through is still much less than the actual cost of this faulty planning, by the PML government, as determined by NEPRA.

The total “compulsory” annual Capacity Charges were Rs185 billion (Rs2.1 per unit) in 2013 that increased to Rs468 billion

Circular debt — Myth and reality

(Rs3.98 per unit) in 2018. Due to the excess and expensive contracts inherited by the PTI government, these charges increased to Rs860 billion in 2020 and projected to be a whopping Rs1,455 billion (Rs10.82 per unit) in 2023. Even assuming a 7+% annual increase in power demand (which is quite optimistic under any base case scenario), we shall have an almost 40pc “over supply” situation in 2023 that the economy will have to pay for regardless of need. Even as our fuel mix has improved in recent years, it is much more than negated by this massive recent increase in fixed Capacity Charges that we are bound to pay for now.

It is an established fact that the power contracts signed by the previous government were, on average, 25-35pc more expensive than comparable regional benchmarks. Imported coal-based plants (including the one in Sahiwal), with guaranteed 30-35pc annual return on equity, are a policy disaster that we are now grappling with. Wind and solar based plants with tariffs now averaging Rs20-25 per unit are crippling the power sector, compared to the Rs6 per unit solar IPP tariffs awarded during the PTI government’s tenure last year.

The PTI government inherited a broken economy in an ICU that depressed the power demand and necessitated Rupee devaluation (kept artificially high by the PML government resulting in an unsustainable current account deficit), alongside increase in interest rates to control inflation. Since 60-80pc of the IPP tariffs are denominated in US\$, and almost 45pc of the power generated on imported fuel, the power consumers have had to bear a tariff hike due to this faulty planning of the past.

On the other hand, the PTI government has renegotiated the contracts of almost 50 IPPs resulting in a gross saving of Rs770 billion over the next 20 years, capped the \$ indexation for local investors, reduced the return on equity for the foreign investors to 12-13pc, agreed to share the cost savings on fuel efficiency and operations and maintenance costs, etc. In addition, Rs96 billion of “interest on interest” invoices have been waived off, and Rs38 billion saved against various international arbitration awards (against the State) from

the previous era. We have also taken a massive (Rs2,000 billion in aggregate) haircut on the returns from the various government-owned power plants (almost 14,000 MW) to provide corresponding tariff relief to consumers in the coming years. Our next aim is to restructure the existing IPP debt (increase in tenor, reduction in margin, etc.) and pass on the savings to the end consumers.

What stopped the previous government(s) from at least attempting to do the same? To increase power demand, the PTI government has taken unprecedented and bold decisions recently including putting a moratorium on gas supply to captive power units along with offering reduced electricity rates to industrial customers and removing the peak/off peak pricing distinction for the same. In order to encourage exports, the PTI government continues to provide subsidized electricity (and gas) to the relevant industries (a key reason as to why our industrial tariff is arguably high is because of the in-built “cross subsidy” to provide corresponding relief to our residential and agricultural consumers – this has been the case for decades and reflects the peculiar socio economic/ political realities of Pakistan that is easier said than rollback). We have also shut down almost 50pc of our old and inefficient government-owned power plants with the remaining scheduled to be taken off the grid within the next 12-18 months. The setting up of a power commodity market, under a multi buyer/ multi seller model, along with a liberalized “wheeling” regime, is in full swing that will not only give the power consumers more choice of supply but also reduce price and improve customer service quality. We have now put professionally qualified and independent people on the Boards of Distribution companies (and NTDC), with the new CEOs under selection from the market in the next few weeks in an open and transparent competitive process. We also intend to hand over management control of the distribution companies to private sector operators (without privatizing the assets or shares of these companies, or jeopardizing the interests of the employees) in the coming months, alongside

an enhanced share of the respective provinces in their operations and bottom line.

All of these above steps could and should also have been taken by the previous governments if they wanted to reform the power sector. It is the PTI government that is actually now doing heavy lifting on structural reforms that the previous regimes failed to.

The previous government did not invest in the high voltage transmission network and could not move energy to places where it was required. The PTI government has invested Rs39 billion since 2018-20, resulting in transmitting an additional 4,000 MW. Likewise, the previous government(s) did not invest in the distribution system, which adversely affected the quality of service delivery and efficiency for the end consumers. On the other hand, the PTI government invested Rs74 billion in the distribution system in 2019 which, for the first time, is more than NEPRA's target. Almost 85pc of the Transmission & Distribution (T&D) losses in the system arise from four Distribution Companies (Hyderabad, Sukkur, Quetta, and Peshawar/Tribal Areas) that have been historically neglected by all of the previous governments. We are now focusing on these companies to improve their performance, with our limited resources and fiscal space. Despite the tariff increases, our overall T&D losses (17.8%) and recoveries (90%) have remained steady, or improved marginally, but there was indeed a dip in performance last year due to Covid-19 (industry shut down, billing relief to consumers, etc.) that everyone, except the opposition, recognizes.

In summary, therefore, circular debt has increased due to two main factors:

(1) excess capacity contracts inherited by our government from the previous regime that were, on average, 25pc more expensive, 40-50pc more than our needs, signed on "take-or-pay" basis (i.e. we pay for them regardless of need), and front-loaded (i.e. much higher tariff in the first 10-years). This "tsunami" of excess and expensive contracts has hit the sector very hard and majorly contributed to the circular debt build-up last two years; and

(2) Covid-19 impact last year due to which the government decided to freeze all tariff increases (including monthly fuel adjustment charges) resulting in an increase in circular debt stock;

All of the structural reforms undertaken by our government have now resulted in arresting the increase in circular debt flow this fiscal year to almost Rs200 billion less than in the previous year. However, for a sustainable turnaround, a comprehensive, data-driven, Circular Debt Management Plan is now in place to be implemented over the next three years. ■

The writer is Special Assistant to the Prime Minister on Power and Petroleum.

Pakistan, Russia sign amended IGA

In a landmark development, Pakistan and the Russian Federation have signed the amended Inter Governmental Agreement for North South Gas Pipeline (NSGPP) of 1,122 kilometers from Port Qasim (Karachi) to Kasur (Punjab) that will increase the capacity of the country to transport the imported gas from the port city to load center of Punjab. According to a press release, Pakistan's Ambassador to the Russian Federation, Shafqat Mahmood, signed the Protocol to the Inter Governmental Agreement (IGA) along with Nikolai Shulginov, Minister for Energy, Russian Federation, in Moscow.

The IGA has been updated as a protocol to reflect the utilization of GIDC (gas infrastructure development cess) and continued partnership with Russia to build the project. This has happened after successful negotiations conducted between Pakistan's Ministry of Energy (Petroleum Division) and Russian Ministry of Energy. Under the amended agreement, the North-South Gas pipeline has been renamed as Pakistan Stream Gas Pipeline (PSGP) and to this effect a PSGP Special Purpose Vehicle (SPV) will be set up within 60 days of the signing of protocol, to implement the project and deal with all the technical and commercial issues.

The Pakistan Russia Inter Governmental Agreement (IGA) on North South Gas pipeline was earlier signed between both countries in 2015 but was not implemented. The project has been delayed since 2015 with no headway.

It is a flagship Pakistan Russian energy project which will enhance bilateral cooperation in the hydrocarbon sector between both countries and provide huge technological uplift and employment opportunities to local companies in Pakistan.

"Under the revised IGA, Pakistan will be having the major shareholding with 74 percent stakes in the Pakistan Stream Gas Pipeline (PSGP). And Russia will have 26 per cent equity." As per the IGA signed in 2015, Russia had to build the gas pipeline

project on its own, with 100 percent financing. Earlier, Russia was to build the pipeline based on the build, own, operate and transfer (BOOT) model, and had to transfer the ownership of the pipeline to Pakistan after 25 years. And in the previous model, Russia had to contribute 85 per cent of the required expenditure on the project whereas Pakistan had to spend 15 percent of the capital.

With this flagship project, Russia will increase its stakes in the Pakistan energy sector by helping build the PSGP. It is pertinent to mention that in the past, Russia helped Pakistan build Pakistan Steel Mills (PSM), and the country's flagship organization in the oil and gas sector – OGDCL. Pakistan has in the recent past imported wheat from Russia to cater to its food requirements. Pakistan and Russia have already developed strategic partnership in



the defence sector.

The cost of the Pakistan Stream Gas Pipeline has been estimated at \$2.25 billion, which is yet to be finalized after input from Russian experts. The country's existing system has the capacity to import and transport RLNG of 1.2 billion cubic feet. The country has two LNG terminals -- one is owned by Engro and the other by the Pakistan Gas Port. Two more LNG terminals are being installed, one by Energas and second by Tabeer company. The new terminals will increase the country's ability to import and re-gasify LNG by 1.2-1.5 bcf. And there is no pipeline available to transport the RLNG within the country, which will be imported and re-gasified by new terminals. For transport of more RLNG, Pakistan badly needs the Pakistan Stream Gas Pipeline. ■

IAEA

acknowledges Pakistan's utilization of technical cooperation programme



Muhammad Naeem

Chairman
Pakistan Atomic Energy Commission

—◆ Naeem Qureshi ◆—

“**T**he International Atomic Energy Agency (IAEA) has acknowledged that Pakistan is best utilizing its technical cooperation programme all over the world.” This was stated by Chairman of Pakistan Atomic Energy Commission (PAEC), Muhammad Naeem, during an exclusive interview session with the Energy Update in which he talked at length about the past, present and future of the Pakistan’s premier nuclear agency soon after the launching of the new K-2 power plant. Following are the important excerpts of the interview of the PAEC Chairman for our readers:

Energy Update: Kindly explain the importance of nuclear power generation for our country?

Muhammad Naeem: The nuclear-based power generation has been providing very cheap base-load electricity in Pakistan. The nuclear power generation doesn’t require constant supply of fuel as is the case of other forms of base-load power generation as its plant is

loaded at once with fuel, which is sufficient for electricity generation for up to 18 months. A nuclear power plant provides predictable base-load electricity. The ample electricity generation is always helpful to increase the country’s GDP. We have been foreseeing our future till the year 2050 as accordingly, we have been setting up power plants to provide inexpensive and clean base-load electricity in the country. We have aimed that up to 15 to 20 per cent of Pakistan’s installed power generation capacity should be based on nuclear power.

EU: What are the main features of new nuclear power plants built in the country?

Muhammad Naeem: Nuclear power is environment friendly with least carbon emission as this is its biggest advantage. The process doesn’t involve any harmful emissions. The K-2 and K-3 power plants are designed by the China National Nuclear Corporation (CNNC).

The CNNC is a big institution of China that has been running 50 reactors as 14 to 15 more such plants are in the pipeline. They have a lot of experience in this field. They have also been maintaining European and American standards. Then they have also duly incorporated lessons learnt from the Fukushima nuclear accident in Japan. The K-2 is a very safe unit as it will operate with complete safety.

EU: Tell us about other peaceful uses of nuclear power in Pakistan apart from power generation.

Muhammad Naeem: Our focus has always been the socio-economic development of the country through the peaceful use of nuclear technology. We are peaceful people. We have been running various medical and agriculture research centres since the 1960s. We established our first nuclear power plant in Karachi and then we gradually expanded to all over Pakistan. We have 18 cancer hospitals

in the country while the 19th hospital is being established in Gilgit. We have six hospitals in Punjab, five each in Sindh and KPK, one each in Balochistan, and Islamabad. Millions of people are being treated at these health facilities. They are equivalent to any good hospital in the country. They are equipped with the latest machinery and staffed by very well-trained doctors. We have around 2,500 specialist doctors and 75 experts related to the field of medical physics. Patients from the big hospitals of the country are being referred there.

EU: What are the major services of the PAEC in the field of agriculture?

Muhammad Naeem: Our journey in the field of agriculture also began in the 60s. We have four centres in this field. We have introduced 122 crop varieties that are resistant to drought and different plant diseases. They all are very high yielding varieties and are in accordance with our soil environment. We have the best labs in the country as a large number of people repose full confidence in such clinical facilities.

EU: Did PAEC perform any special service during the coronavirus pandemic?

Muhammad Naeem: It has been the tradition of the PAEC that it successfully completed whatever assignment is given to it by the government. PAEC indigenously designed and developed an ICU ventilator. A subsidiary organisation of Pakistan Engineering Council (PEC), Pakistan Innovation and Technical Centre, checked its functioning and later referred this ventilator to the Drug

Regulatory of Pakistan (DRAP) for the clinical trials. Its functions were checked at the Jinnah Hospital of Lahore. It later became Pakistan's first indigenously developed ventilator that has been approved both by the PEC and DRAP.

We have the ability of producing 20 such units of ventilators every month. Its estimated cost is around Rs2.5 million per unit that is much less than the imported ventilators. The indigenous development of technology has been our main focus in every field. We aim for self-reliance and indigenization.

EU: How is the year 2021 a special year for PAEC?

Muhammad Naeem: This year is very important for our us as in 2021 Pakistan completed 70 years of its diplomatic and friendly relations with China as in the same year we celebrated 30 years of Pakistan's nuclear cooperation with China. We also completed 65 years of our constant humble service to the nation. Also in the same year, the Karachi Nuclear Power Plant (KANUPP) completed 50 years of its grid connection. Now after the K-2 nuclear power plant becomes operational, we are going to de-commission the KANUPP in a very safe way after so many years of its safe operation. Since the 1980s, we started indigenous production of the fuel for our nuclear power plant with zero failure.

EU: How much workforce was utilized to build the new nuclear power plant in the country?

Muhammad Naeem: Up to 14,000 people were working for the construction of K-2 and K-3 power plants during the peak construction

days. Around 6,300 of them were Chinese. Our people have learnt a lot to enhance their expertise as a result of their interaction with the Chinese people.

EU: Tell our readers about your ties with the IAEA?

Muhammad Naeem: We have been running a number of programmes of technical cooperation with the IAEA. These programmes are related to the fields of power, agriculture, education, and health sectors. Then we have similar programmes being run in collaboration with the Pakistan Nuclear Regulatory Authority. We have been working very well with the IAEA. We are among the founding members of the IAEA. The top leadership of the international nuclear watchdog acknowledges that all over the world the best utilization of the IAEA's technical assistance programme is being carried out by Pakistan. This is a big compliment for us as it is also a fact that we have utilized in the most effective manner whatever support is provided by the IAEA for our socio-economic development.

EU: What are the main components of the policy of PAEC?

Naeem Ahmed: We have around 49,000 employees. The commitment to work and merit have always been the hallmark of the PAEC's policy. We adhere to the policy of merit whether we do inductions, promotions, transfers, or posting. We have a very strong culture of safety and quality with regard to our operations. These are all the main components of the success story of the PAEC. ■

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Controlling circular debt

The worst is yet to come

—◆ Syed Akhtar Ali —◆

The circular debt issue is getting more serious by the day and the worst has yet to come with the installation of new capacity while demand continues to stagnate. There are projections that it may be double the existing level in the medium term. It is hoped that the economic growth rate grows so as to increase electricity demand and capacity utilization. While this issue has many dimensions, we will focus on the demand management aspects. There is a fundamental structural issue that will remain – the huge difference between summer and winter peak demand which leads to over investment in capacity and the generation cost increases beyond a reasonable level. At present, winter peak stands at 10-12,000 MW and summer peak at 25-30,000 MW; in near future it will be 20,000 MW vs 50,000 MW.

There are two peaks in a day in the summer or even in the winter – in the afternoon and in the evening. The evening peak is larger than the day peak. Capacity planning is done on this summer peak demand. And it is this peak that contributes to lack of capacity utilization and thus higher capacity charges and higher cost of supply. Thus summer peak has to be reduced. A positive aspect is that hydropower is produced only in summer which partly takes care of the summer peak but not all of it.

How to shave off the summer peak is a problem that has to be studied as to what is the marginal cost and revenue of peak hours. The late Dr Mehboobul Haq once argued that loadshedding may be cheaper. A major issue is that our markets and bazaars open till late in the evening/night. Only higher commercial tariffs after 1900 hrs can possibly change that.

We are a poor country and will remain so for quite a while. Our habits should conform to the limitations we have. Another possibility is that the hours of the second shift in industries could be changed to exclude evening peak hours. However, that would depend on practical possibilities and comparative tariff incentives that may be offered. Some industries may choose to avoid a second shift and organize a third shift in order to avail some incentives. This would also help shave the summer and winter peak.

Quite a number of factories have installed captive power plants, originally due to earlier power shortages. Most of the textile mills have done so and are operating gas power plants. The government has already drawn up a programme to allow captive power plants where there is cogeneration utilized in the process. There are some others which are utilizing waste heat to produce electricity. Except in such cases, there is no justification for providing gas to run captive power plants. It has been estimated that 2000 MW grid utilization would accrue. This would also reduce gas demand which suffers from supply side issues these days.

Industrial growth is vital to increase demand and capacity utilization. Industries pay full tariff – except the export sector, while the residential sector is given heavy subsidies due to poverty and low earnings. Half of the electricity consumers in the residential sector are not able to pay full tariff. Import policies have to curtail the current trend on imports. Currency devaluation should already have had some influence on curbing imports. Local content and introduction of new products is required. The steel industry has a scope for electricity consumption. Some of the furnac-

es can go electrical.

The government's initiative for the construction industry can result in some increase in power demand. The PSM has been closed down without much chance of revival. Its individual downstream units can be revived. Erstwhile star industries have become sick industries and Railways factories are in the same shape. Our friend and benefactor, China, which built all of these can help revive these all. CPEC coal projects could have helped utilize these capacities. It was a great opportunity which has been partially lost.

On the agriculture side, most agricultural tubewells work on diesel which could be converted to electricity, although solar is a better solution. It can be electrified first and when the farmer gets resources he can go solar. This, however, does not apply to Balochistan where there is a bills payment problem and other issues.

In the transportation sector, electric vehicles can increase power demand as well. Allegedly, the current stakeholders in the automotive industry are opposing the introduction of EVs. Some intermediation is required. In any case, EV is the future.

Although T&D losses are supply side issues, they are relevant here. T&D losses and receivables are one of the most important cost elements that enhance cost of supply and thus contribute to circular debt. There hasn't been much improvement in this respect for years. Ironically, the issue is not even discussed in the public discourse. Some solutions are available. Smart Meters on Distribution Transformers (DT) could do the job without much capex while a full smart meter programme may cost \$5-7 billion which may not be affordable. The revived PEPCO may enable a collective approach and inter-company coordination on common issues such as smart meters.

It has been noted that there has been undue reliance on gas consumption due to cheaper gas, especially, space and water heating by gas. The elite could be encouraged to shift, at least partially, to electricity and solar water heating. Rising gas prices would take care of it ultimately, but we need faster action and switchover which could be achieved by policies and promotions. Some increase in capacity utilization and decrease in the summer and winter peak can be achieved through these measures.

Most of these issues are of a continuing and permanent nature. There should be some institutional arrangement to handle these issues. Both policy and operational levels should be involved. Some issues require quite complicated modeling for optimization. Carrot and stick approaches would be required. The problem can be reduced in its dimensions, if not eliminated altogether. Excess capacity at higher cost is the primary culprit, and its impact, it is hoped, would become more bearable with the uplifting of the economy which – ironically – depends significantly on energy cost and prices. ■

The writer is a former member of the Energy Planning Commission and author of 'Pakistan's Energy Issues: Success and Challenges'.



War against mafias need to be decisively won

—◆— Sohail Iqbal Bhatti —◆—

Bullfighting is considered one of the most dangerous sports in the world. It has been practiced in Spain for centuries. The bullfighting season in Spain lasts from April to September. Over time, the game became more innovative and varied. Gladiators-style bullfighting in the stadium as well as the sport of bull-running are also of great interest to the public. A few years ago, it was decided to present a unique game with these outraged bulls. The game was named Crawling Race.

Under the scheme of the game, two teams of 40 people are formed. In the stadium, the two teams are given the deadly task of crawling in a line from one corner to the other and back to their place. The distance between the two teams is maintained at about 80 feet. As soon as the bull runs towards any one team dressed in different colored shirts, the players immediately lie face down on the ground breathless. The bull stops near the players and starts sniffing the body. The players and spectators in the stadium hold their breath. It looks as if this outraged bull will just lift a man lying on the ground on his pointed horns and bounce in the air or crush him under his feet. There have been many horrific incidents in Spain where many have been attacked by these bulls. People lost their lives or became disabled for the rest of their lives. The video of the game is really shocking. As soon as the angry bull reached the heads of the people lying on the ground, the players of the other team would immediately start crawling. When the bull sees his target, he runs to attack the players of the other team. This hide and seek goes on till one team completes the round and wins the victory. Even the team losing the game looks very happy to come out of the stadium safe after inviting death in front of the angry bull. The bull looks lonely in the stadium amid sound of applause. I watched this video three or four times. Every time I watched the video, instead of stadiums in Spain, I would see the ongoing mafia games in the country, the scenes of Prime Minister Imran Khan's actions against the mafia. This is what the ongoing between Prime Minister Imran Khan and the mafia for

the last two and a half years. More than fifteen mega scandals have come to light and mafias' strength has grown with the passage of time. Some of the frauds committed against the people and the national treasury are as clear as day. Like the game of car manufacturing companies in Pakistan for 35 years. Four months ago, the federal cabinet took notice of the continuous rise in the price of domestic vehicles and the failure to localize them despite the passage of time. The Prime Minister expressed frustration over the continuous rise in vehicle prices in the country and directed the Ministry of Industry and Production to conduct an inquiry and submit a report. In the locally manufactured vehicles in the country, tires, seats, batteries and bodies are manufactured locally while expensive machinery is imported.

The world's seventh nuclear power can't manufacture vehicle engines, transmission, ambulance and ECU. It was not rocket science to manufacture these valuable parts, but unfortunately three foreign companies persuaded the Ministry of Industry to remain silent. If the manufacturing of these four important parts of vehicles had been started in Pakistan, the dream of saving valuable foreign exchange, transferring technology, safe and affordable vehicles, jobs and self-reliance would have come true. Today, Pakistan would not have been importing vehicles but exporting them.

On the directive of the Prime Minister, preparations have been made to export vehi-



cles manufactured in Pakistan. The monopoly of companies in one country has begun to end. Influential figures have, however, scuttled the investigation despite the decision of the federal cabinet. Under the guise of appreciation of the dollar, the prices of cars are being increased. The value of the dollar has decreased by 8% but the rise in the prices of vehicles continues. The facilities available in the vehicles manufactured in Pakistan are also less than the vehicles manufactured in the world. The country has never had a crash test of vehicles. The Ministry of Science and Technology had announced crash testing, but influential figures have blocked the move. In the stadium of Spain, the players had managed to dodge the angry bull, on the other hand, the mafia is also moving towards the winning point in Pakistan. Instead of anger and revenge, a cold heart can heal the wounds of the past. Don't let the angry bull stand alone like in a stadium in Spain and the spectators sway with applause on the successful efforts of both teams. ■

Potential priorities of new energy minister

—◆— Dr Shahbaz Khan —◆—

We have a new minister for energy. He is young and appears dynamic, therefore, there is every reason for pinning high hopes on him.

Our energy supply chain substan-

tially lacks the required agility. Failure to maintain a consistent exploration and production (E&P) programme, gradual exodus of E&P multinational companies (MNCs) and resultant compulsive spending of 35% of the annual budget on fuel imports are only a few examples.

Also, while oil and gas production in general, and especially of state-owned enterprises (SOEs), continues to decline



with their increasing receivables, even the last two bidding rounds of exploration blocks failed to attract any MNC. It would be of interest to note that our oil consumption grew six times from 0.1 million barrels per day (bpd) in 1980 to 0.57 million bpd till 2016, but our production peaked at 94,000 bpd in 2014 and now rests at 76,000 bpd. As to natural gas, its production peaked in 2012-13 at 4,300 million standard cubic feet per day (mmscfd) and now rests at 3,388 mmscfd. Thus, the reserves have continued to deplete with negligible progress on their replacement.

As a result, our current per capita energy consumption is only 4,567 kilowatt-hours (kWh) with India and China 1.5 times and 6 times, respectively, ahead of us. As to potential scenarios of economic development, a study in 2005 projecting average growth rate of 7.4% since 2005 onwards determines the corresponding Pakistan's primary energy requirement at 175 million tons of oil equivalent (MTOE) per year in 2020 (actual: 83.8 MTOE) and 250 MTOE per year by 2025.

On the other hand, as per Vision 2025 of the government, issued in 2014, we target to be among the top 10 global economies by 2047. By maintaining its average GDP above 9% from 1990 to 2020 and thereby ramping it up from \$400 billion to \$15 trillion, China has proven that it is possible. Of course, the effort needs a lot more than just the aspiration including vast reserves of economical energy.

The post-1973 oil embargo era threw up a vast array of alternatives. In oil and gas, there is an abundance of options such as securing reserves through investments abroad, e.g. ONGC India has assets in 17 countries or an investment of Inpex in Australia is currently meeting Japan's 10% LNG needs.

We are far behind in this direction too. Also, we haven't really exhausted the indigent E&P potential yet. Instead, only 30%



of the total sedimentary area has so far been explored, though known plays almost stand exhausted. This necessitates exploration for new plays in onshore and offshore areas both. While Pakistan has so far drilled only 2,655 wells (19 offshore), India only last year drilled 647 wells (121 exploratory and 37 offshore).

The acceleration in the effort requires extensive professional capacity. Most of that has already depleted due to, amongst other factors, the exit of MNCs. The above discussion proves that to develop at a fast pace, in addition to access to economical energy, competent human capital and an effective governance structure are the other two essentials. We have serious challenges in this respect. The manifesto and energy policy of the ruling party, available on its website, identify lack of planning and will to reform in addition to governance capacity limitations as the major causes for the same.

They express the intent of revival of oil and gas exploration through comprehensive structural reforms of the SOEs concerned including their removal from the purview of line ministries. Pertaining records of our recent IMF loan agreements also highlight

the above requirement including professionalisation of SOEs' boards and separation of their ownership and regulatory functions. It is encouraging that the above task appears to have high priority on the agenda of the current finance minister.

One, the pending structural reforms should be implemented on priority in the SOEs. A cursory review of board compositions of pertaining multinational SOEs may help; eg Petronas chairman, an Ohio & Wharton graduate, started career in 1981 from Petronas; Equinor chairman is a geophysicist with 30 years of relevant experience; and Petro-China (annual revenue: \$380 billion) chairman is a career professional having held critical relevant positions including CPCC president, etc. These profiles are a norm in all successful SOEs for all the directors. Thus, any effort at reforming our SOEs needs to start with aligning their boards accordingly.

Two, a statutory advisory council should be constituted comprising world-class energy professionals, who have managed large value chains, with following assignments: Nomination of directors of SOEs' boards and their performance evaluation; integrated review of the oil & gas supply chain gaps; capacity gap mapping of the relevant human capital; identification of causes for the exodus of E&P MNCs; development of underground oil & gas storages; accelerating implementation of MoUs for investment (\$34 billion); and a comparative study on the oil and gas discoveries in the public and private sectors with respect to pace and costs, both. The oil embargo of 1973 triggered a global revolution in diversification. Many E&P companies, such as BP, Equinor and Total, gradually integrated it in their business plans. However, our SOEs avoided this course. It needs analysis, especially in the perspective of rapidly changing global energy dynamics. ■



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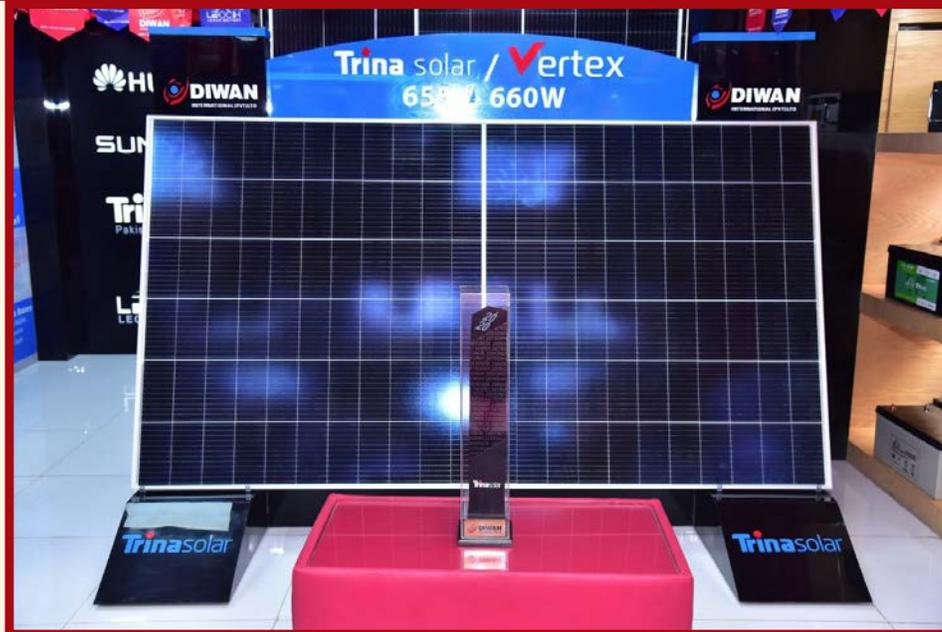
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Diwan International launches world's biggest solar panel



A Big Solar Distribution Company Diwan International Pvt Ltd launched World Biggest Solar Panel Solar Vertex Series 658/660W and Huawei Solar inverter New models M1/2/3 Series.

Launching Ceremony was held at Diwan International's Solar Showroom in Karachi. CEO Diwan, Muhammad Saleem Diwan received Award 'Strategic Platinum Partner' from Sheherya Shakeel (Country Manager Trina Solar) for Diwan International's best Performance. Muhammad Sarmad Wahab Ch. (Service Manager HUAWEI FusionSolar) was also present in the ceremony, he described the media and public about the features of Huawei Solar inverter's new models.

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

Diwan international Private Limited is the most leading Solar Energy company in Pakistan. Diwan is Authorized Distributor and Official Partner of Huawei FusionSolar (Solar Inverter), Trina Solar, Chint Electric and LEOCH Battery in Pakistan. Diwan International situated in Karachi, and also have a good market share in Textile Sector, Construction Industry, Building Material, Dairy Farming and Mobile Accessories sector in Pakistan.





Mohammad Wasi Khan

Chairman,
Byco Petroleum
Pakistan Limited

*Speakes on Petroleum
Industry*

Pakistan Petroleum Industry is Highly Regulated

—◆ Naeem Qureshi ◆—

“Byco is on course to eliminate the production of furnace oil at our refineries whose demand is drying up in Pakistan, and which is not eco-friendly either”. This was stated by the Chairman of Byco Petroleum Pakistan Limited, Mr. Mohammad Wasi Khan, during his exclusive interview with the Energy Update. Mr. Khan discussed Byco’s current operations and its future Upgrade-1 Project of Pakistan’s leading downstream oil company. Here are important excerpts from the interview for our readers:

Energy Update: What are the salient features of Byco ?

Mohammad Wasi Khan: Byco Petroleum Pakistan Limited is Pakistan’s only vertically integrated oil company, operating in the downstream petroleum sector. Byco started oil refining in 2004 with a small 15,000 BPD oil refinery. In 2007 we expanded it to 35,000 BPD. Thereafter in 2012 we added a 120,000 BPD refinery. These are unique in the sense that both refining and its Oil Marketing businesses are managed under one umbrella of the Company. We now have two oil refineries at our premises (Oil Refining Complex-1 ORC-1, and ORC-2) with their combined capacity being 155,000 barrels per day, which happens to be the largest in Pakistan Masha’Allah.

Our oil marketing arm, which started with our first outlet in Khairpur in Sindh in 2007, today has a nationwide network of more than 400 retail stations. We have oil storage terminals throughout the country to manage the logistics ensuring that our

entire retail network is always stocked with sufficient product. We import crude oil for our refineries through our own Single Point Mooring (SPM), which is a floating liquid port installed 12 km offshore in the deep sea. Oil tankers containing both crude oil and refined petroleum products can discharge at this facility. Up to 60 to 70 per cent of the production of our oil refinery is sold directly through our own retail stations. What do I mean by saying Byco is the Pakistan’s only vertically integrated company? We ourselves import the crude oil, store it, refine it into various refined products, then we have it transported to our own retail outlets and also sell through all other OMC’s operating in the country as well. This provides us a significant competitive advantage by having so much of the value chain in one organization.

EU: What are the future plans to upgrade your company?

Wasi Khan: We have launched our Up-

grade-1 Project, a significant project under which we are investing by adding process plants. A major one is the DHDS or Diesel Hydro desulfurization Unit. The DHDS will enable Byco to produce Euro 5 compliant High Speed diesel as per the recently enacted higher standards requirements by the Government. Additionally as part of the Upgrade-1 Project, we are setting up Pakistan's first FCC or Fluidized Catalytic Cracking Unit. This will enable Byco to "crack" furnace oil, converting it into high quality Euro-5 motor gasoline and diesel. These two major components of the Upgrade - 1 Project, are envisaged to ensure Byco's products complying with the Euro 5 specifications. The Upgrade - 1 Project is the first comprehensive project of its kind in Pakistan's refining industry with addition of 16 process plants, at a cost of around \$900 million.

EU: What will be the main benefits of this upgrade project?

Wasi Khan: By being able to expand our output of high quality refined petroleum products like Diesel and Gasoline, Pakistan will be importing less of these refined products, and therefore the nation will be

able to save significant foreign exchange. Byco's financial and operational efficiency will improve also as instead of producing 35% furnace oil as we are doing currently, which is a drag on the profitability, and acts as a constraint on throughput, Byco will convert furnace oil into high quality motor gasoline and diesel. Therefore we plan on Insha'Allah minimizing furnace oil from our production slate. Euro 5 standard products from this project will be more environment friendly products. We hope to complete The Upgrade - 1 project by 2024.

EU: What steps have been taken by Byco to keep its operations environment friendly?

Wasi Khan: We have been complying the National Environment Quality Standards (NEQS) for all our effluents, emission and solid wastes. Our operations are duly monitored in accordance with the laws enacted by both the national and provincial environmental protection agencies. Further, we also internally monitor the energy consumption in our refining process. The main advantage of the said control is that our refineries are able to reduce their losses and also conserve energy.

This also leads to improvement in overall environmental conditions. Apart from this, the environmental protection agencies do regular monitoring of our operations, which are found compliant to their standards.

EU: What are the main challenges to Pakistan's petroleum industry and their possible solutions?

Wasi Khan: Our industry needs to upgrade itself in a sustainable manner. It needs to convert its low-value products into useful products. Our industry has to compete with the regional market that is much bigger in size and also more advanced in some cases. So you need to take steps which can make Pakistan competitive in the region. Currently Pakistan's petroleum industry is highly over regulated which is hampering it. At the same time it is of strategic importance, fulfilling defence needs as well as the backbone of the economy. Therefore it deserves due protections for its survival. We need to gradually de-regulate this industry. We are also hopeful that the present government is coming up with a refining policy that can unshackle and encourage the industry to grow and attract new investments. ■



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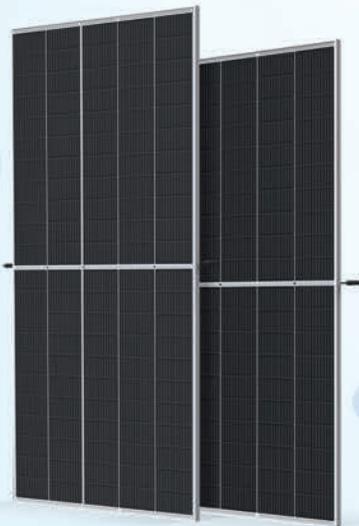
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Solar industry needs special tax regime for energy independence

Energy Updates holds webinar on potential of solar energy

EU Reports

The solar industry in Pakistan deserves a special and viable tax regime to enable it to unlock its true potential and to help the country in its drive to become self-reliant and independent

Chairman of PM's Task Force on Housing, Zaigham Rizvi, said that much effort had to be made to make the government and other stakeholders realize the potential of the solar industry to safeguard the environment in Pakistan. He said besides safeguarding the environment, the solar industry would help the government to cut down its fuel import bill.

available for authentication of its services.

Mr Rizvi said the PM's Housing Project could also utilise solar power to energize upcoming residential units in the country.

Chairman of Pakistan Solar Association (PSA), Muhammad Farhan, said that his association had done a lot of efforts to launch the system of net-metering to promote the use of



Irfan Ahmed



Irfan Allahwala



Saad Shaikh



Shaaf Mehboob



Waqas Moosa



Waqas Mughal



Waseem Shaikh



Zaigham Rizvi



Zakir Ali



Naeem Qureshi

in the energy sector with the least harm to the environment. This demand was made by the representatives of the solar industry who participated in the webinar organised by the Energy Update. The webinar was organised to discuss the issues of the taxation system and standardization of the products of the solar industry in Pakistan.

Participating in the online discussion,

He lamented the situation that power plants were still being established in the country on the basis of imported coal when there was a huge potential to indigenously generate clean electricity using abundantly available solar energy.

He suggested that the solar industry should make efforts so that the international-level certification could be locally made

solar power in the country.

He assured participants of the webinar that his association was always available to talk to any authority or official in the country to resolve the taxation issues of the solar industry.

He said the PSA was truly a representative platform of the people associated with the solar industry in Pakistan as it had been striving hard to resolve the issues of the solar

companies.

M. Zakir Ali, CEO of Inverex, said that Pakistan's solar industry surely had to expand and grow in the next five to ten years as all the relevant stakeholders of the industry should remain united on a single platform to wage a joint struggle for the purpose.

He said the solar companies as being the EPC contractors had to pay much higher tax as compared to other sectors*.

Waseem Sheikh, CEO of IPS Solar, said the solar companies had to go through a much complex process to get registered with the Alternative Energy Development Board.

He said the taxation and regulatory regime for the solar industry in Pakistan should be made as viable as was in the developed countries like Germany and Australia where the government's policies helped a lot to utilize the maximum potential of renewable energy.

He said the end-users of electricity in Pakistan didn't have much knowledge about the benefits of the solar industry.

Waqas Mughal, CEO of Renewable Power, complained that different provinces in the country had different taxation regimes for solar companies.

He disclosed to the participants of the webinar that there was no tax if someone imported solar cables but one had to pay the tax if the same product was purchased from the local market.

He said Pakistan had no clear-cut policy on the import of lithium-ion batteries that was otherwise widely used all over the world for better storage of wind and solar power.

Energy expert Irfan Ahmed said that Pakistan had the potential to generate two million megawatts of solar power but much less clean energy was being produced in the country.

He said that technological interventions like solar home systems and micro-grids could go a long way in promoting the use of solar power in the country. He was of the view that the taxation issues of the industry would automatically end with indigenous production of solar equipment. Saad Shaikh, Chairman of FPCCI's Standing Committee on Energy, said that his committee would always be available to play a mediatory role between the government and the solar industry for the promotion of alternative energy in Pakistan.

Naeem Qureshi, Managing Editor of Energy Update, said the Energy Update will be going to organize an Int'l conference on Solar Clean Energy 2021 on June 23rd. In this conference leading national and international companies will be participating. He also said that Energy Update would continue to organise such events to highlight the issues of Pakistan's solar industry. Shaaf Mehboob, CEO Adaptive Technologies, Irfan Allahwala, CEO Mesol, Waqas Moosa, CEO Hadron Solar and Vice President Pakistan Solar Association also addressed the occasion. ■

POWER TARIFF

Delayed adjustments come with a cost

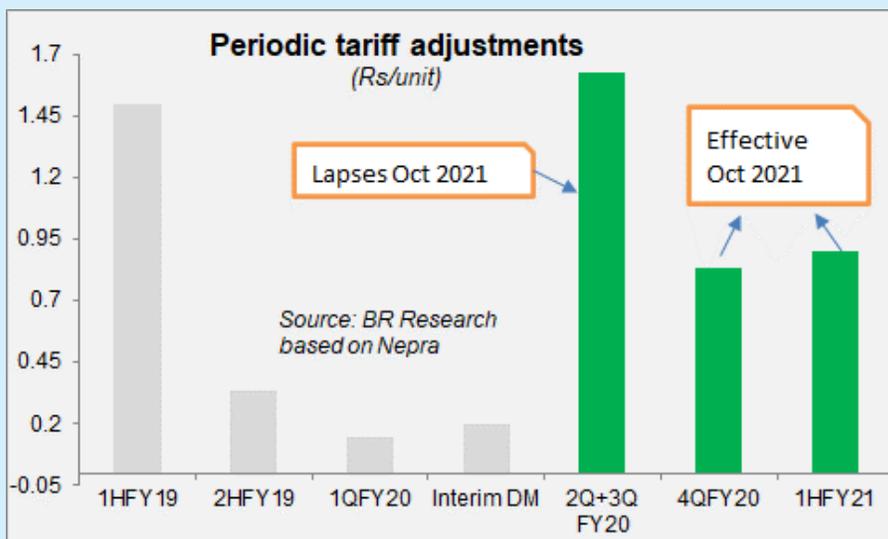
◆ EU Reports ◆

The energy minister stamped the verdict the other day, which was becoming increasingly evident from the government's tone. There will be no immediate notification of the already approved power quarterly tariff adjustments. The government has decided to wait for the existing Rs1.62 per unit adjustment to lapse with effect from October 2021, to bring in the new adjustments of Rs 1.72 per unit – where the net impact would be very manageable at 10 paisas per unit.

Apart from one episode for a base tariff revision in February 2021, all other revenue centric measures seem to have now taken a backseat as the government battles rising inflation. Most of what happens and

But what does this mean for the power sector arrears? It means another Rs174 billion will be added to the backlog till the time the existing QTA expires in October 2021. Not that the power sector is not used to such delays. In fact, in some instances quarterly adjustments have been delayed for more than 18 months. Delayed payments and delayed notification of tariffs – have long been established as key contributors to the menace of circular debt.

There is no arguing that electricity is already expensive in Pakistan and in a high inflationary environment, it also becomes politically challenging to further raise consumer tariffs. That said, the responsibility to take care of the financial health of the power sector remains with the government. That is where the upcoming federal budget should make fiscal room for power sector



does not happen around the power sector, would revolve around the finance ministry. The energy related measures meanwhile can take a backseat, and the adverse impact has been observed many times.

There is apparently an automatic tariff adjustment mechanism in place that allows the regulator to not only decide but also notify the tariff adjustments. Only that there is not, because the government has (as per the relevant ministers) communicated (not convinced yet) its inability to take any such measures around the power sector (and elsewhere) that lead to price increase. The agenda seems one point: control inflation.

arrears, and the surcharges that arise due to delayed notifications.

The sector's payment chain should not suffer (more) just because the government intends to maintain prices. This is where decisions such as continuing with various support packages must be taken with due care. At least two more quarterly adjustments will be due and soon be pending by the time the October decision arrives. The power sector mess is so big that it cannot be sorted from within. It needs more fiscal space if the intention is to not raise prices, and broad-based reforms – some of which have been pending for decades. ■



HOW TO CONTROL CIRCULAR DEBT

—◆— Syed Akhtar Ali —◆—

It was recently reported that the PM has asked the Ministry of Finance and the Power Division to reduce circular debt without increasing the tariff, and handle the capacity charges. Indeed, the best option is to somehow reduce the capacity charge which has been increasing due to slow demand and higher capacity cost. Increase in tariffs would have political consequences among rising inflation. Even the economy and exports may be hurt due to an increase in electrical tariff.

However, the bad news is that financial closure has been signed off between PPIB and the government of Punjab for a 1263 MW RLNG based combined cycle plant (TRIMMU). This happens to be the fourth plant in the series. Vested interests found this to be an opportune time to quietly get it approved while there is new leadership in the Ministry of Energy.

Undoubtedly, these are highly efficient plants. The question, however, is whether we needed this plant and whether this

plant would be able to operate due to lack of demand. As is generally acknowledged, our circular debt problem is largely due to the large number of plants having been installed – much more than required. The economic slowdown has further aggravated the problem.

In the last few years, many base load power plants consisting of four coal-fired plants have been commissioned that are working fine and at full load. A few more coal power plants are under construction and will be commissioned shortly. A nuclear power plant has been commissioned and another one will be shortly commissioned. Another 12000 MW of capacity is at various stages of planning and implementation.

Admittedly, there are various legal commitments and one may not be able to wriggle out of the committed projects. However, with some hard work and negotiations, project implementation of additional capacities may be delayed. After all, the present government has been able to extract some concessions from the existing IPPs. And, certainly, government contracts can be postponed for when the demand builds up.

However, exactly the opposite has been

done. The Punjab government has made it a fait accompli by undertaking the construction of TRIMMU under its own equity even before the completion of the financial closure. There is questionable illegality in this.

The three other power plants – Bhikki, Balloki and Haveli Bahadurshah, each of 1000 MW – have never been run at full capacity. There have been various problems confronting these power plants. These plants are supposed to run on RLNG. Qatar RLNG has been expensive and there are take-or-pay obligations. Therefore, these were supposed to have a guaranteed minimum gas take-off at 66 percent. The Power Division later managed to get this condition waived-off, realizing that these power plants may not be able to achieve capacity utilization of 66 percent. In that case, why this fourth plant of even larger capacity? There are gas supply issues as well. SNGPL has been cajoled to surrender its 150 mmcf of RLNG to KE for its LNG power plant. Amusingly, there is power shortage in Karachi, while the country is suffering from excess capacity.

The problem is that there are various sources of power influencing the approval of power projects. The PAEC has a strategic

division which manages to quietly get its projects approved. No data is disclosed, and approval is disguised. Private parties have their own interests and manage to garner influence to fast-track their incomes and profits.

Provinces are free riders as they do not have to share in the circular debt. Provinces, including Khyber Pakhtunkhwa and Sindh, also manage to get their projects approved. KP wants to fast-track hydro, Sindh wants to fast track renewables and Thar coal. Punjab has a penchant for gas while it has no gas of its own and wants to impose WACOG on other provinces to reduce its load. And there is a free lunch going on under the aegis of CPPAG with its large aggregation with equally large losses and circular debt. Ironically, nobody accepts responsibility and nobody is held responsible since the system is so complex and distributed.

As the classical joke goes, some people are removing water from an over-filled bucket, while others are filling it at the same time. There is a need for an embargo on capacity addition for the next five years; and only the PM should have the authority in this respect. A powerful board should be constituted to resist unwarranted capacity additions.

Another issue is the Integrated Generation Capacity Expansion Plan (IGCEP) which is prepared for twenty years under certain assumptions of economic growth. The IGCEP, once approved, is implemented without any consideration of changes in economic conditions. It should be a rolling plan to be revised every year and adjusted for new economic circumstances. This offers some technical justification for unbridled capacity expansion. However, it is clear that additional capacity is not required, and the existing capacity is underutilized. If the IGCEP is implemented in its present form, circular debt would double. It is recommended that a high-powered committee be formed to address this issue to delay the implementation of approved and semi-approved projects.

It may be advisable to consider immediately stopping further construction of TRIMMU which in any case would not be utilized. A stranded investment of 25 percent is much worse off than stranding 100 percent investment. There are always some arguments on the other side such as improvement in power quality and quantity in the Jhang area. But the question is: can we afford the additional liability of capacity charge of Rs50 billion per year of an unutilized project?

Admittedly, the fundamental problem is the large difference between the peak winter and peak summer demand. Peak summer demand exceeds 25000 MW and peak winter demand is around 10,000 MW. This is a highly complicated issue which we have dealt with earlier in this space. Suffice to say here that both tariff and non-tariff steps are required to address this. Electricity demand has to be increased in winter and reduced in summer. One solution is through tariffs – cheaper in the winter and higher in the summer. Another, rather wild, solution is banning geysers and gas heaters and promoting electrical space heating and solar water heating. And, even more wildly, gas connections to posh areas may be discontinued altogether and be supplied with LPG only. Cheaper wind and hydro power is available in the summer. Thus, tariff optimization may not be an easy job calculated manually. Linear programming and other operations research tools would be required; USAID assistance may be handy in this respect. Concluding, controlling circular debt is a very difficult job as the die has already been cast by excessive capacity commitment and high tariff agreement. Applying some breaks on the remaining ones is required. ■

PPIB announces financial close of PTPL 1,263 MW project

L 1,263 MW PTPL Power Project achieved Financial Close to. The Power Plant located near Trimmu Barrage, District Jhang is based on re-gasified liquefied natural gas (RLNG) and is so far the largest RLNG based power generation project under Power Generation Policy 2015.

The Financial Closing ceremony was graced by then Minister for Energy, Mr. Hammad Azhar and Punjab Ministers. Financial Closing documents were signed by Mr. Shah Jahan Mirza, Managing Director PPIB and Mr. Akhtar Hussain Mayo, Chief Executive Officer of PTPL while Chairman PPIB/Secretary Power Division, Mr. Ali Raza Bhutta and other senior officials of Power Division, PPIB and the project company witnessed the proceedings.

The project is being developed in IPP mode through Punjab Thermal Power (Pvt.) Ltd. (PTPL), a private limited company owned by the Government of Punjab through Energy Department. This is the second RLNG based power project developed by Government of Punjab through its own resources, the first being the Bhikki Power Plant, which has already entered full-fledged combined cycle commercial operations and has generated over 9.3 billion units during last year. PTPL project is being financed through 75 percent commercial debt arranged from local banks which include National Bank of Pakistan, Bank of Punjab, United Bank Limited and Habib Bank Limited while the total cost involved in development of this project is US\$. 708 million. Utilizing state of the art technology, the plant has the design efficiency of 61.16% which is rated amongst highest efficiencies in the world, which would result in fuel-saving of billions of rupees to the national exchequer during 30 years project life period while reducing overall tariff. Despite delay in Financial Closing and commissioning of project due to COVID-19 implications, the project company adopted a proactive approach and started construction of the plant by injecting its own equity. Due to dedicated efforts of the Punjab Government coupled with continued support of Federal Government, Power Division and Private Power & Infrastructure Board (PPIB) the plant has reached an advanced stage with over 80% construction works completed. Efforts are being made to bring this project of national importance online by October 2021 on open cycle mode and on combined cycle mode by June 2022. Upon commissioning of the Project, it will also help in stabilizing and balancing the transmission system to improve uninterrupted supply to Faisalabad and adjacent areas. The Project will generate more than 3000 employment opportunities during construction-phase while 2000 during its operations.

Speaking on the occasion, Mr. Hammad Azhar remarked that our energy issues are complex and multifaceted in their own way. Many of our energy woes are attributed to a lack of focus on the part of successive governments to diversify the energy mix by harnessing cheap and indigenous sources of power generation. As the incumbent government under PM Imran Khan took on this challenge, the matter of generating low-cost electricity, which is both affordable and environmentally-friendly as well as focusing on renewable energy resources like hydel, wind and solar has been the foremost priority. a greater concern. It is this quest for making Pakistan the embodiment of the Quaid's and Iqbal's ideals that continue to guide our efforts as we go about performing the fundamental task of turning the country towards progress on different fronts. ■



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—◆— Naeem Qureshi —◆—

LESS IMPORTANT POWER PLANTS SHOULD BE PHASED OUT

Akhtar Mayo

Chief Executive Officer
Punjab Thermal Power Pvt. Ltd (PTPL)

Q: When and for what cause the PTPL was established?

A: PTPL was established in 2017 under the companies act 2017, to capitalize on the experience earned from previous three RLNG power plants which were executed back in 2015. When those three RLNG based projects were conceived it was under a new power policy and new regime for power purchase and fuel supply agreements. Considering the growing need of higher efficiency and dependable electricity, an already existing supply chain of gas, stabilization of the electric system at major load centers and to support GDP growth (5+), the said project was undertaken.

Q: What is the significance of PTPL in the energy sector of Pakistan?

A: PTPL has a capacity to meet the energy needs of approximately 2.5 million households by generating more than 10 billion units of clean electricity per annum. The Project rated capacity is 1263 MW with the net thermal efficiency of 61.16%, making it one of the biggest and highest efficient power plants in the country. Furthermore, it's connected to the 220 kV system in one of the biggest load center of Faisalabad region, where the energy produced will be utilized locally, leading to minimum line losses. In the previous projects the latest technology from General Electric (a US based company) was implemented, whereas, for PTPL's project Siemens (a German company) technology has been used, diversifying the source of future maintenance dependence.

Q: Please share the details of the energy projects so far completed by the PTP?

A: PTPL was established as a Special Purpose Vehicle (SPV) by the Government of the Punjab to only build, own and operate projects at Trimmu Barrage. Currently PTPL is in construction phase and once completed, the power plant will remain available for operation for at least 30 years.

Q: What are the upcoming energy projects of the PTPL and their unique features?

A: As mentioned earlier, PTPL is currently mandated to build, own and operate the generation facility at Trimmu Barrage, and therefore has no other new upcoming projects. However, we will continue to improve upon the benchmarks, both technological and financial in operations of our project at Trimmu.

Q: What mode of investment and business is used by the PTPL to establish new energy projects?

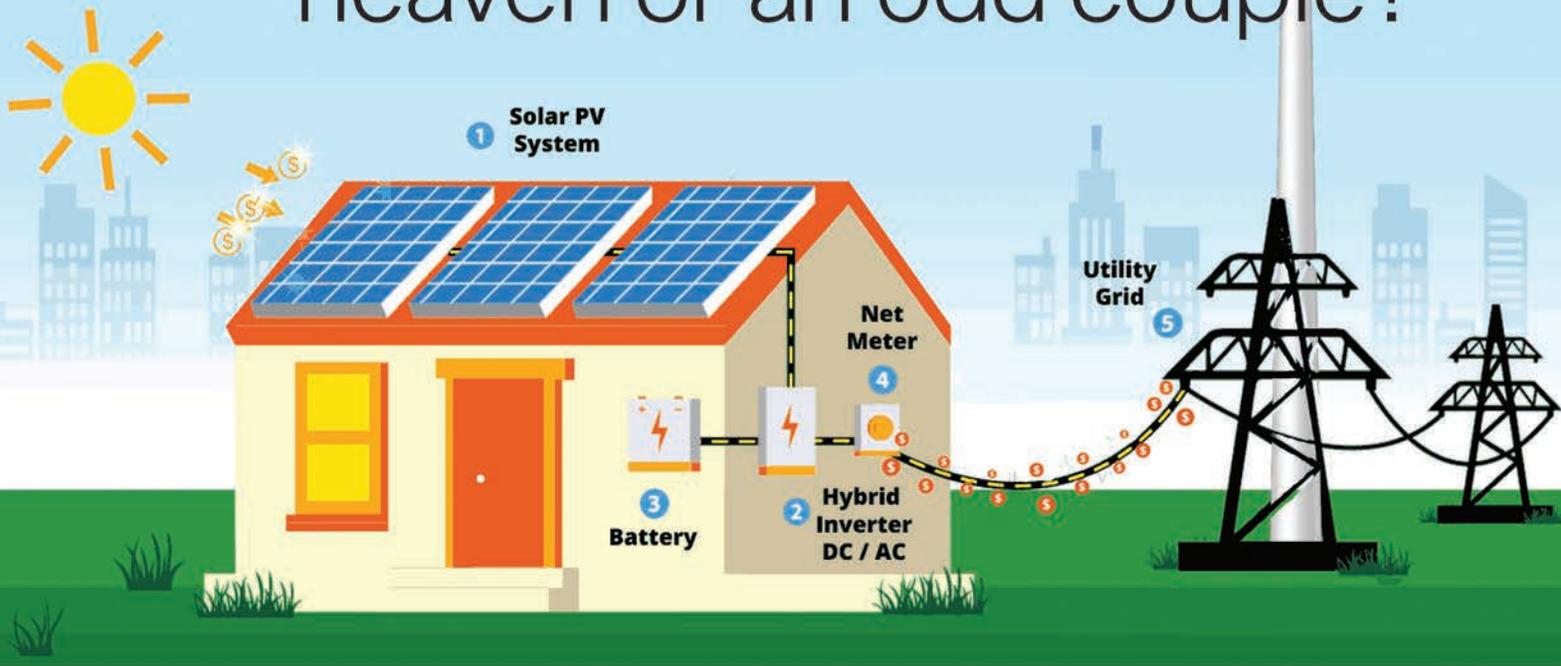
A: The project cost of Rs112 billion was financed through debt: equity model, where 30% equity worth of Rs33.6 billion has been injected by the Government of Punjab, and 70% debt worth of Rs78.4 billion has been arranged through a consortium of public and private banks, leading to one of the biggest financial close in Pakistan that too without sovereign guarantee.

Q: Does Pakistan still need more thermal-based conventional power generation projects given that our country has an abundance of renewable energy resources?

A: It is indeed true that Pakistan has a lot of renewable energy resources, but development of those resources in energy forms is cost intensive. The same would require an enormous amount of financial investment which at the moment is not available. Furthermore, the high capital costs and seasonal nature of renewable energy isn't suited to a national grid which has highly varying levels of power requirement throughout a day-cycle. Hence, cheap and clean thermal technologies like PTPL's project become the strong base on which the national grid depends as the availability to generate electricity from these thermal power plants do not impact due to seasonal variations and remains in the range of 90% to 92% annually whereas in comparison the solar and wind power plant's availability remains in the range of 20% to 40% per annum and hydel power plant's annual availability is around 60%. Therefore, for the industrial and economic growth of the country, the continuous availability of stable electricity is key which can be met through power plant's like PTPL. In addition, thermal power plants like PTPL provide much needed stability to the national grid due to frequent fluctuations in grid frequency and voltages. In future it is likely that less efficient power plants may be phased out in favor of renewable energy, but a significant portion of our energy needs will still be met through thermal power generation, as is the case for most countries around the world. ■

HYBRID SOLAR AND WIND PLANTS

A match made in heaven or an odd couple?



—◆ Dr. Shahid Rahim ◆—

A story generally attributed to famous playwright, George Bernard Shaw, narrates that a beautiful actress of his time approached Shaw and offered her hand to him for marriage: “Would it not be wonderful, Mr. Shaw, to have a child together who had your brains and my beauty?” “No thanks Mam, there will be an equal chance that the child may inherit your brains and my beauty”, Shaw is reported to have replied. Our government’s recent decision to promote hybrid development of solar and wind projects in the future has a queer similarity with Shaw’s above episode. It’s hoping to capitalize on the diversities between the above two technologies. In reality, these might counteract to defeat the intended objective. Caution is therefore in order.

Following the recent flurry of interest in hybrid development of solar and wind projects

in advanced countries, our government has also decided to promote hybrid power generation projects in the future. The main reason cited for this new policy initiative, according to news reports, is that solar and wind plants in hybrid arrangement can offer as much as 50 percent capacity factor at a site compared with the usual 19 percent for solar and 33 percent for wind if the two are developed independently. This may or may not be true as it depends upon a host of technical and economic factors specific to a particular site and the characteristics of the hosting power grid.

There’s growing interest around the world in the past few years to exploit the potential complementarities and synergies by bringing the two odd technologies such as solar and wind together via an arranged marriage. However, the jury is still out to establish conclusively that the benefits of their conjugation at a site will be worth all the additional technical and economic pains that the developers or rate payers will have to suffer to ensure a congenial relationship between the

odd couple, till death does them apart.

No doubt that solar and wind power generation plants have a few attributes common between them. Both rely on renewable flows of the primary energy resource, for sure—sun’s radiation for solar plants and wind for the other. Power generation from both, in the absence of any backup storage, is also uncertain, intermittent, and variable. These commonalities between the two are, however, only skin deep as virtually in every other respect these two technologies are poles apart.

The flow of primary energy for solar and wind plants follows completely different laws of nature. Both use completely different technologies for converting the primary energy resource into electricity. Balance of system (BOS) components required by each are also different as are the techniques and technologies that are used to operate and control them and also those to connect them with the power grid. Without storage, both at present are considered non-dispatchable and non-controllable by system operators.

Our government will be well-advised if it doesn't plunge head-on into untested waters. Instead it should take an informed approach to this issue by linking its approval of any hybrid development of solar and wind proposal on a particular location on not mere speculation or expectation but based on proper background studies. A statistician is once known to have drowned while trying to cross a river with mean depth of two-and-a-half feet because he did not care to check the variance of its depth before stepping into water. Utmost care is therefore in order and must be exercised. Only after a rigorous assessment, and by considering all the key technical and economic factors involved, it can be established that a hybrid arrangement of solar and wind project at a particular location will be superior to their independent development either at the same site or at different ones.

Hybrid development generally refers to combining two different power generation technologies at a given site (physical co-location) and can involve a combination of conventional and renewable technologies like wind with diesel, concentrated solar power (CSP) with CCGT, and solar photovoltaic (PV) with diesel, or between two renewable technologies such as solar PV with wind, wind with geothermal, wind with hydro, and solar PV with hydro. Sometimes, renewables technologies are also combined with other non-energy projects such as solar or wind with biomass for fuel or non-fuel production.

Though the possibilities are numerous and diverse, each with its own prospects and constraints, below we will restrict only to highlighting the merits and de-merits of hybrid development of solar PV and wind plants and with a passing reference to the prospects of hybrid development of wind with pumped-hydro and solar PV with traditional hydro plants. We will explore the complementarities and synergies in four key aspects of these projects: (i) pattern of primary resource availability at a site; (ii) energy conversion technologies; (iii) balance-of-the-system (BOS) requirements including operation and control systems and their interface with the grid; and (iv) market framework in which these will operate.

Both solar and wind plants rely on primary resources which are renewable but are also uncertain and variable. Their availabilities follow entirely different laws of nature. Solar radiation is restricted to daytimes only and varies based on the site's latitude and time of the year. Its availability over longer time-scales is relatively predictable, but not during the short-term. Wind, on the other hand, is available round the clock but is also intermittent and variable. While its long-term availability is predictable, its short- and medium-term availability is much more unpredictable than that of solar radiation. Both resources peak at different times during the diurnal cycle; solar radiation

Both solar and wind plants rely on primary resources which are renewable but are also uncertain and variable. Their availabilities follow entirely different laws of nature. Solar radiation is restricted to daytimes only and varies based on the site's latitude and time of the year. Its availability over longer time-scales is relatively predictable, but not during the short-term.

peaks around noon whereas wind peaks during late night hours. Their availability is also inversely correlated.

The negative or inverse correlation between two random renewable resource regimes is generally considered desirable from a system's point of view as these complement each other to alleviate the overall uncertainty and variability, but the gain on that count must outweigh the loss which the system will sustain as a result of their physical co-location. Wind-rich locations may not be solar-rich and solar-rich locations may not be wind-rich. Some trade-off will be inevitable when co-locating them that must be considered against other deployment options.

System planners must also carefully examine whether a similar or higher level of reduction in the uncertainty and variability of power generation from these two renewable schemes cannot be achieved through their spatial dispersion (virtual co-location) which, in addition to this gain, can also provide additional system benefits such as improvement of reliability, stability, security, fault-handling capability, mitigation of congestion at critical nodes, and reduction in transmission and distribution (T&D) losses in the system.

As regards the energy conversion process, solar and wind power generation schemes employ completely different concepts and technologies. Solar PV systems employ ground-mounted fixed tilt or some type of tracking arrangement of otherwise static panels and arrays while wind systems employ different types of induction or asynchronous generators (rotating machines). The design, construction, operation, and control of solar PV parks and wind clusters involve altogether different technologies and techniques. Their mutual integration to exploit technical or economic benefits with the existing state of knowledge and technological development do not appear plausible, at least not in the foreseeable future.

The modeling capability to assess the dynamic interaction of various technical and economic factors and their impact on the viability of different plant sizes, balance of system components, and contributions to the grid, despite significant progress, is still not mature.

Composite modeling for hybrid development of solar and wind further compounds the issue. Research and development (R&D) in this area is underway but is still in nascent stages. Significant progress in theoretical modeling and sufficient field data will be required to validate these models before investors can be convinced to put their money on such hybrid projects.

An extremely critical area that will play a decisive role in shaping up the future development of renewable power generation technologies in the country—alone or hybrid (between them, with other conventional technologies, or with some kind of storage)—will be the market framework in which these will operate. At present, renewable technologies are being offered a fixed upfront tariff based on only the energy these plants contribute to the grid, ignoring any capacity contribution they make to the grid. This is a gross mistreatment with these technologies that have the potential to revolutionize our power supply and delivery system in the future.

At that juncture, owners and developers of renewable power generation plants will have to reconsider different options to make their plants compete at equal footing with their conventional competitors, not just for energy but also for capacity and system support (ancillary) services. Such options may include their hybrid arrangement with other renewables, with conventional plants, or some form of storage whichever option turns out to be most convenient and financially rewarding for them. Physical co-location may not be the only option, as they can also get into virtual co-location as well as long as they can offer their plants collectively for dispatch and control by the system operators.

Our government, therefore, will have to tread extremely carefully in this rapidly evolving energy market. The purpose of this article definitely is not to shoot down its new policy initiative but just to draw its attention to the complexities of the emerging energy market. ■

The writer is a freelance consultant specializing in sustainable energy and power system planning and development. He can be reached via email at: msrahim@hotmail.com

Govt incentives are vital for achieving Energy 2050 Goal

Sedef Budak

President of Turkish Women in Renewables and Energy Network

— Halima Khan —

Q: Please Share your education, qualification and experience in energy sector?

Sedef Budak: I graduated from the Department of Tourism and Hotel Management, Bilkent University, Turkey. I have worked in national and international supply chain management, vendor compliance and business development activities on behalf of world ranked number one British and American retail brands (business volume of \$3.5 million a year) in between 2000-2007. I leverage my technical skills in the renewable industry, worked as a bid partner of a well-known Chinese and European technology provider and managed more than 11,000 MW Power Generation units and EPC tenders in Turkey during 2007-2012. Awarded and placed contract of 100 MW Hydro, 190 MW of wind and solar power plant equipment and auxiliaries. Developed and transacted 300 MW SPP project.

Consulted and reported investment opportunities to foreign investors and equipment providers for wind turbine blade, generators and solar module producers. Since 2012, I have been working for Windfor/Vector renewables as exclusive business partner and consultant, performing site inspections, administrative and commercial studies, financial evaluation (investment budgeting, OPEX and CAPEX analysis), monitoring of financial progress and reporting

accordingly.

I managed 1.9 GW on shore WEPP's and 200 MW PV SEPP projects including independent energy analysis, technical diligence services, construction monitoring and operation monitoring for a total value of more than \$3 billion.

Windfor is listed as one of the top 3 consultants of Turkish and European Banks giving project finance to renewable projects with its 65 GW reference in wind and solar total.

I am also a volunteer mentor in the Million Women Mentor Program of STEM Connector, Women in Wind Leadership Program of Global Wind Energy Council and Global Women's Network for Energy Transition, Woman to Woman Mentoring program of Turkish Women in Renewables and Energy Network. I have been a Guest Lecturer of Power Plant Investment and Lenders Engineering Subjects of a well-known government and private universities in Turkey.

Q: What was the motive behind forming TWRE?

SB: I have more than one motivation. First one was to create a women's network.

Second one was to bring women together under one roof for empowering each other.

Third one was to create a force against male dominated energy sector to employ women for energy transition.

Q: What are the Projects under TWRE?

SB: proudly say that today we have 1500 women members online and thousands of male and female followers via social media channels and business channels i.e. Instagram, Youtube, LinkedIn.

We created different digital series ; Green Calls, Green Talks, Green Classes and now developing Green Panels which are all free of charge for all members of industry and the public. We reached more than 20 K viewers and participated with the series which we aimed to provide correct information through right women experts.

We designed the "Wind Turbine Technical Training" for women, a first in the world, and implemented it in cooperation with Nordex Acciona and this is repeated annually. Apart from this, we are developing different projects to complete the energy transformation and to train qualified female engineers and technicians who work and want to work in all areas of this life cycle. We have established a women's sailing team and we will continue to participate in races to draw attention to the climate crisis and women's empowerment issues. We started to mentor 50 young women with the Woman to Woman "W2W" program. We are continuing with our "Wind Education Scholarship Project" in partnership with WindBaba Digital Academy.

Again, within the scope of combating climate change, we established the Electro-Mobility working group to increase sectoral and public awareness and to create a more sustainable life. We are preparing a very detailed report, in which we will reveal employment and equality in the energy sector with all its nakedness. We have a book project coming after the report to give inspiration to all women.

Q: Talking about renewables, what are the set goals around and do you think TWRE going to achieve them in the near future?

SB: My personal goal was to give VISIBILITY to WOMEN in Energy Transition and TWRE has been providing this in a very successful way. The world's been facing a terrible pandemic since 2019 and we are in the vaccination process. We hope that by the end of this year, all humanity will overcome this crisis and be immunized. However, as long as we do not give up fossil fuels and zero carbon emissions, we cannot prevent global warming and the resulting pandemic and other natural disasters. At this point, we held webinars and seminars to improve our sustainability awareness;

We ensured that point-to-point information from expert names on topics such as solar, wind, geothermal, micro algae, circular economy, climate crisis, gender equality, energy digitalization, blockchain technologies, and electromobility reach valuable members of the industry. We believe that we contribute a lot as a voluntary platform not only for women but also for women and men to overcome difficulties. We also managed to break the glass ceiling syndrome within us.

Q: There are few more women and based associations around the globe, is there any synchronization or collaboration between TWRE and them?

SB: Yes, we have sisterhood ties with many associations formed by women. We are in constant communication with local and international women-based associations such as WRISE, WIRE, IEEE WIE, CIGRE, UNWOMEN, KA-DER, ARYA WOMAN and MÜKAD.

Q: Highlight the key sectors, where your company has been doing investment and providing services?

SB: Vector Renewables is a very strong asset management and technical consultancy company established back in 2004 in Spain. Today we exist in 10 different offices all around the world and representative contracts in Turkey.

Vector has managed more than 65 GW Wind and Solar Projects Technical Advisory and 3,5 GW Asset Management not only in European countries but also in Japan and America. Vector provides third party owners

and lenders engineering services, technical diligence services, construction monitoring and operation monitoring and asset management.

Q: How do you see the future of energy production in a sustainable manner?

SB: European Union targets %100 renewables by 2050 and %50 by 2030. This is achievable if we get rid of fossil fuels and also nuclear power. This is also possible to transform our daily lives into a circular economy for a sustainable future.

Q: What are the biggest challenges you faced due to the infrastructure of projects?

SB: Turkey grid and railroads were very old from the 19th century in general and since 1980's with the privatization Governments are rebuilding or tendering the works. We have a heaven like country in terms of weather and geography but also topography is very complex for engineering and infrastructure. Therefore Turkish construction companies are improving themselves to demolish and build roads, bridges, dams, big constructions and power plants.

Q: Since Pakistan has abundant natural resources and is steeped in technology innovation and adaptability well, what future do you see for sustainable projects in Pakistan and Turkey, providing the opportunities to secure future energy needs?

SB: Pakistan is a country with high solar and wind energy potential, just like Turkey. Meeting 50% - 60% of our energy needs by 2030 is among the targets of both countries. Government incentives are very important on the way to this goal, new and profitable incentives attract more attention. I think it is the most important step for both countries to increase their incentive mechanisms to go to a greener future. Turkish and Pakistani companies can collaborate for long term partnerships and share/transfer knowhow for renewables especially for wind, solar, biomass and geothermal.

Q: What message would you like to give to empower women, working in the Energy sector around the globe?

SB: Women should chase their dreams whatever circumstances may occur against them.

The women platforms and organizations like TWRE and WIRE Pakistan are always ready to support to spread the knowledge and increase their visibility. We built the glass ceiling ourselves with unfortunate support of society and culture.

As a result we will break them together. Be united, be woman, be energy. ■



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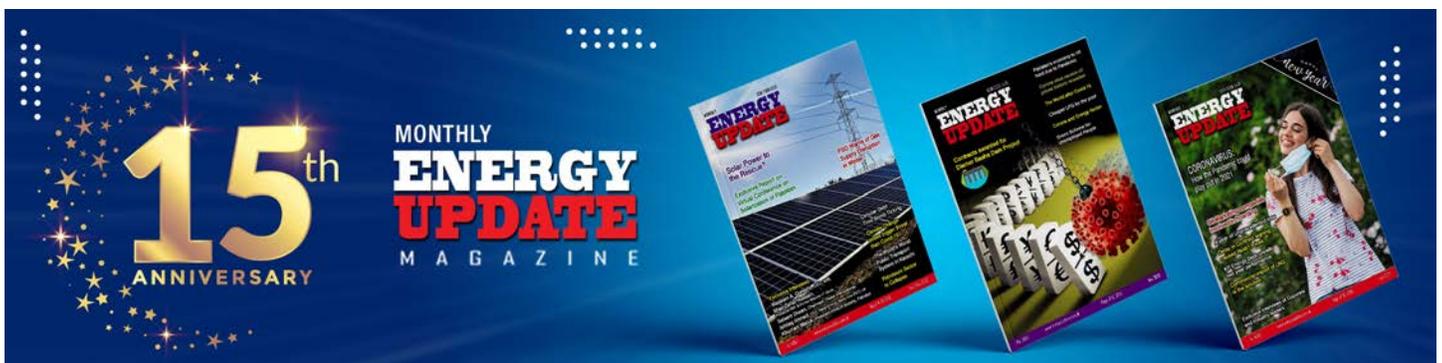
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Successfully trialled at sites across Switzerland and China, NeoGear deploys ABB's laminated bus plate technology, which replaces traditional horizontal and vertical busbar systems. The innovative bus plate technology combined with the connectivity and digital capabilities of the ABB Ability™ platform, make it an unrivalled solution. NeoGear is the safest option for operators with no exposure to live parts. It reduces the physical switchgear footprint by up to 25 percent, increases cooling efficiency to reduce heat losses by up to 20 percent, and reduces overall operational costs by up to 30 percent, due to more efficient condition monitoring. This hardware development is complemented by advanced



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New oil refinery policy

– a review

— Syed Akhtar Ali —

A new oil refinery policy is at advanced stages of consideration. Old refineries are getting uneconomic and redundant. Product mix in the local market has changed and new product specifics such as Euro-V have been introduced. This requires BMRE or new investments with a new policy.

A good feature of the oil industry is that it does not create liabilities for the government such as “take-or-pay”, which is there in the power sector. However, it should provide revenue to the government, which is well deserved and deserves government attention, however, without undue concessions. The main issues are highly liberal 20-year tax holiday, 10% margins over international prices, elimination of all taxes and levies

during the construction phase, relocation of old refineries, etc. Most development literature argues against providing such long tax holidays on corporate earnings. This is the only benefit which host countries get and if it is waived, what is the net rationale.

Tax holidays deprive social sectors of the much-needed investment. It is said that foreign direct investment (FDI) decisions are primarily based on basic project viability and political circumstances. FDI would come in if feasible with or without tax holidays. The oil industry is a major revenue earner in almost all advanced countries. Only one dollar per barrel tax on a 100,000 barrel-per-day (bpd) oil refinery would yield government revenue to the tune of \$35 million per year and \$700 million over the 20-year period. With four or five refineries, it would be an enormous loss of around \$3.5 billion. After that period, demand and revenue may go down due to lower demand possibly.

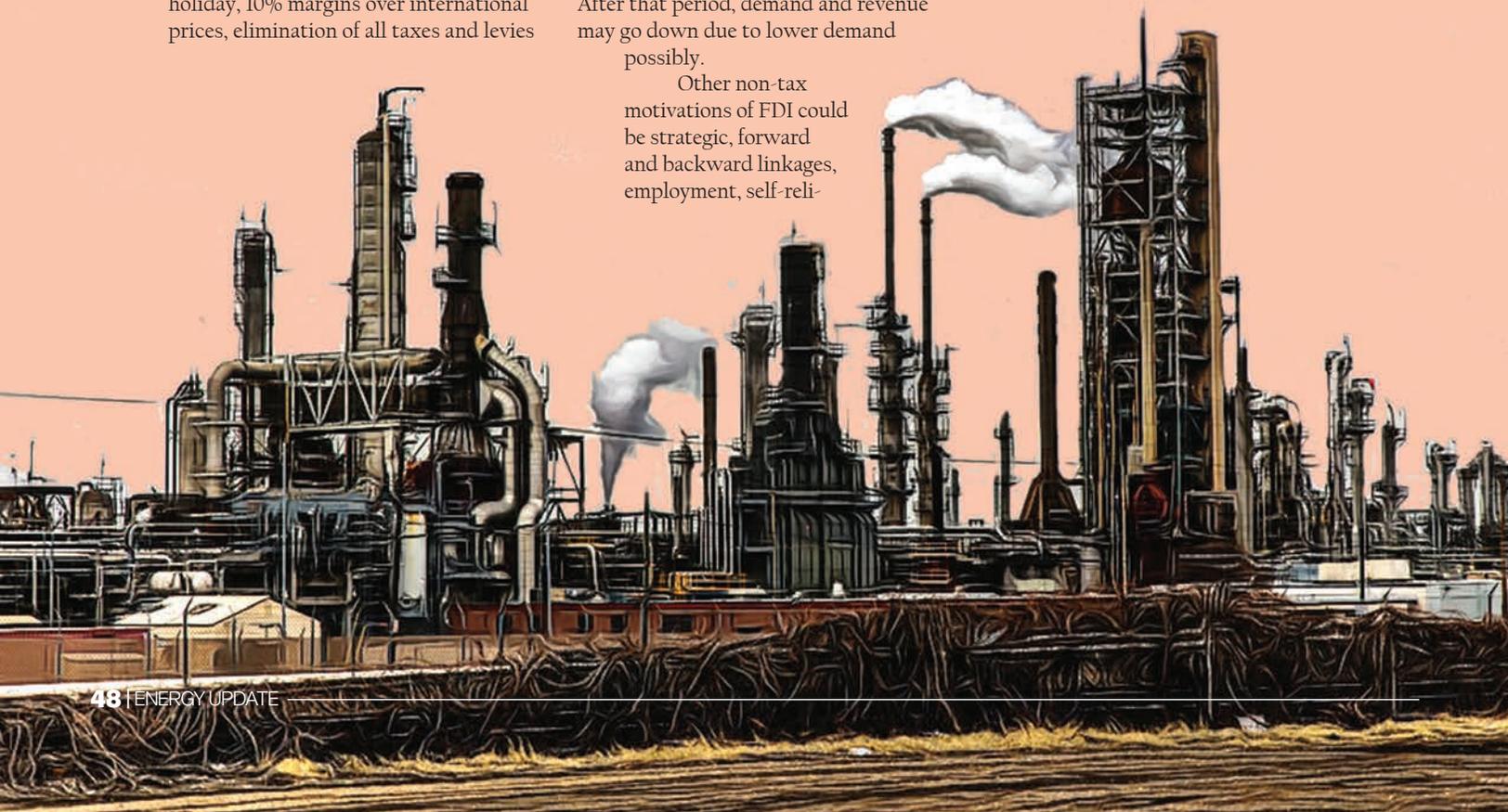
Other non-tax motivations of FDI could be strategic, forward and backward linkages, employment, self-reli-

ance, technology, etc. On all these counts, oil refineries have very little to offer. There is very little crude oil to be utilised. Comparatively, very little employment is created, neither there are local inputs that are employed nor is there any forward linkage forming raw material inputs for other industries eg textile, agriculture, etc.

There is hardly any self-reliance either, as crude oil would be imported any way.

As to the strategic dictates, all loss-making businesses have one thing in common – these are defended on strategic grounds. This has been misused for justifying loss-making and unviable projects.

Investments in many other sectors and SMEs do have much larger impact on the economy. However, one would not mind oil refinery investments, if there are at least corporate income tax benefits.



A 10% higher price advantage over international prices has been offered, which in itself is a very major concession and to top it all liberal tax holiday, robbing both the government as well as people. If projects are not viable, so be it. All other miscellaneous taxes and duties on construction inputs and services have been waived, which would enable capital expenditure (capex) at international cost. Cheaper labour would be an added advantage.

A primary question that comes to one's mind is that are oil refineries, which last 30 years or so, really required in view of reducing oil demand and introduction of electric vehicles (EVs)? In advanced countries, at least, there would be significant inroads into EVs and oil demand is expected to go down. In the developing world, however, EVs' penetration may be modest and oil demand may even increase with development. Some oil refineries in the developed world may become redundant, may be closed down and may try to relocate their operations to the developing parts of the world. Oil producing countries may also try to lock long-term sales opportunities through investments in oil refineries abroad. Currently, there is abundant competitive trade and availability of imported petroleum products. Who needs investment? It would come on its own, unless we are unnecessarily difficult. As has been mentioned earlier, due to falling oil demand in the advanced countries, a good opportunity for relocation to developing countries would emerge and is already evolving.

Time and cost would be saved by import of such equipment. Most of Pakistan's industrial development has taken place on used equipment as is the case elsewhere in many parts of the world. If the investment is foreign and all capital is foreign, what is the risk in allowing old refineries when both product specs and environmental standards criteria are met. Large-scale petroleum imports, whether in the form of crude oil or finished products, would remain in place and both import and inland terminals would be required. Reportedly, there is shortage of storage capacity and terminals, as more demand would be created.

More and more unviable oil refineries are being converted into oil terminals, both in the developed and developing countries. There are a lot

of common facilities of loading and unloading, blending, storage, water treatment, market linkages, etc.

Smaller unviable oil refineries may be allowed to be converted into oil terminals. OMCs should be able to buy such projects. Some policy elements may have to be added in this regard. Existing local rules for reserves requirement are for two weeks of consumption. IEA recommendation is for three months. However, their methodology includes all kinds of purchases and storages even abroad. Strategic storages are established by big international powers like the US, Russia, China and even India. India has been successful in attracting other countries' reserves and did not have to buy on its own. The reserves are owned by foreign oil producer countries. However, India has some rights and privileges to buy and use.

For Pakistan, investing in oil storage other than current provisions would not be financially viable. There should be an effort to get existing rules implemented. For large refineries, added requirements may be considered. We always try to buy current requirements on credit and have often to pay a political cost. However, the strategic oil storage policy for foreigners may be developed and FDI in such storages may be encouraged.

Concluding, there is a need for a continuing policy on oil refinery investments. Undue advantages are sought by investors (such as tax holidays and others) when the government shows more eagerness. The policy should continue for a long time in order to attract as much good quality FDI as possible. Imports are meeting the requirement, providing high quality products at competitive prices and will continue to do so.

Current petroleum prices in Pakistan despite taxation are quite low as compared to the region and outside of it. The policy should avoid any provision that may not be implemented, eg provision on competition in the retail market. It is a complicated issue. Uniform pricing issues are involved and have a strong political dimension. While import and wholesale prices are already internationally based, the issue is of only Rs10 or more of distribution margins. If somebody hopes that competition would result in lower prices, he may be sadly disappointed. Prices would certainly increase. We will discuss it in detail at a later opportunity. ■

Govt makes changes in transmission line deal

The present government is actively pursuing the completion of energy projects including those under the China-Pakistan Economic Corridor (CPEC), said Minister for Energy Hammad Azhar. Azhar's comments came at the signing ceremony of an Addendum/Amendment to the agreement for the ±660-kilovolt HVDC Matiari-Lahore Transmission Line between NTDC and Pak MLTC and Amendment No 1 to the implementation agreement between Private Power and Infrastructure Board (PPIB) and the project company, ie Pak Matiari-Lahore Transmission Company (PMLTC).

The minister said that it was one of the mega projects that would eventually evacuate electricity from the south of the country to the north and improve the economic merit dispatch order of electricity.

It would not only benefit the electricity consumers, but would also bring stability to the system, he added. The Economic Coordination Committee (ECC) has also granted approval and under the new Transmission Services Agreement (TSA), the Required Commercial Operation Date (RCOD) of the transmission line has been extended from March 1, 2021 to September 1, 2021. Meanwhile, another addendum has also been included in the operations and maintenance service agreement. The ±660kv Matiari-Lahore Transmission Line is the first-ever HVDC project in Pakistan, which is being executed under the framework of CPEC agreement. It is also the first project being developed pursuant to provisions of the Private Sector Transmission Line Policy Framework approved and announced by the government of Pakistan in 2015. This transmission line will be spread over 886 km and capable of transmitting 4,000MW of power. The project is being executed on a build-own-operate-transfer (BOOT) basis and will be transferred to NTDC after 25 years.

The project entails foreign investment to the tune of \$1,658.34 million. As per mutually agreed terms of the agreement, the commercial operations date of the project has been extended and during this period the NTDC would be allowed to transmit available power, for which the project company would be paid as per tariff to be approved by the National Electric Power Regulatory Authority (Nepra). It is pertinent to mention that in the month of December 2020, during the testing of said project, frequency oscillations in the NTDC system led to the differences between NTDC and Pak MLTC. ■

All economic indicators are up, but.....

—♦— Mir Mohammad Ali Khan —♦—

Before you jump down my throat let me clarify one thing, inflation, especially food inflation needs to be controlled with an iron fist. Forget about the fact that after the 18th amendment, food price control is a provincial subject, I suggest that The Federal Government form an on ground team to impose fines, arrest culprits and set an example. The poor man of Pakistan does not care about the macro-economic indicators getting better. His life starts at the micro level and remains there, 'mehngaee' is his only concern.

Having said that, Macro Economic indicators getting better always without fail bring betterment at the Microeconomic level. So the MEHN-GAAEE will subside soon. But the future of a nation is mostly dependent on a turnaround at the Macro level.

Most of you would remember my alarming articles which I started writing in 2016 about the state of the economy. To a naked eye at that time everything was

going fine. Capital Markets were booming, currency was stable and nobody cared about the Current Account Deficit or even understood what that meant. I even went as far as screaming from the rooftop metaphorically in one of the articles that if we do not address our core macroeconomic issues then we would have to declare a financial emergency.

When this government took over the helm of the affairs, I was praying that they be able to fix these giant economic problems that were the foundation of any progressive economy. And when

an investment banker starts to "Pray" then you know he is worried and worried to the core of his being. And yes I was, worried. People were seeing immediate inflation and I was seeing the uncontrollable disaster in the making, in the future. It is like a Doctor, when a patient walks into his clinic with a headache, the patient and his loved ones who brought him to the clinic are only concerned about the headache being treated by the Doctor but the Doctor after seeing an MRI is concerned that the headaches are based on a tumor and if the tumor is not treated immediately then it would be impossible for the patient to survive.



So I was that Neurologist and the patient was the Pakistani economy and the nation was the family that brought the patient to the Neurologist. The good thing with the economic numbers is that they do not lie.

Let's start with the worst news. The worst news was that according to The Pakistan Bureau of Statistics, about 20.6 million people were affected by COVID especially when it came to the construction and manufacturing sector. Here by "Affected" I mean, economically not affected by the virus.

But by November of 2020, 18.4 million people or 90% have recovered their lost jobs. 18.4 million people recovering their jobs means that the economy has picked up rapidly. Pakistan is one of the very few countries in the world where the recovery has been in a V Shape. Meaning it went down quickly and it recovered quickly as well. You must be hearing a lot about the rapid growth in the textile industry in Pakistan. It is good news to all but it is a news of irritation to me because it irritates me to know that our textile industry was always capable of competing with the best in the world but our governmental policies never assisted this sector. Now even in the midst of Covid, this industry's production is at all-time high. In 2019 home textiles exports were at \$1738 million. July through December. In the same in 2020, the home textile exports crossed \$2017 million. A 16% percent. Ready Made garments in 2019 were at \$944 million. In 2020 they crossed \$1181 million. A 25% increase.

Large Scale Manufacturing, better known as LSM and a solid indicator of growth in any economy saw a growth of 14% in November 2020.

Food sector grew by 56%. Pharmaceuticals grew by 7.7%. Chemicals grew by 11%. NM Minerals grew by 12%. Fertilizer grew by 9.2%. Paper grew by 10%. Automobiles grew by a whopping 44.5%. Iron & Steel grew by 3.4%. Cement grew by 13%. Electronics grew by 3%.

All sectors as you can witness have seen a growth and keep in mind that these are COVID days and economies as big as UK, Japan, India and USA have seen a GDP contraction from as low as 23.2% to 48% in the last quarter.

For the first time in 60 years we have new Dams being built. In addition, we have 112 projects related to water sector. Understand the fact that water scarcity will be the biggest problem in the coming years and addressing that issue now is the wisest thing to do. Another 32 new projects under CPEC are on the way.

And remember that we have proven The World Bank projections for our economy wrong. The WB had projected that Pakistan's economy will go down by 2.6

percent due to Covid. Now we are looking at a growth of positive 1.5% and it will improve before the fiscal year ends. The same WB has projected that South Asian economy will decrease by an overall 2.7% to 6.7% and India's economy according to The World Bank is going to go down by a negative 9.6%.

Lets talk a bit about the accountability because we hear this word 24/7 in Pakistan these days. During the years from 2008 to 20

18 The National Accountability Bureau (NAB) had recovered Rs 104 billion or Rs 21 billion per year on the average. In the last two years, NAB has recovered Rs 389 billion. Yes Rs 389 billion. Why we do not hear such things on the national media I do not know. Why do I have to write all these facts, I do not know. But I know one thing, and that thing is that we are on the right path no matter what the propaganda mills are churning out every day.

Let's talk a bit about the tax collection. Last year we had a 17% tax collection growth before Covid showed up. We were all set to achieve the Rs 4.6 trillion mark. We have met 99.7% of the previous target so far and with a nominal growth over last year's figure we are set to reach our target.

Our inflation figures are looking better as well. The CPI inflation drops to 8%.

The IPP agreements with the GoP have been finalized and the rates have been

revised downward. This was the most difficult task but has been accomplished. To sum it up in one paragraph, our CAD has come down from \$20 billion in deficit to a surplus. Our exports are growing. Our remittances for the past 6 months are above \$2 billion a month for the first time in history. Our capital markets are booming. Our exports are growing. Our domestic industry is picking up. Our construction industry, which brings along with it some 54 related industries, is rising. Our foreign reserves have increased. Our imports have slowed down saving us a tremendous amount in foreign reserves. We have paid back our loans to Saudi Arabia. We have paid back our external loans in the amount of \$12 billion plus. Our currency is stable. PM Kamyab Jawaan program is flourishing. We have for the first time started to take care of the poorest and the homeless through PANAAHGAHHS. EHSAAAS program is helping everyone without corruption through the means of digital payments. Entire province of KP now has health insurance for every citizen for free. So does Punjab.

Let me say one last thing, I can go on and on showing the improvement in the economic figures and there will be a section of the society that will find faults in it. I am in no way saying that we have become a giant economy. No. Absolutely not. There is a lot more to be done. ■



Mr. Mubeen Ur Rehman of Albario Engineering received 13th CSR Awards 2021



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Power Division stresses caution on HEFTY POWER TAXES

—◆— Zafar Bhutta —◆—

The Power Division has called for rationalisation of heavy taxes in the power sector, which have pushed the electricity prices higher and added to the burden of the consumers.

Due to the high rates of electricity, power theft became rampant as the tariff was not affordable for the consumers. In addition, the bleeding power distribution companies of Sindh, Balochistan and Khyber-Pakhtunkhwa (K-P) also largely contributed to the ballooning circular debt. Officials say that provincial governments are responsible for taking action against those involved in losses. They said that provinces should give subsidies to the consumers if they are unable to control these losses through local administration.

Sources told that the Power Division informed further that there were several other factors like heavy taxes and capacity payments, which were piling up circular debt. Therefore, the Power Division could not deal with these issues alone and it urged all stakeholders to play their due role in addressing these issues. It informed the cabinet that there are several factors including taxes and capacity payments that have led to increase in electricity rates.

In a recent meeting of the cabinet, the Power Division told members that excess payment of General Sales Tax (GST) worth Rs85 billion have been paid to the Federal Board of Revenue (FBR). It further said that GST billed by independent power producers (IPPs) stood at Rs117 billion whereas the GST billed to the consumers stood at Rs202 billion.

The Power Division said that the total impact of this amount on consumer tariff was

Rs0.85 per unit. In addition to it, the government was collecting Rs22 billion tax on fuel adjustment charges. The total amount of fuel adjustment charges with taxes stood at Rs383 billion where it comes to Rs361 billion without taxes and duties from the consumers. Keeping in view this heavy burden, the Power Division has called for rationalisation of GST and other taxes in the power sector to reduce the price of electricity.

There are 11 stranded furnace oil IPPs with generation capacity worth 3,300MW and 5% average annual dispatch factor. The fuel cost amounts to Rs13 per unit. However consumers were paying Rs60 billion a year on account of 'take or pay' capacity charges, the impact of which on consumer tariff was Rs0.6 per unit. The consumers will be paying Rs450 billion in aggregate on account of capacity charges over the remaining average seven years of their contracts. The Power Division proposed early termination and buyout of these oil-based IPPs at a discounted value that amounts to Rs150 to Rs200 billion via PIBs sukuk. It will result in taking out Rs0.6 per unit from the overall consumer tariff going forward, alongside taking out the unused oil-based IPP capacity.

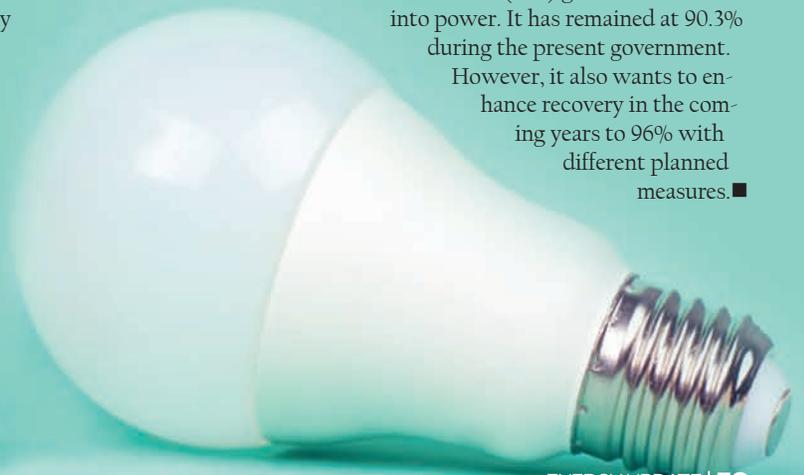
The Power Division also called for allocating full budgeting and timely release of complete subsidy requirement. It further said that the PHPL debt should be converted into a public debt.

The Power Division said that the new wind and solar IPPs will be auctioned under the hybrid system, which means that wind and solar will be installed at the same location model. This will help continuous supply of renewable energy from combined sources of solar and wind. The electricity theft in the power sector of Pakistan continues to hit the entire energy chain in the current financial year 2020-21, leading to the worst energy crisis.

The higher rate of electricity theft is the major reason for the rising circular debt that has touched Rs2.3 trillion in January this year. This has been projected to touch the Rs2.5-trillion mark by end of June this year. The power distribution companies K-P and Sindh are still bleeding from the highest rate of electricity theft. Peshawar Electric Supply Company (Pesco) in K-P recorded 35.10% losses in financial year 2020-21. Hyderabad Electric Supply Company (Hesco) faced 28% and Quetta Electric Supply Company (Qesco) 22.60% losses. Islamabad Electric Supply Company (IESCO) faced 8.80% losses. The average rate of electricity theft is 17% in the current financial year 2020-21. Meanwhile, recovery of electricity bills stood at 89.6% in the year 2013, which went up 94.1% in 2016-17. However, it again dropped to 90.1% in 2018 when the Pakistan

Tehreek-e-Insaf (PTI) government came into power. It has remained at 90.3% during the present government.

However, it also wants to enhance recovery in the coming years to 96% with different planned measures. ■



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A story of U-turns

About two months ago in March 2021, the federal minister for power celebrated the completion of a power transmission line in record time, which would become the conduit for an additional 450 megawatts of electricity from the national grid to Karachi. Just a few days ago, Federal Ministers Asad Umar and Ali Zaidi were lauding the role the government had played in supplying this additional power to Karachi from the national grid. Umar called it the beginning of a plan to increase power supply to Karachi by up to 2,000MW in three years. Zaidi appreciated that Karachi was able to spend this Ramazan with no load-shedding during Sehr and Iftar. All was well in paradise. Imagine the surprise for the 20 million citizens when they woke up hearing the same government calling for blood-like Shylock asking for his pound of flesh.

Headlines flashed angry, threatening messages about taking K-Electric – Karachi's sole power provider – under government con-

trol and reports carried a thinly veiled ultimatum to disconnect the additional power supply by May 30, 2021. All this in a span of just four days! While the U-turn has become a trademark symbol of the government, this move still begs the question as to why it's happening.

Is Karachi being made to suffer because the policymakers hold a grudge against the city for what happened in NA-249? Is the government adopting a "good cop, bad cop" routine to squeeze funds out of Pakistan's economic hub to settle its payments of over Rs90 billion to the IPPs, a hole it dug for itself? We don't have the answers to these questions, but we do know that the ultimate loser of this wishy-washy decision-making will be Karachi.

The 450MW being supplied to the city is helping the country's GDP. It is also hardly 1% of the installed capacity of 35,735MW the country has. Most importantly, this 450MW is part of the excess generation capacity the country has celebrated – and the government is already racking up a bill paying generation

companies for just producing this power.

Not putting it to use is as pointless as turning your car on, but leaving it motionless in your driveway. At least in this example, the car won't take any untoward U-turns.

What we also know is that the government is under tremendous pressure to control circular debt, and is locked in a tussle with the IMF over terms and conditions for the financing requirements (wherein there are several more U-turns). With just a few weeks left before the end of the fiscal year, maybe this entire performance is a way to demonstrate they have more bite to their bark and force a resolution to save face. But we know this isn't a sustainable approach.

How will this consistently inconsistent approach attract any foreign investors? Who benefits from subjecting private businesses to an environment that isn't conducive to their growth?

We do not know. What we do know is that for better or worse, Karachi is part of this bumpy, twisting ride. What we do know is that Karachi demands an explanation on why the federal government is renegeing on its commitments and forsaking the city it touts to be the nation's growth engine. ■

Seminar on Restore Eco System

Less than one per cent waste water treated only

The environmental law has been existing in Pakistan for the last 24 years but even then, less than one per cent of wastewater generated in the country is treated before its discharge causing much environmental damage especially to the water bodies.

This was one of the facts highlighted by the speakers at a seminar organised by the National Forum for Environment and Health (NFEH) in Collaboration with United Nation Environmental Programme and Event was supported by NED University, Total Parco Pakistan, EHS Services Pvt Ltd, Envirograf UK and Shanghai Electric to discuss environmental problems of Karachi and rest of the country on the eve of World Environment Day on June 5.

Speaking on the occasion, Dr Asim Mehmood, convener of the FPCCI Standing Committee on Environment, mentioned the example of Singapore where the wastewater was thrice treated before discharge.

He lamented the situation that much had not changed in Pakistan since 1997 when the first environmental protection law had been adopted in the country as the main causes of degradation of the environment still remained unchecked. He said that there should be least reliance on fossil fuel while renewable energy resources should be actively exploited for power production as the most viable way to conserve the environment.

Former Federal Minister, Javed Jabbar, who was the chief guest on the occasion, appreciated the salience given by Prime Minister Imran Khan to the issue of environment as that was the first time in the history of Pakistan the country's top leadership has so much focus on this problem.

He said that Pakistan had been chosen as the host country of this year's World Environment Day in acknowledgement of its efforts to lessen the problem of environmental degradation. He said that an independent audit had found that there was up to 80 per cent survival rate of the saplings planted under the billion tree tsunami programme carried out in Khyber Pakhtunkhwa.

He said that the high population growth rate had been the main cause behind many environmental issues in the country as housing facilities had to be built at the expense of the environment.



The former Federal Minister said that 20 million out-of-school children in Pakistan were such an alarming issue that Pakistan should adopt measures on an emergency basis to tackle the population problem.

Prof Dr Noman Ahmed, Dean of Architecture and Management Sciences at the NED University of Engineering Technology, said it was most unfortunate that the residential neighbourhoods had been built in Karachi at the expense of the city's natural drainage system.

He said that every development activity had the potential to affect the environment.

He said that the development of infrastructure should be carried out fully responsive to the issues of climate change and environmental degradation. He said the local government institutions at the grassroots level should be empowered to tackle the issues related to the environment. Imran Taj, CEO of Envirograf UK, acknowledged that Pakistan had been on the right path to take the due corrective measures to improve the environment in the country.

He appreciated the personal efforts of PM Imran Khan to carry out a massive planta-

tion drive in the country for the protection of the environment.

Nimra Hussain of Sindh Engro Coal Mining Company talked about the Thar million tree initiative of the Thar Foundation to improve environmental conditions in the desert areas of Sindh along with the project to extract underground reserves of coal for massive power generation. She said the Thar Foundation had partnered with many like-minded organisations to carry out the massive plantation campaign in the desert area.

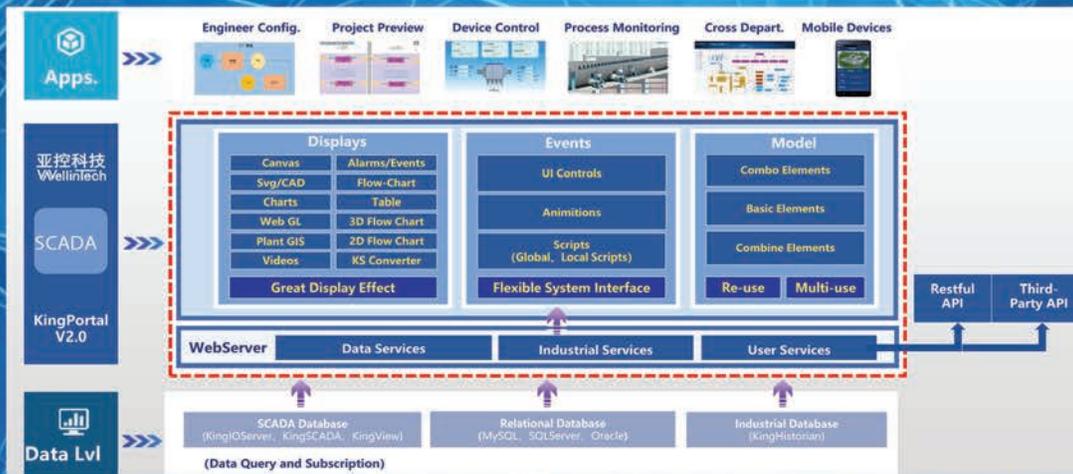
NFEH President Naeem Qureshi shed light on the activities of his non-governmental organisation to improve green cover in Karachi.

He said that owing to the efforts of the NFEH, several corporate establishments had actively participated in the tree plantation campaign to mitigate the problem of harmful industrial emissions.

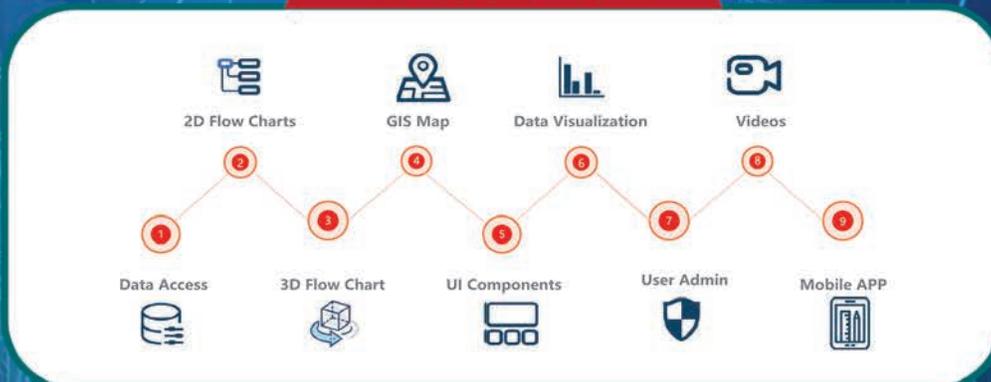
On this occasion Head of Corporate HSEQ K-Electric Rehan Sajjad, Regional Coordinator Nazafat Pakistan Ali Asghar Quettawala, Anchorperson Shakil Khan, Secretary General NFEH Ruqiya Naeem, Sr. Vice President KCCI Saqib Goodluck also interacted with the audience.

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Construction of 10 dams to ensure food security: PM

— EU Reports —

Prime Minister Imran Khan has said that construction of 10 dams and hydropower projects initiated by the PTI government in 2018 and to be completed by 2028 besides generating cheaper electricity will also make the country's 8 million acres of land cultivable and ensure food security.

Talking to media on the occasion of his visit to Khyber-Pakhtunkhwa's (K-P) Mohmand district to oversee the progress on the construction on Mohmand Dam on Wednesday, he regretted that despite having the large potential, "no dams were constructed in Pakistan after the decade of 1960s or over the last 50 years". The premier said that contrary to China which had constructed 80,000 dams including 5,000 big dams, Pakistan had only two big dams. He said that 10 dams including Bhasha and Dasu would be constructed under the vision of clean and green Pakistan and in view of the climate changes. With the growing population, PM Imran said, the construction of "dams and water reservoirs is a must to tackle the challenges of food security".

"Despite bumper wheat crop this year, the country will have to import the commodity to fulfil its demand," he added. He further said that the construction of dams and water reservoirs was also important for meeting the demand of clean drinking water for major cities and urban centres like Lahore and Karachi. While referring to the tanker mafia in Karachi, which is making billions of rupees, the prime minister said that the construction of a lake at Ravi City Lahore is meant to provide clean water to the residents of the area. The construction of Peshawar's Mohmand Dam will get 300 million gallons of water," he added.

PM Imran, in response to a question, said previous rulers instead of initiating dams and hydropower projects opted to take an easy path of signing expensive power generation contracts with independent power producers (IPPs) and made money through "commissions and kickbacks". He regretted that instead of exploiting Pakistan's hydropower potential of producing 50,000 megawatts of cheaper electricity, "they went for expensive power generation agreements with IPPs, a major cause of circular debt. He also mentioned the



"clause of capacity payment in agreements with IPPs, which bound the government for payment to the private power generation companies even if the electricity produced by them was used or not, as one of the major reasons behind the growing circular debt". He

said the power sector circular debt, which was Rs480 billion in 2018, swelled to Rs900 billion at present and would reach Rs1,455 billion in 2023. The prime minister, however, added that the present government is trying to renegotiate the agreements with IPPs.

To a question about tourism promotion, he said that with the current third wave of Covid-19, the government besides measures to check the spread of coronavirus in the country has also been trying to keep the wheels of economy running and save the people from economic problems. The prime minister urged the masses to continue to follow coronavirus SOPs including the use of face masks to protect themselves from the deadly virus as well as the country from economic effects. ■

Airports can power entire cities with the help of solar panels

According to a new study published by researchers at the Royal Melbourne Institute of Technology, if Australia installs solar panels on top of all 21 of its government-owned airports, the country could successfully generate an estimated 466 Gigawatt hours (GWh) of electrical energy each year. This would be enough electricity to power 136,000 homes.

Researchers concluded that if the country installed large-scale solar panels at the airports, they would generate 10 times more electricity than the city's 17,000 residential panels. Further, it would also help in getting rid of 151.6 kilotons of greenhouse gasses annually reports EureAlert.

Researchers were able to suggest this by combining all the roof estate space for the country's 21 airports and learning that a total of 2.61 square kilometers of available space. They then analyzed how much electricity the solar panels would generate in comparison to the current amount of energy being generated in residential areas using solar panels.

"Australia is facing an energy crisis, yet our solar energy resources—such as airport rooftops—are being wasted," Chayn Sun, senior lecturer at RMIT, and one of the scientists involved in the new research, said researchers in a statement.

"Harnessing this power source would avoid 63 kilotons of coal being burned in Australia each year, an important step towards a zero-carbon future."



Power Sector Today:

Why the Reforms Failed!

Eng. Tahir Basharat Cheema

The Pakistan Power Sector has been in the limelight, surely for negative reasons, since the last two and a half decades. What was thought to be a great idea in the mid 1990s is now a nightmare for the people. The service has deteriorated, management of the Sector has gone awry with the left not knowing what the right does, the consumer-end tariff is killing and surely prohibitive – while, nobody knows as to how the things would be corrected. However, the Power Division – the actual problem, is coming up with a plan a day for the GoP to implement. Luckily, the Government, drowning in its own juices, does not have the gal to take-up their quixotic concoctions.

Why is that the reforms of 1996 failed and that too on a gigantic scale. The sad part is that all the King's men have not been able to put Humpty Dumpty together again. Looking back, we see that all the WAPDA AEBs (Area Electricity Boards) were wrested out of WAPDA's Power

Wing along with the Generation Assets and the T&G (Transmission and Grids) set-up and then Corporatized as Public Limited Companies. With it, sadly there new companies lost the status of entities having the ability of recovering its unpaid monthly bills as Government Revenue or laying distribution and transmission lines under the Telegraph Act of 1885. In other words, the Reform process started with taking away of some important rights, while highlighting the various obligations.

Simultaneously, PEPCO – as a private limited company, was formed as a management company. It was envisaged to be a temporary entity destined to live for no more than three (3) years – during which period all of the PSCEs (barring the NTDC) were thought to have been corporatized and then privatized.

Moving forward, one sees that then these Nine (9) DISCOs, the NTDC and the Four (4) GENCOs had to have their BoDs – as per the Companies Ordinance of 1985 (now updated in the Companies Act of 2017). And right at that very juncture and while the newly set-up companies were opening up their eyes, WAPDA as a whole – lock stock and barrel, was handed over to the Pakistan Army in September- October 1997. As is wont of Army Operations – desiring unity of command to say the least, saw PEPCO and all of the PSCEs re-brought under the control of the Chairman WAPDA. In order to assure a semblance of corporate correctness, the Chairman WAPDA took over the role of Chairman PEPCO while the position of MD PEPCO

was handed over to the Member Power of WAPDA. It thus became one happy family again. Business as usual as they say.

However, all this was with a difference. Now all of the PSECs (Companies) had their own distinct BODs – duly staffed by a conglomerate of members. These were from the WAPDA cadre, the then Ministries of Water & Power and Finance, the so-called CCIIs (rich businessmen) and a semblance of public representatives. During the period 2000 to 2004 the DISCOs were headed by Brigadiers – a legacy of the Army's management of 1998-2004. All in all, this resulted in some independence from WAPDA and greater leaning towards the BODs. However, the emphasis of the companies now was towards procurement in billions and much lessor to enhance efficiencies. It thus is a fact that the losses have ballooned since then. These do remain hidden behind so-called percentages etc. To prove the point, we see that the total unit loss in 1998 was 11 Billion which ballooned to 13.9 Billion units in 2004 and which has now reached the figure of 18 Billion ending 2019-20.

In September 2007, at the instance of the MLDAs, the GoP notified the separation of PEPCO and its managed PSCEs from WAPDA by separately notifying PEPCO's Chairman and the Managing Director. Slowly, it also took over the work of appointing BODs to the PSCEs and then directly took over operations of the DISCOs. By then it also set-up the GHCL to look after the four GENCOs leading to the shutting-up of all publically owned



generation assets – but for the newly set-up Guddu's 747 MW CCPP. In this manner, assets worth billions are dormant, no PPP plan to utilize these to the advantage of people are evident, the trained human resource of the now shut (not even moth-balled) plants are in the doldrums, even the most critical ADB funded 1320 MW Coal Fired Power Plant at Jamshoro is planned to be scuttled (forgetting that it was to cost only 60% of the CPEC funded such plants with second class Chinese fittings as against primarily GE equipment at Jamshoro and so on).

In a deft move and surely considering the TRANSCO viz NTDC as a cash cow of a sort, by then the Power Division of the Energy Ministry – born out of the separation of the Water & Power Ministry and the set-up of the Energy Ministry (on the face of it to improve upon the efficiency of energy supplies etc.) – nominated one of its own Joint Secretaries to look after the work of the MD NTDC (earlier on elevated in name from the CEO Label by the BOD) in addition to that officer's own substantive position. In a way, this retrograde step has been one of the main reasons for the continued lack luster working of the TRANSCO. Similarly, the vacant position of MD PEPSCO has never been filled since 2011 and one officer or the other from the PD has been looking after the work of PEPSCO – in addition to their own work/duties at the Power Division. The DISCOs too are headed by the temps viz mostly Chief Engineers and sometimes engineers of GM Level, who again are looking after such work in addition to their substantive duties. A cool arrangement, where the PD is calling all the shots and when non-professionals are profusely making-up the DISCO BODs. The latest change of BODs, have on the other hand, resulted in the take-over of the distribution side of the Power Sector primarily by the Ex-K-ELECT mid-level people. Whether it is due to Mr. Tabish Gauhar SAPM's design or due to input from the other protégées of erstwhile Abraj supremo is better left to further investigation. All in all, the BODs are more of a drag than any support for the management of the PSCEs – specially the DISCOs, the NTDC

and the GENCOs with their temporary CEOs and the direct control by the Power Division. Incidentally the Power Division has also set-up an intelligence cell headed by a retired army officer and who is known to advise the Secretary and the JSs looking after the NTDC, the DISCOs and the GENCOs for further steering the sectoral operations.

Additionally, it is seen that the retrograde step of Revenue based load shedding is taking its toll. This is so because now DISCOs have a tool to use to artificially improve upon their efficiencies. Currently, HESCO, SEPCO, QESCO, PESCO and the TESCO (now looking after the recently merged FATA) are resorting to rationing of electricity supplies to their so-called hard areas – a misnomer for areas where recovery of revenue is difficult or where illegal abstraction of electricity is rampant. Consequently, lesser supply to these areas results in improved line losses and revenue collection; such revenue based load shedding has reached a level of between 3000 to 5000 MW – which in turn leads to redundancies in the utilization of the presently enhanced generation capacity and increase in consumer end tariff due to billing of raw capacity charges etc. As nothing worthwhile is being done to mainstream the areas under continued load shedding even these days (during the so-called glut), the consumer end tariff is bound to rise further. As service diminishes, tariff increases, circular debt bloats and the sector bleeds for all intents and purposes, it can be safely be concluded that PD's sectoral capture is the issue or the problem. That, it is the de facto manager of the sector further places the burden on the Secretary and its team for the continued rot and losses. Furthermore, corrections can only take place if the current governance and management structures are dismantled at the earliest. Similarly, any reform – worth its nomenclature cannot succeed with the generalist steering the same.

In case of continued pre-dominance of the Power Division in the management of the Sector as against the policy made only by its sister Petroleum Division (under the same Ministry), the situation would further erode to the detriment of the state and people. The solution of privatization of the GENCOs and the DISCOs as advocated by many in the Government, could only be taken-up in time, while immediate corrective measures need to be taken. The KESC/K-ELECT experience too needs to be kept in view before any privatization etc. is ever contemplated. ■

Sindh to start World Bank-assisted project next month

—◆— Azeem Samar —◆—

The Sindh government is going to start from next month a World Bank-assisted project to energise 200,000 homes in far-flung rural areas of the province using solar power. The decision to this effect was reached as Sindh Chief Minister Syed Murad Ali Shah chaired a meeting at the CM House.

The project will be implemented in the districts of Khairpur, Sanghar, Badin, Ghotki, Jacobabad, Kashmore, Qambar-Shahdadkot, Tharparkar, Sujawal, and Umerkot. The project is being initially launched in the districts of Sanghar and Khairpur. The vendors of the project in the two districts have been selected by the government. In each of the districts, 20,000 homes will be energised using solar power. The total cost of the project is Rs4 billion.

Sindh Chief Minister highlighted the aspect of the project that it would ensure uninterrupted power supply to the destitute people of the rural areas. He said that such households should be selected as the beneficiaries of the project, which didn't earlier have regular electric supply and that also lacked the capability to get the regular power connection.

Each of the selected households will be given a Solar Home System (SHS) consisting of PVC Solar Plates, a lithium-ion battery, three LED bulbs, a DC fan, and a port for charging the cellular phone. The 50 per cent cost of the SHS will be borne by the Sindh government while the remaining 50 per cent will be paid by the recipient household. The 60 per cent recipient households of the project will be such families whose head is a female while 40 per cent selected households will be those where a male member heads the family.

The initiative to solarise 200,000 homes in rural Sindh is one of the components of the World Bank-funded \$100 million Sindh Solar Energy Project with the aim to increase solar power generation in the province. The other components of the project include development of solar parks and utilising rooftops of the public sector buildings in Karachi and Hyderabad for solar power production. ■

State Bank gives Rs36bn financing for renewable energy adoption

—◆— Shahid Iqbal —◆—

The State Bank of Pakistan (SBP) has been providing financing on a large scale to promote renewable energy that helped Unilever Pakistan run its 30 per cent plants on renewable energy, central bank governor Dr Reza Baqir said.

Addressing a joint webinar hosted by the SBP and Unilever Pakistan to create awareness about the former's Financing Scheme for Renewable Energy (FSRE), Dr Baqir said that as of February 2021, financing of around Rs36 billion has been extended for 521 projects producing approximately 850MW. Financing for sustainable development is the need of the hour and financial institutions have a crucial role in this area, he added.

FSRE aims to encourage investments for clean energy in Pakistan, the SBP governor said, adding that this is part of the country's efforts to diversify the energy mix and reduce climate change impact. The scheme offers varied financing options ranging from Rs400 million to Rs6 billion for a range of entities and persons, he said. This includes captive energy units as well as commercial projects and individual consumers who may share excess production with the national grid.

The SBP issued its FSRE in 2016 and based on positive feedback the scheme was

revised in July 2019. The SBP also introduced a Sharia-compliant version of this scheme in August 2019. The scheme aims at meeting Pakistan's growing electricity demand through renewable energy and promoting clean energy projects as part of Sustainable Development Goals (SDGs). It promotes the use of indigenous resources such as wind, solar and hydro power to generate electricity as well as encourages the use of renewable energy at consumer level. Dr Baqir said that Pakistan faces challenges as a result of climate change and adopting prevention strategies are of paramount importance. In this regard the SBP has issued FSRE with a view to promoting renewable energy projects.

He highlighted the key features of the scheme that can be beneficial for the stakeholders ranging from the corporate to the individuals. The scheme has evolved over time and received strong response, said Dr Baqir urging participants to benefit from this facility.

He said that mobilisation of financial resources towards resource efficient and sustainable avenues would play a central role in mitigating climate change. Pakistan is member of Global Sustainable Banking Network (SBN) since 2015 and green and sustainable finance policies are being aligned with global environmental and social standards and best practice.

In his address, Chairman & CEO Unilever Pakistan Amir Paracha said FSRE offered tremendous social and business value to companies and producers both in terms of their environmental footprint and cost savings ambitions. As part of this financing scheme, Unilever availed a loan of Rs833m through Standard Chartered Bank to set up 8.85MW of renewable energy production facilities across four factories in Punjab.

This effort is in line with Unilever's global mission for carbon neutrality and sustainability in its manufacturing process. Unilever has committed to remove carbon emissions from operations by 2030, as well as net zero emissions from their products by 2039, which will be 11 years ahead of the 2050 Paris Agreement. The webinar was attended by various chambers, media, presidents and CEOs of banks, energy experts, representatives of Pakistan Business Council and senior officials from the SBP. ■



Chinese firm awarded \$355m Tarbela project

—◆— Khaleeq Kiani —◆—

The Water and Power Development Authority (Wapda) on awarded a \$354.6 million worth of contract to Power Construction Corporation of China Ltd (PCCCL) for civil works of the 1,530MW Tarbela 5th Extension Hydro-power Project after completion of an international competitive bidding process.

The contract was signed by Project Director Tarbela 5th Extension Project Muhammad Azam Joya and PCCCL Executive

Representative in Pakistan Ling Jianke. The signing ceremony was also attended by Wapda Chairman Muzammil Hussain, World Bank Country Director Najy Benhassine, World Bank Task Team Leader Dr Rickard Liden, Wapda Member Finance Naveed Asghar, Member Water Abdul Zahir Khan Durrani, Member Power Jamil Akhtar, General Managers concerned and representatives of the project consultants.

The contract involves modification of tunnel-5, raised intake, power house, tailrace works including channel and culverts and pen-

stocks. The project will be fully completed in 37 months with first unit coming into production by end-May 2024, followed by second unit by end-June and third unit by end-July 2024.

The 5th extension project is being constructed on tunnel no. 5 of Tarbela dam with approved PC-1 cost of \$807 million (Rs82.36bn). International Bank for Reconstruction and Development (IBRD), World Bank is providing \$390m, while Asian Infrastructure Investment Bank (AIIB) to give \$300m loan. Cumulative generation capacity of the project would be 1,530MW with three generating units of 510MW each.

The project is scheduled to start generation by mid-2024 and will provide 1.347 billion units to the national grid every year. Upon its completion, Tarbela dam's power generation potential would fully harness its installed capacity of 4,888MW at present to 6,418MW. ■



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High LPG prices: JJVL LPG extraction plant awaits nod of SSGC for gas supply

◆ Khalid Mustafa ◆

Amid the LPG prices going up in the country, JJVL (Jamshoro Joint Venture Limited) LPG and NGL extraction plant still awaits the nod of Sui Southern Gas Company (SSGC) for supply of gas despite the fact that AF Ferguson & Company (AFFCO), appointed as supervisor by the Supreme Court in its final determination report, has established the commercial and financial viability for SSGC to supply gas to the LPG plant. And more importantly, the consultant's report has found that setting up a new LPG/NGL extraction plant by SSGC, on current gas available, is unviable.

"Now with AFFCO's report, Sui Southern Gas Company is also left with no option but to make the JJVL plant operational as it had given the undertaking that it will take the decision on the continuation of the LPG/NGL extraction agreement with JJVL once the AFFCO report had been received. And if the gas company does not accept the AFFCO report, it will be considered contempt of the Supreme Court," a senior official at the Petroleum Division told The News.

However, SSGC seems adamant at defying the AFFCO report and breach its own undertaking given to SC and JJVL, as it has recently given advertisement issuing tenders

seeking quotations for LPG imports. The SSGC on June 20, 2020 closed down the gas supply to JJVL capable of producing up to 500 MT of LPG and 150 MT of NGL per day and refused to extend the term of agreement with JJVL despite the letter from the then acting MD Mohammad Amin Rajput, written on May 30, 2020 to JJVL management, saying that it will extend the agreement with JJVL after getting final determination from AF Ferguson & Co. (AFFCO), who are supervising the JJVL as per the decision of the Supreme Court.

However, by June 20, 2020, AFFCO could not furnish its final report. Now under the latest scenario, AFFCO submitted three months ago with SC, SSGC, and JJVL its final report on LPG plant, saying making the plant operational is beneficial to the SSGC. More importantly, the consultant's report has found that setting up a new LPG/NGL extraction plant by SSGC, on current gas available, is unviable.

Meanwhile, the JJVL management wrote letters to SSGC and SAPM on Petroleum Tabish Gauhar, asking for restoration of gas to LPG extraction plant, arguing that AFFCO report had established the commercial and financial viability for SSGC to supply gas to JJVL plant. The JJVL letters also say that restoring gas to the plant will be in consonance with the order of the Supreme Court dated December 4, 2013 that clearly says "...People all over the country who cannot obtain natural gas rely

on supply of LPG for many of their needs. The supply of LPG to a very large number of users, including those living in far-flung areas is a matter of public importance impacting their 'life' as defined by this Court. Such supply, therefore, needs to continue unabated..."

In the same order at para 39, it was stated that: "... passing an order to ensure that precious and scarce mineral resources of the nation are not frittered away and nor is the majority interest of the government in SSGC used for mismanaging and wasting national assets."

It is pertinent to mention that SSGC has never imported LPG itself, as its main course of business under license from OGRA, is transmission, distribution and sale of natural gas. A subsidiary of SSGC, SSGC LPG (Pvt.) Limited, on behalf of its customers (LPG marketing companies), imports LPG and provides certain services such as jetty and storage facilities.

Based on the ad-hoc/provisional percentage of 57% which needs to be finalized/endorsed by the SCP, there is an outstanding receivable of more than Rs400 million with respect to the last agreement. Furthermore, it is necessary to mention that freight matter on royalty is pending at SCP, which is yet to be concluded. Several other matters pertaining to previous agreements with JJVL are also pending, including arbitration between SSGC and JJVL, which includes billions of rupees receivable from JJVL. ■

Kamran Kamal appointed as new CEO to lead Hubco

HUBCO has announced appointment of Kamran Kamal as its new Chief Executive Officer.

Kamran will succeed Khalid Mansoor and assume responsibilities from 1st July 2021. Mr. Mansoor led the company for eight years and played a pivotal role in the growth of the Company

During his tenure with the Company, Mr. Mansoor led HUBCO to enhance its overall generation capacity from 1,600 MW to 3,581 MW

Kamran is a competent leader with over 18 years of progressive responsibility and leadership experience in energy, infrastructure, commodities, business development and strategy. He has been responsible for large capital projects, building organizational capabilities, and for overall business delivery in both management, executive, and board roles.

Kamran has been a part of the HUBCO family for the last six years. He led the development of Barge Jetty and fuel supply chain for the 1320 MW Coal fired Power Plant of China Power Hub Generation Company, a joint venture between HUBCO & China Power International Holding (CPIH). He is currently the CEO of Laraib Energy Limited, a hydel subsidiary of HUBCO.

Kamran holds a Masters from Harvard and a Bachelors in Electrical and Computer Engineering from Georgia Tech, USA.

Under Kamran's leadership, HUBCO will focus on retaining its position as a corporate leader by focusing on renewables, competitive market for the Power Sector and diversification into sustainable solutions. Kamran's understanding of the Power Sector, regulatory environment and his experience of



closely working with key external stakeholders will facilitate this transition. ■



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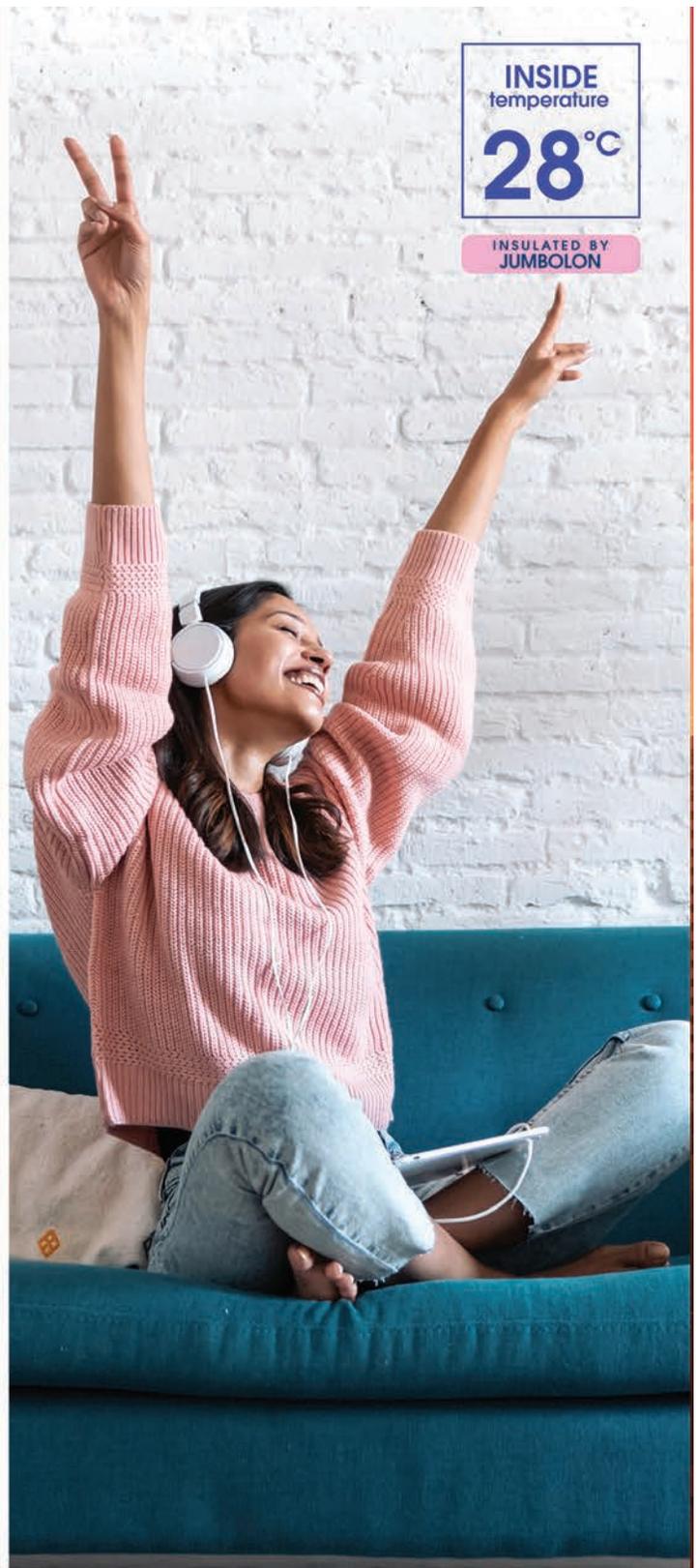
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