

MONTHLY

ENERGY UPDATE

ISSN 2309-6578

11th
Anniversary
Edition

Loadshedding:
Country remains in dark
Burgeoning circular debt
KE exploits consumers
CPEC gets first ever jolt
Pakistan loses in Reko Diq case

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03 Million safe man hours without a lost work day

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Ensuring a better, brighter future for the people of Thar

 Establishment of Thar Foundation

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Group Head Office Address:
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Karachi Office:
A-366, Block D,
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Tel: 021-36630442

Islamabad Office:
Office # 1, 1st Floor,
Plot#3, Street # 92,
Shahbaz Market,
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Muhammad Abbas
Chief Executive Officer
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MESSAGE FROM THE CEO

By the Grace of Allah Almighty, Elite Group has become a largely growing group in some years despite of its inception from just a single manufacturing unit. In very minute time the group has expanded its operations to various industries with multiple manufacturing facilities. We believe that our success is due to the complying of Islamic Principles for doing business like Integrity, Fair Business Practices, Interest free Investment, Honoring the commitments & Ethical practices. Our vision is to promote these business practices in the business community at large. These principles let us stand in hard times without much difficulty. Our Parents and elders prayers take us to that Horizon, where we are seeing a brighter future ahead.





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In Pakistan, DURULSAN is represented by "Target Engineering Enterprise - TargetEE". TargetEE is a premier energy technologies company, operating in alternate/substitute fuel market. Being a forerunner company in LPG sector, TargetEE provides turnkey solutions to industrial, commercial and residential customers. More information can be found on the details given under.

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DURULSAN MAKINA LTD.

Durulsan Makina Lpg Çelik Kons.
San.Ve Tic. İth. İhr.Ltd. Şti.
Barbaros Mah. Ahmet Ayık Sok.
No:6 Körfez-Kocaeli-Türkiye

KARACHI HQ:

Suite #310, 3rd Floor, Progressive Centre,
Sharah-e-faisal, Karachi,
Pakistan.

Tel: (92-21) 3452 0527
(92-21) 3432 2018
(92-21) 3439 1722
Fax: (92-21) 3432 2021
Email: info@targetee.com

LAHORE OFFICE:

House No.4, Block K
Gulberg 3, Lahore,
Pakistan.
Email: sales@targetee.com

ISLAMABAD OFFICE:

Plot 79, Street 6, I-10/3
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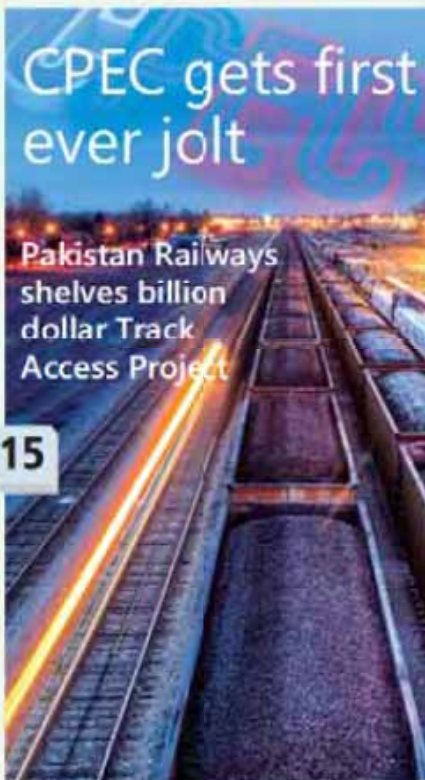
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OMS

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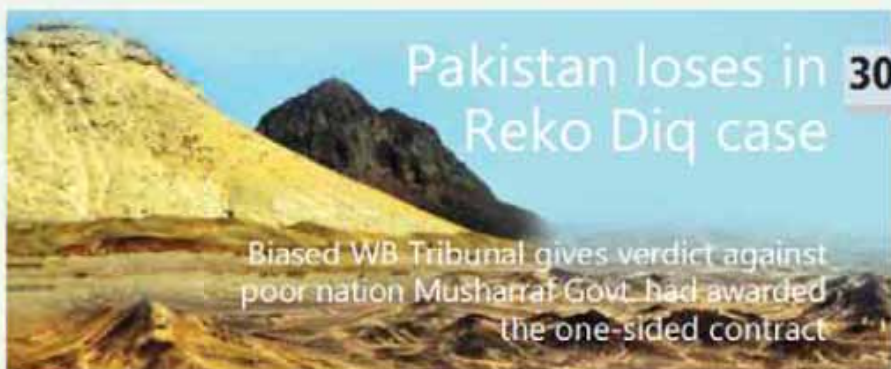
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From the editor's desk...

Are we repeating another 'heatwave disaster'er'

Karachi is vulnerable to every type of natural disaster. We are not even able to sustain a minor type of heatwave that had claimed several hundred lives of poor Karachiites the previous years. Are we heading towards another such catastrophe? The answer is yes. Not just because of rising of mercury to the level of 44 to 46 celcius but our pathetic attitude, our criminal negligence, challenge to the nature. All the civic agencies that are responsible for making this mega city green, are turning this 'once green city' a desert for their greed and lust for the money. These agencies led by KMC, KDA, Town Municipal Committees, Navy, KPT, Railways, K Electric, Cantonment Boards, DHA, Bahria Town are equally responsible for making Karachi a desert like place by felling hundred of thousands of trees for the last many years. In the last three years, over three hundred thousand trees have been uprooted by these cruel agencies/organizations.

These agencies particularly Pakistan Navy, Cantonment Boards and K Electric are treating this city step-motherly by cutting thousands of full-grown trees every year for the lust of money.

Similar heatwave, the Karachiites are facing was the problem being faced by the tropical cities like Singapore, Hong Kong, Bangkok, Jakarta, Mumbai, Kolkata, Colombo, etc. but their governments with the help of local government have planted millions of trees all over the city and its surroundings thus successfully able to change the demography of these cities.

Ironically, no one is here to cut the bloody hands of K Electric, Cantonment Boards, KMC, KDA and Town Committees that are ruthlessly chopping/uprooting the trees that are providing us breathing space, saving us from harsh weather, heatwave, being a source of rains.

The deaf and dumb people sitting in the assemblies are too oblivious of the fact they too can be a victim of this heatwave catastrophe. They should at least make a law that prevents uprooting trees, and suggest a minimum punishment of life imprisonment in order to avoid this menace of tree cutting for lust of money.

Where are the so-called civil society, the NGOs being run with the funds of millions of dollars are in deep slumber and have least interest in this very sensitive issue.

Naeem Qureshi

The premier magazine of energy sector "Energy Update" has completed 11 years of its publication and now by the grace of Allah the Almighty is now entering into 12th year for which we are grateful to our readers, sponsors, advertisers and well-wishers as without their patronage it was not possible to continue this difficult journey. We pay gratitude to all of you and hope to get your kind support in future as well. We always try to make this magazine even better, bolder, courageous, containing more credible stuff and truthful information by complying all the journalistic norms. We hope that the readers would like the new look of the magazine.



Voice of Energy Sector
Energy
UPDATE

Managing Editor
M. Naeem Qureshi
energyupdate@gmail.com

Editor
Sajid Aziz

Associate Editor
Ismat Sabir

Editorial Team
Shabbir Ahmed
Mustafa Tahir

Bureau Chief Islamabad
Shams ul Azhar

Advisors
Dr. Nasim A. Khan
Zafar Sobani
Kalim A. Siddiqui
Dr. Kaiser Waheed
Anwar Shahid Khan

Marketing Team
Engr. Nadeem Ashraf
Ghulam Kibriya

Commercial Designer
Rizwan Rathore
rathore.rizwan@gmail.com

Legal Advisors
M. Nadeem Sheikh Advocate
Saleem Michael Advocate

Circulation & Subscription
Zahid Ali
Noman Khan
Abdul Hayee

Photographers
Ahmed Tareen
Abdul Haleem

Overseas Correspondents
Arif Afzal - USA
Andrew Mckillop - France
Mirza Yasin Beg - Canada

Monthly Energy Update

309, Al-Sehat Centre,
Hotel Regent Plaza, Shahrah-e-Faisal, Karachi
Pakistan.
Tel: 021-3565 3676, 3521 3853
Fax: 021-3565 1797
Email: energyupdate@gmail.com
Web: www.energyupdate.com.pk

Published by M. Naeem Qureshi for Energy Update
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Mian Muhammad Nawaz Sharif

Prime Minister, Islamic Republic of Pakistan

I feel honour to congratulate the entire team of Monthly "Energy Update" on 11th anniversary of the magazine. It is my privilege to know that for last 11 years the Energy Update has been continuing with its publication without any interruption or pause. It is further pleasing to know that in these 11 years, the Energy Update hosted and sponsored a number of events, whose speakers and audience hold threadbare discussion on power and energy-related issues of the country and the region. No doubt that dedicated publications like Energy Update and events hosted by such organizations have always provide utmost support to the government to fulfil its resolve to overcome nationwide energy needs. The present government has the unwavering resolve and commitment to overcome persisting energy shortfall in the country by next year. For this cause, the government has been working on a number of conventional and unconventional methods to generate electricity.

Help of public, private sectors, and of foreign donors and companies is being actively availed to generate abundance of electricity in next two years. In this regard, the options of hydro, solar, coal, wind, nuclear, fossil fuel-based electricity all being actively explored and pursued at the same time. The nationwide systems of transmission, despatch, and distribution of electricity are being revamped and upgraded to achieve the goal of load shedding free Pakistan. The provincial governments are also being extended maximum support so that provinces could tap on and utilize their respective resources of energy.

My best wishes are with the entire team of Energy Update in its future programmes and endeavours. At the same time I hope that the publications like these will always be a constant source of support and guidance for the government to achieve the long-cherished goal of uninterrupted supply of electricity to every household, industry, and business in Pakistan.

The government will continue to support publication of such specialized periodicals and magazine. I once again congratulate the team of Energy Update.



Syed Murad Ali Shah

Chief Minister Sindh

It is my immense pleasure to congratulate the entire team of Monthly "Energy Update" on 11th anniversary of publishing of the specialized periodical. It is indeed a moment of pleasure to know that a publication having entire focus on energy and power generation has been progressing well and prospering day by day for last 11 years. The Government of Sindh will always support and facilitate such specialized publications having complete dedication to promote the energy sector and power industry in the country.

The Government of Sindh has complete resolve to put in best of efforts to overcome energy shortfall in the country in an effective, sustainable, and reliable manner.

The provincial government after getting devolved authorities from the Centre and after securing autonomy in the wake of 18th Constitutional Amendment has been doing best of its efforts to overcome nationwide energy crisis. For the purpose the Energy Department of Sindh government has been working in a vibrant and proactive manner. The provincial government has been exploring all the available resources in Sindh to generate electricity through conventional and unconventional means.

In this connection, best of efforts are being made to tap on renewable sources of energy available in the province as main in this regard is abundantly available wind power. A number of local and foreign companies have established their renewable energy plants in wind corridor of the province. For the first time in history of the province, the dream to explore, extract, and consume vast coal reserves of Thar will very soon be materialized. For the purpose, the Sindh government envisioned the mode of public-private partnership to explore and consume Thar coal to produce abundance of electricity for the national grid. The Sindh government is soon to commence operations of its first very own natural gas-based power plant at Nooriabad. Sindh has also become the first province in the country to establish its own province-wide transmission and despatch company keeping in view constraints of existing power transmission systems in the upcountry.

The publications like Energy Update will always act as a source of guidance and constructive and educated criticism for Sindh government to make further progress in the arena of energy and power production. My best wishes are with the team of Energy Update for its future growth and continuity of publication.



Shamsuddin A. Shaikh

Chief Executive Officer, Sindh Engro Coal Mining Company

Pakistan is currently struggling to get out of the serious energy crisis which has dented its economy and, ergo, the very



social fabric of the country. The time, however, is not far when the projects at Thar Coal are going to be the key contributors in stifling the ongoing crisis. But the optimum economic benefit of Thar is actually the use of indigenous coal so that the forex savings can be achieved. Going above and beyond, it would about a positive impact on the society by investing in sustainable initiatives that can further impact lives and inspire change. I believe in taking complete responsibility for the far-reaching impact of its business decisions as well as total ownership of the welfare and growth of the communities that we engage with. With warm regards, I would like to wish the best to the Energy Update on its 11th Anniversary with the hope that it would continue to act as the real voice of Thar Coal projects.

Shamim Ahmed Firpo

President, Karachi Chamber of Commerce & Industry

I am pleased to know that Energy Updates, which caters to the burgeoning energy sector of Pakistan, will be celebrating its 11th Anniversary. It is heartening to note that Energy Updates is the only trade magazine on energy in our country which efficiently covers Oil & Gas, power generation, alternate energy and environmental sector since 2006.

KCCI, being the largest chamber of Pakistan and representing the mainstream of economic activities, has also been vocally raising voice to resolve issues pertaining to energy sector with a view to create an enabling business environment for the business and industrial community of Karachi.

The 11th Anniversary is a celebration of success, much of which rests on the people who are responsible for bringing out such an excellent and informative publication. Achievements of Energy Updates over the years are evident of the dedication, hard work and enthusiasm of the team that has constantly been striving hard to raise awareness about this important sector of the economy.

I congratulate the Editorial Board and them all best for all their future endeavors.



Mian Zahid Hussain (Sitara-e-Imtiaz, Honorary PhD.)

Former Minister for Information Technology - Government of Sindh
Chairman - All Pakistan Lubricant Manufacturers Association (APLMA)
President - Pakistan Businessmen and Intellectuals Forum (PBIF)
Senior Vice Chairman - Businessmen Panel (BMP)
President - All Karachi Industrial Alliance (AKIA)

It gives me immense pleasure to know that "Energy Update" is celebrating its 11th Anniversary of publication as a magazine on energy issues in Pakistan. This magazine disseminates subjective information and materials to the Readers with profound circulation among 40,000 industrial and business organizations in Pakistan and abroad.

I am confident to say that the information contained in the "Energy Update" is valuable for the Planners, Researchers, Developers, Administrators and Professionals who are engaged particularly in the Energy Sector to keep them updated with the contemporary developments. I would like to appreciate the efforts and initiatives of Mr. M. Naeem Qureshi, Managing Editor and his team for putting untiring efforts towards a national cause of industrial and economic development. I extend my heartiest felicitations to the entire team of Energy Update for their commendable services and hope they will maintain the spirit and zeal in their endeavors in future as well. I wish them every success.



Dr. Mirza Ikhtiar Baig

Former Advisor to PM on Textile

In congratulate Energy Update on their 11th Edition. Energy Update has gained a name in Pakistan by highlighting energy issues our industry and country faced with. I am pleased to learn that lot of local and int'l companies are investing in energy projects in Pakistan and as per Government there will be new power generation of 10,600MW by 2018 from various renewable energy projects undertaken by the investors. The Prime Minister of Pakistan has called 2018 year of no load shedding in the country. I am confident that this will lead to a new era of industrial growth and prosperity in Pakistan. I wish Energy Update all the success and give due credit to their Managing Editor Mr. Naeem Qureshi in bringing stake holders at one platform.



Prof. Dr. Manzoor H. Soomro

President ECO Science Foundation

It gives me immense pleasure to write this message for Energy Update Magazine. Energy has a special significance because it is the lifeline of a national economy and it is primary fuel that drives the economic growth, creates jobs and boosts industrial development. Pakistan is blessed with an enormous amount of energy resources. It has an excellent solar potential; extremely good wind energy and a huge reserves of coal in Thar.

I would like to congratulate the Energy Update for their invaluable contribution and consistent services to the energy sector and the public at large by keeping us abreast with latest and most relevant issues of energy sector in Pakistan. I wish this Magazine the great success and hope that it would continue to benefit us with this vital information with an ultimate goal of translating this information into a practical action plan to resolve the energy issues of Pakistan.





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CPEC gets first ever jolt!

Pakistan Railways shelves billion dollar Track Access Project

By Sajid Aziz

While Punjab's Chief Minister orders for a contingent plan for mining and transportation of coal for various power plants located in Punjab, the Pakistan Railways has scrapped the Rs196 billion project of Track Access meant for providing logistics support to the CPEC and the transportation of coal and their cargo.

The Sindh High Court (SHC) has granted stay against Pakistan Railways for scrapping a multi-billion rupees project with a private firm under (Public Private Partnership) programme for which the Ministry of Finance had estimated an income of Rs196 billion generated through the agreement. The sources said that the red-tapism prevails in the Pakistan Railways has resulted in unfortunate climax. This could be the first ever jolt to the most ambitious project of CPEC as the track access agreement could have been benefited to Chinese oriented projects and logistics support and cargo movements.

The company M/s Fast Track Silverlink Ltd was granted a Track Access Project agreement in May 2013. The project was launched on the basis of Finance, Own, Operate and Maintain (FOOM) basis. Which clearly points that it does NOT require any investment by the railways. As per that Agreement the company was awarded the right to invest on its fleet of locomotives, freight wagons and run its own freight trains on the tracks of Pakistan Railways through PPP-Public Private Partnership basis. Through this and other contracts of Track Access

Project under PPP was meant to earn Rs196 million annually. M/s Fast Track Silverlink seeks relief from the court. Coal transportation to various power plants to be affected badly

cess Pakistan Railways can earn billions of Rs in yearly revenues. According to estimate developed by Ministry of Finance the project will generate Rs 196 billion for PR and this project is set to transform the railways industry in the country with best international practices.

The project revolves around opening the railway access for private parties in freight sector which is extremely high demand sector due to increase in freight volume of the country. Currently PR is not equipped and unable to meet the growing demand of for freight due to obsolete rolling stock, mismanagement and lack in commercial and operational management, as a result of this PR share country freight market is less than 2% which means that more than 98% of freight is being transported by trucks in the country, through this project of great national importance, PR with the help of Ministry of Finance were to encourage the private sector to come forward and invest in Locomotives, Rolling Stock.

The involvement of private sector basically will result in increasing railways share in freight business and will help railways to generate billions of Rs without investing millions of Dollars into locomotives and freight wagons procurement.

the model revolves around the concept of paying TRACK ACCESS Charges to railways on gross per ton basis.

The private party will also bear all operational costs including Oil, maintenance and human resources.

The private party will also invest in developing loading and unloading terminals at the designated places and railways can earn good amount by providing land at suitable places to private parties for this purpose.

The increase in freight trains by the private parties will result in providing the following benefits for the country:

Estimated Revenue of around Rs 198 billion for Pakistan Railways

Complete investment from the private sector and commercial expertise to generate extra revenues for PR.

NO fuel cost for PR (Biggest cost element of PR will be taken care of by the private sector).

NO Maintenance Cost for PR (Maintenance cost will be private sector responsibility).

NO Human Resource Cost of PR (As private sector will invest into it).

Use of Idle Capacity of Railways

Zakir Abbas
2013



The project revolves around opening the railway access for private parties in freight sector which is extremely high demand sector due to increase in freight volume of the country. Currently PR is not equipped and unable to meet the growing demand of for freight due to obsolete rolling stock, mismanagement & lack in commercial and operational management

tracks

Employment opportunities for PR staff as well as private sector to accommodate experts from different fields

Reduction in road congestion which will reduce wear and tear of road segment

Reduction in transport cost for trade and industry The project comprises greater benefits for PR in specific and to the trade and industry and the country in general earning billions of Rs for PR and saving billions for the country

For the above the parties (Private Sector and Pakistan Railways) signed an Agreement in May 2013 as per which Railways had to form a Project Management Office (PMO) as a first step to start executing and govern the project

The private party made substantial investment towards the execution of the project which includes selection of locomotives and other Rolling stocks, feasibility studies, financial institutions involvement for the financing of the project and many others.

PR completely failed to form a PMO to start the project while on the other hand the private party kept on following up with PR to fulfill its obligations and execute the project.

Not only PR failed to notify PMO office, it also did not provide any specification of locomotives to the private party and did not cooperate with the private parties at all. Result of all of these delays is substantial losses to PR on YOY basis as well as to the national exchequer. After not receiving any response from PR for the execution of the Track Access Project, the private party (Fast Track Silverlink) filed a petition in Sindh High Court in Feb 2017 asking for its interference to ask PR to implement the project and save the valid Track Access Contract from any possible cancellation from PR.

The quantum of communication, written letters and reminders, from the private party, clearly mentions the seriousness and willingness of the private sector to invest into Railways through Track Access Project. Despite substantial investment of time and money on part of the private party, PR is yet to act positively. The petition will come up for hearing on a date in office as SHC has instructed the Pak Railways to submit its reply. ■

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Adding insulation helps prevent unwanted outside noise from penetrating the living space.



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 0322-9001257
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"Pakistan Atomic Energy Commission (PAEC) under its mission to expand capability of the country to generate electricity through most safe, secured, and environment friendly process of utilizing nuclear energy will add another total 2540 Megawatts of power to national grid in coming next three to four years", Naeem.

Among the upcoming projects of PAEC is Chashma-IV nuclear power plant, which is likely to be commissioned by coming April and would be producing 340 MWs of electricity like Chashma-III that was commissioned in December, 2016. While K (Kanupp)-II and K-III nuclear power projects would add 2200 MWs electricity by the year 2020-21, said PAEC Chairman Muhammad Naeem as very recently the Energy Update had the privilege of interviewing him at his office where he talked at length to inform our readers about services rendered by the Atomic energy commission to develop strategic nuclear capability of the country, to generate electricity, and to use nuclear sciences for promotion of agriculture sector and for treating cancer patients. Here are some of the important excerpts of interview of PAEC chairman who has been in service of the commission since 1972 and after serving it in various senior and important capacities including Member fuel cycle was elevated by the government to the senior-most position in the PAEC in April, 2015.

PAEC all set to add another 2540 MWs by 2020-21

Nuclear power is safe, secured, economically compatible and environment friendly electricity

**Muhammad Naeem, Chairman
Pakistan Atomic Energy Commission**

By Naeem Qureshi

Energy Update: Tell us about principal areas where the PEAC does work?

Muhammad Naeem: We showed and manifested our capability in May, 1998 in the arena of strategic development of nuclear power. Whatever assignments were given to the PAEC in this regard are all fully accomplished and fulfilled. We can humbly say that we are the success story in this country. In addition to our strategic programme, we have worked in the arenas of agriculture and medicine. We started our first agriculture centre back in year 1961 at Tando Jam, which was the pioneer work in that area. Now we have about four agriculture centres as two are in Faisalabad, one in Tando Jam, and one in Peshawar. Then we have our own medical centres as the first one was established in Karachi in 1961 at Jinnah Postgraduate Medical Centre with the name of Atomic Energy Medical Centre. Now we have 18 medical centres in all big cities as well as in some of the small cities.



EU: What are the services of PEAC in the area of medicine in treating cancer patients?

Naeem: You will be happy to know that we are catering to about 80 per cent of cancer patients in the country. In all the hospitals run by PAEC, some 800,000 (0.8 million) cancer patients come for treatment every year, which is a big number. More such medical centres are in the planning stage. We are very grateful to the federal govt as well as to all the provincial governments for all the support they give to us in this regard. You will be further glad to know that we don't refuse any cancer patient coming to us for treatment neither on the account of his financial status nor on the account of state of his specific cancer disease. Other hospitals in the country treating cancer could refuse a patient on basis of his or her stage of the cancerous disease



while deeming the patient untreatable anymore. That I think is a big contribution of PAEC in health care sector. We are also grateful to International Atomic Energy Agency (IAEA) for providing accreditation to our institutions in this regard.

EU: What indigenous capability the PEAC has achieved in treating cancer patients?

Naeem: The Radioisotopes are applied in such kind of treatment. We have a research institute with the name of Pinstech (Pakistan Institute of Nuclear Science & Technology), which is a research reactor where we ourselves develop radioisotopes. These radioisotopes are administered for the diagnostic and therapeutic work related to treatment of cancer patients. Some of the radioisotopes are also used for agricultural work as well. We are very much conscious about quality of our products as it always happens in the case of the nuclear industry. Similar is the case of production of radioisotopes as we are very stringent in maintaining our quality control. There are 35 other hospitals in the country where patients of cancer are treated as we provide them radioisotopes as per their needs.

EU: Tell us about services of PAEC in area of power production?

Naeem: In the area of energy production we had our first reactor with the name of Kanupp in Karachi, which was connected to the national grid in December, 1972. We have more than 44 years experience of safe operations of our nuclear power plant. All the nuclear power facilities of PEACE are being operated under safety guidelines of IAEA. Once India did nuclear tests in May 1974, all the pressure came on Pakistan. They stopped our fuel being used for Kanupp. I think that was a turning point for us as it proved like a blessing in disguise for us. We started working to develop our own fuel indigenously. We then fuelled Kanupp with our own fuel. Failure rate of that fuel is zero. That is because the PAEC does its team work vigilantly, dedicatedly, while being quality conscious for our products. In year 2000, we have another reactor namely Chashma-I. The Kanupp is a heavy water-based pressurized reactor as it consumes natural uranium. But Chashma series of reactors use slightly enriched Uranium. These are pressurized water reactors. These all are made of Chinese technology. Since year 2000, these are being safely run by Pakistan operators. Then in year 2010 we started our Chashma-



II reactor, which since then is also working safely.

EU: Tell us our readers about contribution of PAEC for promotion of agriculture sector?

Naeem: Agriculture is a very important area where we have worked very excellently. We have given to our farmers 96 varieties of different important crops including that of wheat, cotton, and oilseeds. We developed friendly insects for eating harmful insects, which can destroy important crops in fields. We observe a farmers' day every year where leading representative farmers from different rural areas of every province are invited. Every time the farmers who attend this event, they are always full of praise for the service PAEC have been rendering for them. Owing to the varieties of seeds developed by us, up to 70 to 80 per cent of the area of an agricultural field comes under cultivation for the benefit of farmers. It has been very pleasing to hear that people have confidence in us. The PAEC has always been given the assignments on preferential basis whenever analysis of any pesticide or fertilizer has to take place in the country. We developed land levelling system on the basis of laser. We have an institute for doing research in genetic engineering with the name NIBGE in Faisalabad. Then we have another institute NIAB also in Faisalabad for developing new varieties of crops. We need more land for multiplying our seed production and for increasing our contribution in agriculture sector. If we just see one variety of seed NIAB-81 given by us, it has revolutionized production of cotton in the

country as its accumulative effects would go into billions of rupees.

EU: Tell us about contribution of PAEC in development of human resource in the field of nuclear and allied sciences?

Naeem: We have our own university to develop human resource according to our own needs. Technically speaking, this university has been rated as the best university in Pakistan. Whatever human resource is developed by us, we add to their quality. Then we also run Pakistan Welding Institute. Then we have been doing educational programme with the name Nathia Gali Summer College for last 40 to 41 years. Here in this programme we invite from outside the country world renowned experts and academicians in the field of physics including Nobel Laureates and get them interacted with our people here. Then we develop expertise and qualification of the doctors who work in our 18 hospitals as we get them done MS degrees in the fields of Oncology, Radiotherapy, and nuclear medicine. We do both transfer of technology and transfer of knowledge for our 40,000 employees.

EU: What is your opinion regarding reservations of certain concerned circles regarding development of K-II and K-III near population of Karachi?

Naeem: K-II and K-III both are third generation nuclear plants being developed in the country with more of the safety features. There will be double containment

for them to withstand any type of accident or attack regardless of its severity. Regarding Tsunami and warnings of such natural calamities, we have already done a lot of work on that as we have 44 years of experience in that area due to operations of Kanupp-I. For all such risks, we did soil and geological investigation of the selected site. We also did study to ascertain seismological type of the area. You must have come to know that firstly Canadians here worked a lot at this site. Then later Chinese came and they also extensively worked here. Then we had very strong teams for doing site selection as site selection for such a project is not an easy job as it is a separate field. We fully understand threats posed by possibilities of Tsunami and of other natural calamities but we are at a much high level than maximum height of sea waves that could be generated along Karachi's coastline due to possible threats of natural disaster.

So safety margins are there for these plants. Considering all these factors we can say with certainty that these are safer plants and there is no safety problem regarding them. If we go to the Balochistan's side then seismic faults starts from there. Then we have to see also where the requirement of energy is higher so to make easier transmission of electricity to be produced by nuclear power plants. All the reviews of international standard were carried out for K-II and K-III. China has been working at a very high speed on this project. The Chinese have done a lot of work in the field of nuclear energy. They have now attained excellence in this field.

EU: How much indigenous capability Pakistan has obtained to run these plants?

Naeem: Pakistanis are completely responsible for maintenance and operations of Kanupp and from Chashma-I to Chashma-III plants. The Chinese will remain here till installation of the new nuclear power plants. They will hand over to us control of new nuclear energy projects whenever these plants attain the operational stage. The newly commissioned Chashma-III plant is also being run by our teams.

EU: Tell us about work done by PAEC for socio-economic uplift people of disadvantaged areas?

Naeem: Whenever we go to any area for any type of project, people of that area are primary beneficiaries as they get jobs, education, health, and water supply facilities. We are used to open dispensaries and schools in remote areas where we go for exploration of Uranium. We also provide water to them, which is a great deal for residents of such backward areas. We give preference to local people of the area, where any of our projects is being built, for providing jobs if they are qualified for the work. If area people don't qualify on merit for our jobs then we bring people from other parts of the country that too on merit as we are a national organization.



Chairman PAEC Muhammad Naeem presenting memento to M. Naeem Qureshi Managing Editor Energy Update on visit of PAEC Head Office in Islamabad

EU: What is the distinguished quality of PAEC being a strategic organization?

Naeem: One big reason for us being the success story in this country is complete observance of culture of merit within the organization. The culture of merit is observed in every aspect of the organization. The merit is the sole criterion for taking decisions regarding induction, promotions, transfers and posting, giving foreign assignments, offering training opportunities to employees of the PAEC. We have a very strict merit-based system for taking decisions, which we are used to follow.

EU: What is your opinion regarding treatment meted out to Pakistan for building civil nuclear technology?

Naeem: This policy is very unfortunate. It is a discriminatory sort of attitude towards Pakistan. We feel that such treatment should not be done with us. Internationally, everybody should be considered equally. We have a very good track record of safeguarding our nuclear installations. All our installations are under the safeguards of IAEA. Our neighbouring country has been given waiver in this regard as ultimately such a waiver will also be given to us. We have our own unblemished track record and our own methods of doing work and we are open to the concerned international community. Our patron organization Strategic Plans Division (SPD) has been very helpful to us in this regard.

EU: What is the ratio of electricity generated through power plants of PAEC in energy mix of the country and what is your future planning in this regard?

Naeem: We are at present covering five per cent of energy mix of the country as it would be increased to 10 per cent with commissioning of K-II and K-III power plants. The best is when we will be contributing up to 20 per cent of energy mix. That will be very good contribution as in case 1,000 MWs of electricity is generated by our power plants then there is zero

emission of hazardous gases into the environment. Our power plants are very secured due to an elaborate system of security in place, which is multi-layered. The SPD impeccably looks after the security of our installations that is also giving us physical protection. Then you can't go relying entirely on one type of energy as ideally speaking there should be proportionate mix of all types of energy including nuclear power, which is considered economically compatible and environment friendly. Then we also do our work very vigilantly under umbrella of international organizations like IAEA and WNA (World Nuclear Association). ■

KE is earning record profits K-Electric exploits consumers

By Ismat Sabir

K-Electric was privatized not only to get rid of its burden but also to earn profit, as promised, that it will earn profit and pay its due share to the government. However, now the situation is reversed and K-Electric owes Rs130bn. The federal government said that K-Electric is a victim of gross non-payment and alleged that the power utility itself is guilty of consistent non-payment to others and at present owes more than Rs130 billion to federal entities. The government stated this in a response submitted to the Supreme Court which is seized with a dispute over payment of outstanding dues of Rs28.7bn to K-Electric by the Karachi Water and Sewerage Board (KWSB).

The controversy arose when K-Electric moved an appeal against Sindh High Court's April 14, 2014 verdict restraining the power utility from interrupting electricity supply to KWSB.

It requested the Supreme Court to set aside the high court's order and direct the federal government to pay K-Electric KWSB's outstanding electricity dues of Rs28.7bn as of April 30, 2014, excluding mark up.

K-Electric Limited (earlier known as Karachi Electric Supply Company Limited) is a privatized public limited company engaged in the business of generation, transmission and distribution of electricity in Karachi and some adjoining areas in Sindh and Balochistan. The company distributes electricity to 2.4 million consumers of domestic, commercial and industrial sectors spreading over 6,500 square kilometers of service territory.

The government said that out of the Rs130bn, K-Electric owed Rs55.9bn to the National Transmission and Dispatch Company (NTDC), Rs55.5bn to the Sui

Southern Gas Company, Rs3.228bn to the Pakistan State Oil, Rs4.1bn to the Karachi Nuclear Power Plan, Rs0.86bn to PTV and Rs10.6bn to

different federal and provincial entities. Moreover, the federal government had suffered a financial impact of Rs269.5bn solely to facilitate K-Electric which was the beneficiary of considerably favorable terms in a 2008 agreement, compared to the original arrangement made in 2005.

Immediately after the privatization, rules had been modified to the advantage of the company and to the detriment of the federal government.

Presently, K-Electric has sufficient capacity of 2,710MW, minus 650MW it is getting from the NTDC, to meet the average demand ranging between 2,000 to 2,500MW. But the power utility continued to rely on the electricity from the NTDC and about 365MW of its generation capacity was stated to be provided by independent power plants. The company has failed to take necessary steps to make its operations independently from the national grid and adopted practices which further enabled it to take unfair benefits from the system at the detriment of the federal government, national grid and citizens at large.

The government said the company had also consistently committed violations of the Power Project Agreement (PPA) and intentionally underutilized its own facilities and adopted an operating scheme of continuous reliance on the NTDC. And in complete violation of the PPA, K-Electric has exceeded the maximum available supply of 650MW.

The government has told the Supreme Court that the power utility owes Rs130bn to the government whereas K-Electric's own documents showed that the amount owed is Rs72bn, while it in turn is owed Rs194bn by the government under various heads such as the tariff differential subsidy and overdue bills from KWSB and CDGK. The government has also alleged that the company is not utilizing its own sources



K- Electric explained why it has failed to supply electricity to Water Board

KWSB says power utility must supply uninterrupted power since it cleared due to charges. The Sindh High Court (SHC) has issued notices to the K-Electric management to explain why it has failed to restore electricity supply to the offices of the Karachi Water and Sewerage Board (KWSB) despite payment of the outstanding dues.

Agreement for 650mw supply to K-Electric may be renewed. The government has decided, in principle, to renew the agreement for supply of electricity to K-Electric, but with a reminder by the ministry of Water and Power that it is a "private concern and has to act accordingly, the extraordinary favors bestowed upon it by the PPP government cannot be sustained anymore. The agreement was to expire on Jan 26.



Its current default, documented in November last year, stands at Rs32 billion. The new agreement would bind K-Electric to either clear those payments up front, or, at least come up with a credible methodology to do so within a minimum possible time.

The new agreement would ensure that K-Electric first utilise all generation resources, captive, rental, IPPs and its own, and also register fluctuations in demand.

K-Electric is one such company that exploits the resources of this land and takes the profit to some pocket. There is no initiative; no social responsibility on K-Electric like there was any on East India Company.

Consumers are asking questions to be answered: Why the people of Karachi, pay the highest price for electric unit in Pakistan, petrol prices are lowest in 12 months. Then why the Unit Price of K-Electric has increased up to 30%, K-Electric burns fuel to generate electricity, what is the ratio of crude oil/gas burned in KE to produce electricity. Because if it is 60 percent natural gas then there is no point in increasing unit price to 18 rupees, who pays the bill for the street lights on roads and lanes. There is usually only one meter attached to the PMT. How K-Electric does calculate the energy consumed by street lights. In 2015 July K-Electric posted line losses of 23 percent, means out of every 100 units produced, 23 are lost to inefficiency. Does the consumer pay for the line losses. K-Electric made 12 billion rupees profit in 2014, how much of it was invested to provide better services and in which sectors. K-Electric has a consumer base of 2.5 Million, how many personnel, staff or team is detailed to provide emergency, fault or shut down support to the consumers. In Karachi, all transmission and distribution lines were copper solid; most of it has been converted into cheap silver wires, where did all that copper gone. And why was 1800 kilometers of pure copper wire replaced. As for the people of Karachi, one has right to know who and why takes up so much money out of their pockets and expected to increase unit price to 20 rupees soon!■

of generation, preferring instead to rely on easy supply of power from the national grid.

Instead of getting profit, the government paid K-Electric Rs53b during current year and Rs312 billion during the last eight years, in which Rs228 billion was paid in the last four years and Rs84 billion was paid last year, while Rs53 billion was given to the company during the ongoing year to fill the 'tariff gap'.

K-Electric Payables Shoot up

In spite of making a profit of Rs22.7 billion in nine months of current year, KE remains a defaulter of Sui Southern Gas with huge dues piled up to Rs68 billion.

This is in addition to a number of payment agreement plans signed by both stakeholders since 2009 that provided a mutually agreed payment mechanism. Pakistan's biggest power utility has earned after tax profit of Rs 22.7 billion during July-March of FY16 against Rs16.2 billion during the corresponding period of last fiscal year, depicting an increase of Rs6.5 billion.

The government paid an amount of Rs14 billion on account of tariff adjustment (subsidy) to the company, down from Rs34 billion. The expenditures under the head of purchase of electricity reduced from Rs54.83 billion to Rs40.6 billion in first nine months of this fiscal year.

K-Electric has requested the federal government to set aside claims Rs98 billion. Abraaj Group and Shanghai Power, estimated at \$1.77 billion, is contingent upon settlement of these issues. The sources said that KE wanted to pay only the principal amount, which is less than Rs50 billion and that is to, that too in installments. However, it is not willing to pay the Rs54 billion on account of late payment surcharges to SSGC and another Rs44 billion to the NTDC.

After KE defaulted on late payment surcharge, SSGC filed a suit in the Sindh High Court in November 2012, for recovery of its aggregate claim.

The K-Electric has once again asked 44 departments of the provincial government to pay the outstanding amount of Rs311,475,501 within the current fiscal year. In a letter, KE has summarised the list of 1,779 connections that pertain to government departments. According to the KE, Civil Hospital, Karachi, owes them Rs15,321,213, the school education director owes Rs60,400,838, Auqaf owes them Rs6,125, 821, the board of revenue owes Rs6,865,922, the city courts Rs1,251, 421 and the Sindh Employees Social Security

By Shahbaz Rana

Abraaj Group unable to conclude deal on K-Electric

The Abraaj Group will be unable to conclude the \$1.8 billion deal for the sale of its stake in K-Electric to China-based Shanghai Electric Power within the agreed time, which would now require it to seek an extension from the buyer as well as the regulator. The delay has occurred due to the failure to settle the financial dispute between Pakistani authorities and the Abraaj Group, resulting in withholding of a National Security Clearance Certificate to Shanghai Electric. The seller and the buyer had agreed to conclude the deal by March 17 of this year - a deadline that is surely to be missed due to disagreement between the Abraaj Group and federal authorities over payments of arrears, according to the Ministry of Water and Power officials and people having knowledge of the deal.

Background: Last year, the Abraaj Group had sold KES Power - the offshore entity that controls 66.4% of total K-Electric shares - to China-based Shanghai Power. The deal is estimated at \$1.77 billion and contingent upon settlement of issues between the government and the seller. In addition to seeking an extension from Shanghai Power, the Abraaj Group will also have to seek an extension from the Securities and Exchange Commission of Pakistan (SECP).

The deadline to conclude a deal by Abraaj Group and Shanghai Electric Power would expire by the end of this month, said Bilal Rasul, the spokesman of SECP - the body that regulates the companies and the equity market.

The SECP law makes it binding to conclude the acquisition deal within six months of the buyer showing his intention, said Rasul. He said that the SECP has the authority to give a three-month extension but the parties have not applied for the extension.

Six months ago, the March 17, 2017 deadline seemed a realistic target but the bureaucracy has slowed down the approval process, according to people working on the deal. K-Electric is the country's largest and only vertically integrated power utility that is responsible to provide electricity to the country's largest metropolitan and commercial hub.

Dispute: The Ministry of Water and Power has lately put a condition that Shanghai Power should seek a clearance certificate from the Ministry of Defence and Ministry of Interior, said the sources. Shanghai Power is already running a nuclear plant in Pakistan. The Ministry of Water and Power has also sent a new draft of Power Purchase Agreement (PPA) to K-Electric. The new draft PPA seeks cut in power supplies from the national grid to Karachi by about 40% to around 400 megawatts, said the ministry officials.

The federal government has proposed that the K-Electric first fully utilise its own in-house power generation capacity before drawing electricity from the national grid. Pakistan has not yet given the National Security Clearance Certificate for the sale of Abraaj Group's 66.4% stake in K-Electric to Shanghai Electric Power. The amount in question is \$1.24 billion, which the K-Electric owes to two government entities, said officials of Ministry of Water and Power and Sui Southern Gas Company.

The Sui Southern Gas Company (SSGC) and National Transmission and Despatch Company (NTDC) have made about \$1.24 billion claims on account of cost of electricity, gas and Late Payment Surcharges (LPS). The Abraaj Group does not want to pay the interest and sought settlement of payment of principal amount against its receivables. The Water and Power ministry is reluctant to accept the book adjustment request due to absence of any such mechanism. It had settled Rs32 billion through book adjustments in 2009 when the Jummia Group had sold its stake to Abraaj Group but later on this became a nuisance for the power ministry, said the officials. The federal authorities are also of the view that the power and the gas purchase agreements were standalone deals and therefore, the book adjustments cannot be made.

The Ministry of Finance has asked the Abraaj Group to seek tax clearance certificate from Federal Board of Revenue (FBR), said the sources. The FBR has not yet given a clean chit to the Abraaj Group, the sources added. They said that the Abraaj Group may seek one-month extension from the Shanghai Electric to conclude the deal. ■

Institution Rs1,114.5. On the one hand KE is giving inflated bills and on the other stealing electricity from national grid, said officials. Despite taking concessions of over Rs100 billion including provision of 650 megawatts at subsidized rates in the last seven years from the federal government, the K-Electric is still getting undue advantage by stealing electricity from the national grid. An agreement was signed between the Abraaj Group and Shanghai Electric Power (SEP) of China to acquire 66.4 percent stake in K-Electric for \$ 1.77 billion while Ministry of Water and Power was not informed.

The two private parties have signed definitive (initial) agreement and the government has nothing to do with this agreement.

The new buyers have sought support from the government, however, the government will only extend support when their agreement or business plan will have provisions to facilitate consumers including a commitment to upgrade the system.

The new buyers will have to pay the outstanding amounts to federal government entities including NTDC and SSGCL which is around Rs 115 billion or more than a billion dollars.

The new buyers have to clear the entire outstanding amount prior to signing the new Power Purchase Agreement (PPA).

The government, has, however, assured the new buyers that supply of 650 MW from the national grid will continue until the company becomes self sufficient in generation.

Shanghai Electric Power Co. will buy a majority stake in Pakistan's K-Electric for US\$1.77 billion in the biggest acquisition in the country for a decade in a sign of China's growing interest in the South Asian nation as part of its "One Belt, One Road" initiative.

K-Electric is Pakistan's biggest electricity company, supplying power to 2.5 million customers in and around Karachi. Abraaj, a Dubai based Group is selling the stake of KE.

Chinese companies' interest comes after China last year announced energy and infrastructure projects worth \$46 billion in Pakistan, with a view to opening a trade corridor linking western China with the Arabian Sea.

The federal government has decided to move the Supreme Court against the stay order extended by the Sindh High Court to K-Electric (formerly Karachi Electric Supply Company) over the issue of 350 megawatts of electricity from Pakistan Electric Power Company (Pepco). ■

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UAN +92 21 111 786 013 / Email: bvpakistan@pk.bureauveritas.com / www.bureauveritas.com

Head Office: H.No. 177, Block 7/8, Karachi Memon Cooperative Housing Society, P.O. Box No. 3829, Karachi. F : 92 (21) 34392713
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PPIB to add 7500 MW electricity to national grid by 2018

Shahjahan Mirza, MD, Private Power & Infrastructure Board

The Private Power and Infrastructure Board (PPIB) is likely to add 7500 mega watts of electricity to national grid by the end of year 2018 while under its next five-year plan the PPIB will add total 14,000 to 15,000 MWs electricity from power plants in private sector. The Managing Director of PPIB, Shah Jahan Mirza said that such phenomenal contribution from private sector would increase share of renewable electricity in the energy mix of the country. Moreover, use of coal instead of furnace oil for upcoming power projects in private sector would lessen the problem of circular debt as the scenario of coal pricing and its availability is not as much volatile as has been the case of furnace oil in international market.

The Energy Update (EU) has the privilege of interviewing MD of PPIB asking him about support and assistance being provided by the board under his supervision in launching new independent power projects in the country. While replying to the EU queries, he says that.....

Energy Update: What are the latest achievements of PPIB in private sector?

Shah Jahan Mirza (SJM): The Suki Kinari Hydropower project in Khyber Pakhtunkhwa has recently achieved financial close. Afterwards construction of the project will be launched on full-fledged basis. This is going to be the first hydropower project to be built under China-Pakistan Economic Corridor project. The land for the project has been acquired as the project has a construction period of six years. We are expecting that the project will be completed before the stipulated time period. The cost of 870 MW hydro project is \$1.9 billion.



Then Karot hydropower project is being built in Azad Jammu & Kashmir as the 720 MWs run-of-the-river project is constructed on River Jhelum on the common boundary of AJK and Punjab. The construction work at the site of project had been started before the project achieving the stage of financial close. This happened due to the strength of Chinese company involved in the project. Generally, there is no construction work done before achieving financial close. Same strategy was adopted by coal-based power projects at Port Qasim and Sahiwal being built under the CPEC so to shorten the timeline involved to construct and get commissioned the project after its completion. About Sahiwal project, we are expecting that it will be completed six to seven months ahead of its scheduled time while Port Qasim project is likely to be completed three to four months before the scheduled time of the project.

We are also working on Kohala Hydropower Project of 1124 MW capacity, which has also achieved financial close. This is also part of CPEC and being developed by China Three Gorges Corporation. These three projects being part of CPEC will cumulatively generate

By Naeem Qureshi

around 2700 MW electricity.

Then testing of Patrind hydropower of 147 MW capacity will start next month. The project being built near Muzaffarabad will be commissioned by April. The work on Gulpur hydropower project in AJK is also going well. Its groundbreaking was done by prime minister in October, 2015 while the project achieved its financial close on 30th October the same year. The 100 MW energy project has construction period of four years. On the basis of progress we have just witnessed at site of the project, it is expected to get commissioned three to four months ahead of its scheduled time period if any unforeseen hurdle doesn't come in the way of development of the project.

EU: Kindly update our readers about the transmission line project being developed in private sector?

SJM: It is a 660 kV transmission line from Matiari and Lahore as it will be first High Voltage Direct Current (HVDC) power transmission system being constructed in the country. It will be built as part of CPEC with a cost of 1.6 billion Dollars. It will have the capacity of evacuating 4,000 MWs of electricity mainly of new coal-based power projects being built in the country. We have suggested to sponsors of the project that they should not wait till achieving the stage of financial close for starting construction phase of the project. In next two months, the project being built by private sector will enter into its construction phase. The construction period of the transmission line is of 27 months as it is expected to get completed by the end of 2019.

EU: What about other power projects being built in the country under patronage of PPIB?

SJM: Two coal-based power generation projects of 1320 MW capacity each is being built at Port Qasim in Karachi and in Sahiwal. Both projects will use

imported coal. Then there is Engro's project of 660 MW in Thar, which will be based on local resource as its development is rightly considered as a big achievement. The work on Thar power generation project has started both on mining and construction fronts.

We have also issued two more LoS (letters of support) for encouraging use of local coal resource available in Thar as both the prospective power projects would be of 330 MWs capacity each as one project is of Hubco and the other one belongs to Thal Nova.

There is 1320 MWs project of Shanghai Power, which will be built in block-1 of Thar coal project as LoS for the project had been issued while financial close of the project would be achieved in the next few months.

EU: Is there any assistance being provided by PPIB for power projects in public sector?

SJM: We are giving support to power plants being constructed in public sector, which will consume Liquefied Natural Gas. These projects are being constructed at the sites of Balloki, Bhikki, and Haveli Bahadur Shah in Punjab. We have been facilitating these projects as the government has the point of view to raise them as independent energy sector companies, which could be privatized at some later stage after these projects securing state of profitability. All the three projects have attained the stage of financial close as their construction has been going on in full-swing. The Bhikki power plant is expected to generate 800 MW in open cycle system by April. The projects are being implemented in such a manner that there should occur no usual inefficiencies, which are generally encountered in implementation and commissioning of other govt sector power projects. These projects will be run as pure commercial entities. The cost of these projects has been lowered due to the process of competitive bidding.

In the hydropower sector we are giving support to run-of-the-river projects having no provision for storage/reservoir of water while Wapda in public sector does such projects, which are on large scale having provision of reservoir/storage of water.

EU: Why there is delay in completing hydropower project in private sector as compared to coal-based projects?

SJM: There was much time consumed in launching hydro energy projects in private sector as there was no model available to us in this regard. In case of rest of the world also, the private sector has much less experience in doing

hydroelectricity projects. Much of the hydro energy resource available in the country was based in AJK. Now AJK is like another state having its own constitution, legislature, and apex judiciary. So much of the time was consumed to raise a structure for utilizing hydro resource available there as for this cause we had been given much support by World, IFC (International Finance Corporation), and AJK govt itself.

For this purpose the govt of Pakistan had taken a bold initiative in order to settle the matter. The prospective foreign investors or foreign lenders earlier were not ready to invest on the guarantee or implementation agreement (IA) offered to them alone by the AJK govt. So we are now backing up the guarantee and commitment of the AJK in the energy sector. Now in case of an energy project to be built in AJK, there has to be signed two IAs as one is signed by the AJK govt and the other one is signed by us. So we are now backing up such project on behalf of govt of Pakistan wherever the AJK govt is not able to back up such energy sector ventures. So it took much time in getting evolved such a mechanism. Now things have moved forward on phenomenal basis in hydropower sector of the country. Then generally speaking the projects in hydropower sector consume much more time as initial one-and-half-years of the project is consumed in preparing its feasibility. Then a similar time frame more of same length is needed for doing EPC (engineering, procurement, construction) contact of the project, doing bidding, then doing talks with the lender, and finally for doing the financial close. Then construction period of even smaller hydro projects is no lesser than three to four years.

EU: What measures are being adopted to make sure that coal-based projects being built in the country prove to be lesser harmful for the environment?

SJM: For coal transportation within the country, a special freight service company has been established, which is in the process of importing special goods covered wagons for the purpose. We will make sure to adopt best possible measures for transportation of coal and for its consumption for energy production, which are taken by any of the advanced country. We are not going to neglect any measure, which will make our environment safe. The laws followed by environmental protection agencies (EPAs) in the country are the same, which are observed by World Bank and IFC. Work on coal-based power projects has been started after getting permission due from EPAs. The

power plants, which will be used for new coal-based projects will meet all the specifications meant for protection of environment. It is a fact that adoption of these specifications would surely increase operational cost of these projects but even then these measures are being taken for the sake of environment.

Then we should also keep in mind that Pakistan's own carbon footprint is like quite negligible due to virtual non-existence of coal-based energy projects earlier working in the country. So Pakistan has a lot of margin available to it to explore the option of coal-based electricity generation.

EU: What are the activities being done by private sector power projects to fulfil their obligations under Corporate Social Responsibility?

SJM: Almost all these projects have been doing activities to fulfil their CSR-related responsibilities. If for instance we talk about Gulpur hydropower project, they have been building separate schools in the area for boys and girls each of 500 students capacity. They are also constructing a proper bridge in the area for the local community that has no linkage earlier available to them for travelling. A biodiversity conservation plan is also being implemented in the area with heavy spending.

In case of Karot power project, for every tree removed due to construction of the project, ten more trees are being planted as proponent of the project has the obligation to raise these newly planted trees to make them fully grown over a period of five to ten years.

Generally speaking, the entire socio-economic make-up of any area is going to be entirely changed wherever a hydro electricity project is being built. These projects will generate prospects of employment for local community people besides providing them schools, dispensaries, hospitals, and benefits of other such welfare ventures.

In case of Suki Kinari project in Khyber Pakhtunkhwa, sponsors of the project acquired land for building the hydro electricity plant at much more price than the official rate in view of the people getting displaced from their native area where they had been living for past several generations. In case of such projects, requirements of hiring unskilled and semi-skilled labour are being fulfilled through people of the local communities. We try our best to facilitate people of the local communities as much possible so that they should become the prime beneficiaries of such development activities. ■



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Pakistan loses in Reko Diq case

By Sajid Aziz

Biased WB Tribunal gives verdict against poor nation
Musharraf Govt. had awarded the one-sided contract

Pakistan government's pathetic attitude has once again resulted in a decision against the poor nation of Pakistan by the biased World Bank arbitration tribunal in Reko Diq case. It is feared that we have to pay a gigantic amount of Rs40 billion as damages. An arbitration tribunal of the World Bank's International Center for Settlement of Investment Disputes (ICSID) has ruled against the Islamic Republic of Pakistan in relation to the alleged unlawful denial of a mining lease for the Reko Diq project in 2011, awarded to Chilean mining company Antofagasta Plc. The arbitration claim had been submitted in 2012 by the Tethyan Copper Company Pty Ltd (TCC), a joint venture between Antofagasta and Canada's Barrick Gold Corporation.

The decision by the ICSID tribunal rejected Pakistan's final defence against liability and confirmed that Pakistan had violated several provisions of its bilateral investment treaty with Australia, where TCC is incorporated, the company said. The claim could not be verified with Pakistan's legal representatives in the case.

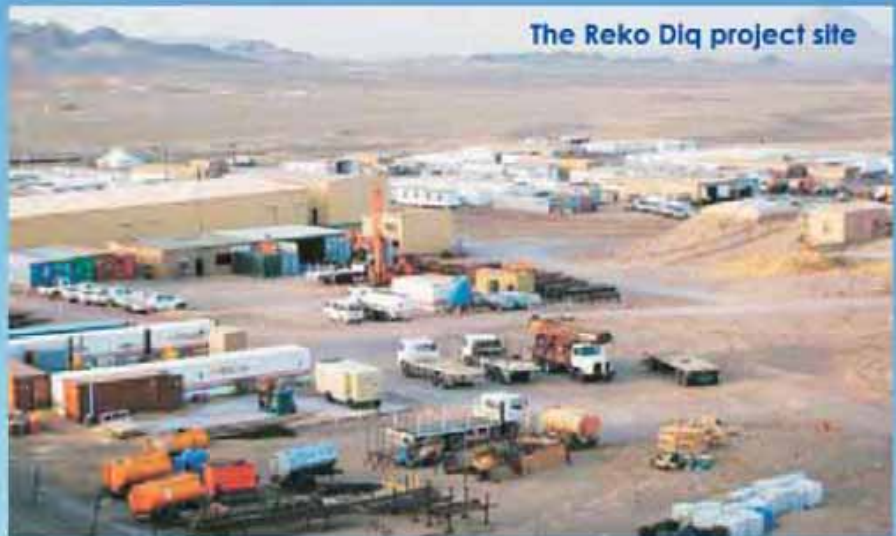
The tribunal is presided over by Klaus Sachs from Germany. The arbitrators are Stanimir A.

Alexandrov from Bulgaria, appointed by TCC, and Leonard Hoffman from England, appointed by Pakistan. From March 22, the tribunal will start assessing the damages that are to be paid by Pakistan to TCC. The tribunal will consider both parties' claims to determine the amount that Pakistan must pay. A ruling on the amount of damages to be paid is expected in 2018, the company said.

"We are pleased with this decision and now the damages phase of the arbitration can begin. We expect that, at the conclusion of this phase, Tethyan will receive an award entitling it to the fair market value of the project at the time that the mining lease application was denied," Antofagasta's chief executive officer, Iván Arriagada, said. The government of Balochistan had in 2011 refused to grant a mining licence to TCC for the Reko Diq gold-cum-copper project. The Balochistan government had rejected the application of TCC for a mining licence, the then Chief Secretary of Balochistan, Mir Ahmed Bakhsh Lehri, had said in Nov 2011. The project's feasibility report, submitted by TCC on Feb 15 the same year, had also been rejected.

"The feasibility report was found unsatisfactory by experts," Lehri had said. He alleged that the company had not mentioned anything in its report about the processing of gold and copper, which was the main concern of the Balochistan government. The provincial government, he said, had already announced a decision to install its own refinery for the processing of gold and copper and allocated substantial funds for it.

"TCC can go to court against the decision," the chief secretary had added. "It's been difficult to define what their actual issues were," Tim Livesey, then CEO of TCC, had told Reuters in 2012 in an exclusive interview. "We went back to them for clarification, as many of their issues are



The Reko Diq project site

not covered in the Balochistan Mining Regulations."

A local government official, who requested anonymity, said at the time that TCC took 'too long' to complete its feasibility study and that it was "cheating" Balochistan by under-valuing the worth of the copper and gold.

Agreement with TCC null & void:

The Supreme Court had in January 2013 declared the Reko Diq agreement void and in conflict with the country's laws. The Supreme Court had been hearing a case constituting identical petitions filed against the federal government's decision to lease out gold and copper mines in Reko Diq in Balochistan's Chagai district to TCC. In its ruling, a three-judge bench of the apex court, headed by then chief justice Iftikhar Muhammad Chaudhry, had stated that the Chagai Hills Exploration Joint Venture Agreement - signed between the Balochistan government and Australian mining company BHP in 1993 - was in conflict with the laws of the country. BHP

had later sold its stakes to the then unknown TCC, which ran the mine till the case started in 2008. The bench added that all amendments made to the agreement after its signing were unlawful and in contradiction with the agreement.

It further stated that TCC no longer had any rights in relation to the Reko Diq agreement. As litigation continued, TCC approached the International Centre for Settlement of Investment Disputes (ICSID), initially citing breach of contract. However, the ICSID had initially denied its contention of mine ownership. The company then argued for loss of investments amounting to \$400 million and appeared to have presented a case for a favourable verdict.

However, it had also appeared willing to reach a compromise if allowed to maintain a stake in the lucrative venture. Though detail of the agreement signed by Musharraf Govt. initially with the company, the contract was all tilted towards the company and Pakistan was would have been in total loss if the contract was not canceled by Supreme Court. ■

Solar 101

Basics you need to know before beginning a solar energy project.

Fundamental Facts

Solar panels are used to convert sunlight into electricity that can be used in the home or transferred to the electric grid for distribution. Power from the sun is one of our most abundant natural resources. The process of converting sunlight to electricity was developed in the 17th century by French physicist Alexander Becquerel, it is known as the **Photovoltaic Effect**.

3 essential components of photovoltaic systems



1. Sunlight

2. Solar Panels



3. DC to AC Inverter

Sunlight

Sunlight is a pure form of energy that can be converted into other forms of energy through natural, synthetic processes.

While it is an abundant resource, several factors effect the amount of electricity that can be generated from sunlight including the length of days, location, and weather.



Solar Panels

are composed of a series of interconnected cells made of silicon, and use the Photovoltaic Effect by releasing electrons to create energy flow when exposed to sunlight. Each cell only produces a small amount of electricity; however, when connected together they can generate a considerable amount of power.

DC to AC Inverter

Photovoltaic (PV) solar panels convert sunlight into electricity in the form of direct current (DC). Homes and businesses are wired to use alternating current (AC). The solar power inverter is an electronic device that converts the DC supply into standard AC.



Typical residential solar panels range from 250 to 400 watts each. A single 250 W panel can power about four 60 watt bulbs.

Putting it All Together

Solar Panels can be installed on rooftops and in open fields, but **the most efficient places are those that are not shaded and have clear exposure to the southern sky**. A typical home can accommodate 6 to 10 kW of solar panels (**40 panels taking up about 17 ft² each.**)

When the Sun doesn't shine.

At night, the panels do not generate energy and the inverter uses a small amount of energy from the power company to maintain synchronization. Shade, debris, and weather all have a significant effect on solar energy production. A cloudy, rainy day can cut solar production by 70% to 90%.



Synchronization

Before generated electricity is used, the inverter must synchronize itself with the AC power from the electric company. **In the event of an outage**, the inverter stops generating power to prevent the flow of electricity "upstream" from solar panels to power lines while crews work to restore power.

Is solar right for me?

Considering solar? Investigate these factors.

- Is the installation area large enough with suitable sun exposure?
- Do you own or rent the area for installation?
- How long will it take to recoup your investment?
- Does your homeowner's insurance policy cover Solar investments?
- Solar arrays are designed to work for 20+ years, will your roof need to be replaced before then?
- Do you have a neighborhood covenant that restricts solar arrays?
- Do you qualify for federal tax credits for the installation?



LPG consumption likely to reach 2.5 million tonnes

By Ali Haider

Pakistan is a dynamic country of 200 million people. Our vibrant industrial and domestic sectors rely on a consistent supply of energy resource for functioning adequately. Over the years, as the energy demand from our industrial and domestic sectors has grown, we have looked for alternative sources for sustainable fuel supply. In this regard, Liquefied Petroleum Gas (LPG) has found a sizable market in Pakistan. Over the past decade, LPG has become a popular choice of alternative fuel in Pakistan for a variety of reasons. When used as a fuel for automobiles, LPG works out 50% cheaper than petrol or diesel.

The use of LPG is dominant among non-commercial domestic consumers as well because LPG serves as a great source of fuel in areas where the natural gas distribution network is not available, such as rural areas and villages.

Currently out of 27 million households in Pakistan, 07 million are connected to natural gas network and the rest rely on LPG and conventional fuels like coal, firewood, kerosene, dung cake etc. Due to this reason, the government of Pakistan has given preference to household consumers for using LPG.

The demand of LPG by the non-commercial sector increases in winter when supply of other fuels is not enough to meet the need.

LPG is also an ideal fuel to be used in power generation sector as it is easily available and can be distributed to remote areas. The Pakistani steel-manufacturing industry also can benefit from the use of LPG.

Other industries which can use LPG are: Textile Industry, electric cables manufactures, chemical industry, cement industry, steel manufacturers, ship breaking, iron cutting, agriculture, poultry farms and perfume manufacturers.

Prior to 1994, the LPG market in Pakistan was fully regulated and supply was restricted to only locally produced LPG with the pricing controlled by the Government of Pakistan. This changed in 1994, when the government allowed import of LPG and paved way for a complete deregulation of the LPG industry, which was achieved by April 2001.

The opening of market to imports and deregulation resulted in over US\$ 200 million worth of investment from LPG producers,

transportation and marketing companies, storage tank and cylinder manufacturers, and distributors.

Representing both the private and public sectors, these stakeholders have over the years played a key role in the development of the LPG industry in Pakistan. It is proposed by the Federal Government in its new LPG policy that consultation with the Oil and Gas Regulatory Authority and relevant stakeholders would determine the quantity of LPG to be imported to meet gaps in the demand and supply as this quantity would then be imported by Public Sector companies. Petroleum Levy on LPG or Gas Infrastructure Development Cess (GIDC) may be utilised to subsidise the LPG imported by public sector companies for bringing the prices equal to local LPG prices for domestic sector supplies.

The increase in the usage of LPG has dual benefits because it has not just ensured supply of energy to far-flung rural areas, it has also stopped deforestation in the areas where the supply of natural gas is not viable. To manage the supply of LPG, the government policy focuses on dedicating the indigenous LPG production for domestic and commercial consumers. All other sectors such as automobile and industries are only allowed to use imported LPG.

Pakistan currently represents 0.50% of total World LPG Demand. The Country has one of the lowest per capita consumptions of LPG - 3.5 per kg as proven demand for LPG is extremely price sensitive. The solution is to make all out efforts to enhance local production. The country has the potential to expand its current Production by 40% to almost 700 tons. According to a report by Energy Update, the LPG production within Pakistan is expected to rise as new refining capacity increases.

In the post sanctions era, there is a great scope for Iranian refineries and traders to export LPG to Pakistan as the Pakistani economy is facing a huge energy crisis and LPG is the only alternative fuel which can fill the gap in a short span of time. The reason why LPG can successfully address this issue is because we already have the storage, logistics, and distribution infrastructure all over Pakistan. ■

The writer is Chairman LPG Association of Pakistan & LPG standing committee FPCCI

IPPs should go for solar-powered energy

Shaaf Mehboob, CEO, Adaptive Technologies

Adaptive is working with World Bank Lighting Pakistan Programme

EU: When did you start this company and what are your aims and objectives?

SM: I started Adaptive approximately 10 years ago. When I was a college student at the Imperial College in London I thought about solar energy and also did my final year thesis in Quantum Photovoltaics. When I returned to Pakistan the solar space was virtually empty and sunshine was abundant. Given my background and interest complimented by an engineering intensive family business I was prompted to enter into the solar business.

EU: Do you think it was a good decision to enter this business?

SM: Absolutely, we have been seeing a rise in business with each passing year although competition has increased a lot and margins have shrunk. The market has also confused many users as sub-standard products have entered the country in abundance and many users present horrific testimonials. However, I think the increased competition has created more awareness and raised caution which has opened up the market.

EU: How has Adaptive technologies evolved as a company?

SM: Adaptive started off in the field of solar thermal which consists of solar heating systems that can produce hot water. Initially the company operated only out of Karachi up until recently. We focused on this product from 2006-2009 because producing electricity from solar was expensive during those days. In 2009 the price of solar modules started declining and the reduced costs started opening up the market for solar electricity all over the world including Pakistan. That's when Adaptive started promoting electricity generating systems.

EU: Which market segments are you working in?

SM: We are working in the off-grid segment which comprises battery based systems. These are popular in the residential segment especially where power outages are frequent. We are also dealing with on-grid systems which produce power during the day.

EU: We are given to understand that your firm is also a partner of the World Bank Lighting Pakistan programme?

SM: The World Bank Lighting Pakistan programme is providing certified and warranted products catering to a rural/semi-urban low income segment of the population. Adaptive is proud to be a partner of this programme. We have introduced our low price solar home systems and solar lanterns being supplied by a World bank certified UK company and hope we can play a part in improving the lives and livelihoods of people in Pakistan by providing them with these budget products.

EU: Which other foreign brands do you represent if any and what can you tell us about them especially with regard to quality?

SM: We are the importers and distributors of Trina Solar panels which is a tier 1 solar panel manufacturer and presently the largest producer of certified panels in the world. We also import and sell



LG Solar panels from Korea which have some of the highest efficiencies in the world. For solar inverters we are a preferred channel partner of SMA, Germany which are again the world's front ranking inverters. Regarding quality, we believe in supplying equipment of the highest standard with strong support from our principals. This in turn helps us offer the same benefits to our clients.

EU: Is there any sub-standard and fake equipment being sold in the market?

SM: Yes, there is substandard and fake equipment but most times people selling this equipment are unable to provide warranty letters etc for such items. Awareness is helping end users with little or no knowledge to start asking the right questions.

EU: Which type of system is the best and what do you recommend?

SM: Well as the saying goes there are horses for courses. Similarly, systems have to be selected on the basis of application. However, my personal favourite is the on-grid solar system that works without batteries. The reason for this is because it the system that has the best return on investment and the lowest capital cost. The system at today's electric rates payback in about 3 years. It also has the longest life which is about 20 years. There are no batteries in this system. Batteries are the weakest link with a life of between 6 months to 10 years depending on how they are used and kept.

EU: What is the scope of solar-energy in Pakistan?

SM: Scope is vast based on the diverse market segments and power crisis. Statistically, imports of solar panels have been rising year on year and the GoP has reduced customs duties at 0% to help stimulate the sector. It thinks the segment will expand significantly if the IPP (independent power producers) projects come onto the horizon which will be large scale projects that will feed power to the public grid and be dictated by the power sector. Furthermore, Net metering has been introduced in Islamabad which allows individual users to sell power produced through solar systems to the government. The concept has already been mandated by NEPRA (national electricity regulator).

EU: Many people find the upfront cost high. Will this continue to be an impediment?

SM: With net-metering, systems without batteries will be popular which are cheaper and offer return on investment of more than 25% per annum and a payback of around 3 years. State Bank of Pakistan has also launched a cheap financing scheme for solar systems which can be availed through commercial banks. The scheme has not reached critical mass as yet but with financing available to the masses benefits should be felt across the board.

EU: What are Adaptive's future plans?

SM: We intend to increase our presence through more offices and distributors throughout Pakistan. We intend to concentrate on brand recognition and understand the needs of our users better. We also intend to work closely with local authorities. ■



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We are small but having an astronomical vision

STDC is keen to work with NTDC to complement the enhancement of Transmission Line Network in the country, says Rehan Hamid, Chief Executive Officer of Sindh Transmission Dispatch Company (STDC)

By Mustafa Tahir

EU: Give a brief note of your profile in including your educational background, professional experience and achievement?

Rehan Hamid (RH): I can explain myself as being a proactive, performance-driven professional engineer with several years of progressive expertise in leadership and problem solving for utilities operations and T&D-EPC projects. I have keen understanding of business priorities being a genuine team player committed to managing operations and projects flawlessly while contributing to revenue-producing activities. I am also a cross-functional communicator who easily interfaces with high-profile staff, vendors, and customers. I am also a versatile, innovative, and loyal management professional, who is able to see the "Big picture," while staying on top of all the details. I have also been recognized for consistent success in developing the processes and procedures to streamline operations and enhance revenue performance. I can also explain myself as being people-oriented with a collaborative and participative leadership style. I am also a risk manager with an incisive attitude who has the ability to see and analyze beyond the obvious.

EU: Detail of your professional experience?

RH: I have more than 30 years of industry experience in development of Electrical Power System. I have served organizations of international repute, like K-Electric, Karachi, in various capacities, SNC Lavalin ATP Inc, Canada, Rexroth Bosch Group, Canada. During my career, I also worked with Moeller Electric, Canada as an independent contractor on various projects.

EU: How does STDC works and its areas of operation?

RH: Sindh Transmission & Dispatch



Company (Pvt.) Limited (STDC) is registered with Securities & Exchange Commission of Pakistan (SECP) as a private limited company and is a subsidiary of Sindh Energy Holding Company Limited owned by Government of Sindh.

We are engaged in Provision of Extra High Voltage Electric Power Infrastructure, High Voltage Transmission Lines, Virtual Power Plants, Smart Grids and Micro Grids, as our core business.

STDC has expertise in the field of operations and maintenance of transmission lines and sub-stations, Rehabilitation of Transmission Line Networks, Transmission Line Losses Control, Conversion of Conventional Grid to Smart Grid, Acquisition of Transmission Line Assets, Utility Grade Storage Batteries for Renewable Energy Resources & Virtual Power Plants for Renewable Energy Resources. We say as a motto "We are small but with an Astronomical Vision!"

EU: What are the role, responsibilities and future plans of STDC?

RH: STDC is an important link by undertaking the requirements of power transmission lines and grid stations to evacuate the power by connecting generators (seller) with utility/end user (buyer). Our sole aim is to provide exquisite and unheard features to the concept of electric power industry with the help of strategic partners.

For STDC future projects of electric power infrastructure, we always welcome foreign investments from governments and private sectors to invest in Pakistan and encourage Public Private Partnership Projects in Sindh province in particular. As the power industry is still taking its shape and Government of Pakistan intends to privatize the distribution companies (DISCOs), we find an opportunity here



Energy Update has very recently interviewed Mr. Rehan Hamid who is the Chief Executive Officer of Sindh Transmission & Dispatch Company.

While replying to the questions concerning his own professional qualifications, experience and also regarding aims, objectives, and future plans of the nascent energy sector company he has been heading as provincial energy sector company, which is a new experience in the country he said.....

and intend to offer following services to privatized utilities to resolve the issues of human resources with capacity building, operation and maintenance by developing the concepts of asset management of high voltage transmission line networks and grid stations, control of transmission and distribution (T&D) losses through GIS mapping and Advanced Metering Infrastructure (AMI)

Similarly on energy conservation we have developed a model of centralized wireless control and monitoring of street lights with other salient features viz. security cameras. We also offer optimized solutions to save substantial amount of energy to reduce the expenses of city administrations, municipalities, cantonment boards, university campuses, and of industrial complexes. Customized financial models are also on offer with investment options.

In near future STDC is going to launch a project to identify the gap and requirement of transmission lines and grid stations for a reliable power system throughout the Sindh province. The infrastructure requirement then will be sliced into different FPC projects so to achieve load shedding free Sindh.

EU: What are the STDC's affiliations with other stakeholders?

RH: Being a link between generator and distributor of electric power, STDC has a collaborative role in the industry with all the stakeholders.

We give priority to all the regulatory compliance to keep our corporate identity and brand reputation alive. Securities & Exchange Commission of Pakistan (SECP), National Electric Power Regulatory Authority (NEPRA), Sindh Environmental Protection Agency (SEPA), Sindh Public Procurement Regulatory Authority (SPPRA), Federal Board of Revenue (FBR), Sindh Board of Revenue (SRB), ISO 9001, ISO 14001 and OHSAS 18001 Certifications are the regulatory and quality compliance which are of utmost importance to us.

Likewise, to raise the brand identity of STDC, we are also member of various associations such as Management Association of Pakistan (MAP), Pakistan Institute of Corporate Governance (PICG), Karachi Chamber of Commerce & Industry (KCCI), Pakistan Engineering Council (PEC). STDC is also a Government Licensed Electrical Contractor and seeking O & M Contractor's registration from Pakistan Engineering Council, which is in process. STDC is keen to work with our national counterpart NTDC to complement the enhancement of transmission line network in a collaborative mode.

continued on page # 56

Transmission and distribution lines' network STDC vying for uninterrupted power supply to every consumer

It is a matter of great pride and honour that STDC has completed the construction of its flagship Transmission Line project of 132 kV double circuit. Testing and commissioning of the line is currently in progress and by the end of May 2017 commercial operation is expected to start.

The energy sector of Pakistan is facing the problem of load shedding since long. Reliable and un-interruptible power to all the electricity consumers is indispensable for the fast-track progress of the country.

Power industry is a very capital intensive business mainly comprising generation, transmission and distribution of electricity. Government of Sindh has taken various initiatives in this sector which plays an important role in the economic growth of the country. One of the initiatives is the establishment of Sindh Transmission and Dispatch Company (Pvt.) Limited (STDC) for a rapid development of transmission lines which is a bottleneck in the present power system.

Being a new entity, STDC had to apply for a Special Purpose Transmission Line license (SPTL) with the National Electric Power Regulatory Authority (NEPRA) for the double circuit transmission line. Subsequently, SPTL for a period of 30 years was awarded on 17th December 2015.

For the transportation of 100 MW electric power from Sindh Nooriabad Power Company (Pvt.) Limited (SNPC) (a joint venture by Government of Sindh under Public Private Partnership (PPP) mode) to K-Electric, STDC constructed 132 KV Double Circuit Transmission Line. The approximate length of the Transmission Line is 100 kms and Towers/Monopoles locations are 507 as per Plan & Profile. The conductor used is ACSR Rail and Disc Insulators are of Porcelain type. There were many locations where access for the logistics was very challenging due to tough and difficult terrain but this problem was also overcome through smart planning by limited technical resources available to STDC.

During the whole construction activity, STDC strictly remained committed to the policy of "Zero Tolerance" in HSE (Health, Safety and Environment) protocols. As a result we have achieved zero accident record during construction of project.

The most challenging task encountered during the construction of the Transmission Line was the handling of Right of Way (ROW) at various locations. However, this issue was resolved from time to time through efficient management and advocating with relevant authorities. The O&M (operation and maintenance) of the transmission line will also be carried out under the command and control of STDC itself and all the standardized SCPs will be followed in the true spirit.

STDC is fully capable of constructing any transmission line of 132 KV, 220 KV and 500 KV. We have already achieved certifications of ISO 9001, ISO 14001, OHSAS 18001 and currently working on certification of ISO 55000 which pertains to Asset Management. For the growth of the company, STDC team continually welcomes and meet various local and foreign investors to tap the potential in the transmission line industry by finding innovative solutions to the industry problems. Various international organizations consented to become a funding resource for the projects which STDC may materialize in the future. Hence, STDC has the technical as well as financial expertise to perform projects on BOOT, BOT, BOO or BLT basis. As a developing economy with strong and increasing demand of electricity, we need such initiatives and projects in energy sector. This boosts confidence of domestic and foreign investors to strengthen the economic growth of the country.

Apart from our core business of provision of T & D infrastructure, STDC is going to be a knowledge base company and we are abreast of new technologies such as Smart Grids, Virtual Power Plant, Energy Storage, Mini Grid, Micro Grid, Community Grid, Community Electricity Storage and provision of ancillary services to National Grid, which we wish to introduce. STDC is working to be a Triple Bottom Line company viz. all our activities are geared towards, socially acceptable, environmentally friendly and economically viable.

STDC is in creation of Asset Management Group, (under certification process of ISO 55000) instead of conventional operation and maintenance (O & M) division. New management concepts are being introduced. STDC is also poised to use latest technology for predictive maintenance to be aware ahead of time. It's working towards using Robotic Technologies and Unmanned Aerial Systems (UAS) where we are evaluating the use of Unmanned Aerial Vehicles (UAV) for Transmission Line condition monitoring. ■

Tremendous wind energy potential in Pakistan

OMS is actively involved in wind power sector

Amer Rauf, Managing Director, OMS talks with Energy Update

EU: Please provide us your profile in detail including your education background, professional and experience and achievement?

AR: My name is Amer Rauf. By profession I am Electrical Engineer. I have more than twenty five years of professional experience and this is all in the power sector. I served Wapda for about ten years in maintenance departments of Guddu and Muzaffar Garh Thermal Power Stations. I then joined a consultancy company in Riyadh, Saudi Arabia. I served there for more than six years at various mega thermal power generation projects like PP-7, 8 & 9 in Riyadh, extension of Tabouk Power Plant and PP-3 in Jeddah. In year 2007 I joined OMS and later in year 2010 I joined Descon to provide my services as engineering manager for Pakistan's first ever grid connected wind power project in Jhampir Area near Karachi. I also served as project manager for 2 x 50 MW wind power projects located in tough terrain of Ghoro, Sindh and as head alternate energy. Presently I am serving OMS as Managing Director.

EU. What is your company's core business, present focus and role in the business sector?

AR: OMS is a multinational consultancy company. We provide complete range of services in power sector business including but not limited to Project Development and Technical Consulting, Project Management, Commissioning Management and Start-up services, Asset Acquisition, Owner's Engineer, Independent Engineer, Lander's Engineer and O&M Operator for both thermal and alternate energy power projects. We currently have operations in Asia and Africa.

EU. Please tell us about the power projects your company has completed, the projects in pipeline & future projects in Pakistan and abroad with their costs.

AR: 225 MW CCPP Orient Power Company Limited, 234 MW CCPP, Sapphire Electric Limited, 225 MW CCPP Saif Power Limited, 560 MW CCPP KE BQPS-II, 52 MW JDW Cogen Power Plant, 56.4 Zorlu Wind Power, 50 MW Metro Wind Power, 50 MW, Younus Energy Wind Power and 50 MW Sachal Wind Power projects are among many of the projects where OMS has provided its services to the entire satisfaction of Clients.

Recently, OMS has been appointed as Independent Engineer through international competitive bidding on three mega RLNG based power projects namely, 1180 MW Quaid-e-Azam Thermal Power (Pvt) Ltd Bhikki, NPPMCL 1230 MW CCPP Haveli Bahadur Shah and NPPMCL 1223 MW CCPP Balloki. These projects are in commissioning phase and OMS experts are there and working day and night to meet completion timelines of these projects.

EU. What are the challenges you are facing in your business operations in the local and international market?

AR: As too many power projects are currently under execution so finding experienced and right personnel for new projects is



gradually becoming a challenge.

EU. Does your company offer services for alternate power projects, especially wind power?

AR: Yes, OMS is actively involved in wind power sector as well. We have provided Independent Engineer services on many of the wind power projects.

Considering tremendous wind energy potential which Allah has given to our beloved country and Government initiatives to promote wind power in Pakistan, OMS has taken the required actions to expand its operations for providing Owner's Engineer and O&M services to wind power sector as well.

EU: Do you have policies & initiatives for Environment and CSR?

AR: OMS strongly believe in Social Responsibility. It is one of our Company's core value. We have certain programs in operations under CSR. While working on our projects we together with our Clients and other stakeholders work closely to ensure full compliance of all the regulations to protect our environment and mother nature. ■

Always snatch and eat one third of your child's chocolate and ice cream. Let them cry... doesn't matter. This will prepare them to pay Income Tax when they grow up.



Death asked Life: Why does everyone love you and hate me? Life replied: Because I am a beautiful Lie and you are painful Truth.!



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About Event:

Pakistan premier Magazine "ENERGY Update" organizing The 9th Annual POWERGEN Conference & Showcase 2017 on **May 19, 2017 - Serena Hotel Islamabad.**

The 9th Annual POWERGEN 2017 Islamabad will be focusing on four key future energy mix i.e. Coal, Nuclear, Hydro and Renewal. The experts will deliver the presentations on ground realities and hurdles being faced in erecting the new Power Plants and Cost of Connecting in National Grid for short-medium and long-term Power Sustainability.

The future of power generations under CPEC – 'an early harvesting by 2018' in Pakistan's Power Industry will also be preciously discussed for the benefits of Conference Delegates. Further, the Islamabad's ambitious aim will also be highlighted for generating a projected total of 23,700MW by 2030.

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By Mustafa Tahir

Karachi lacks any mechanism to monitor air quality amid rapid deterioration of environment

Participants of a dialogue were informed that Karachi for last several years lacked any proper mechanism to monitor its air quality at such time when harmful industrial and vehicular emissions, burning of municipal waste, constant cutting of trees and rapid commercialization had irreversibly damaged environment of the city. The Dialogue on "Air quality & Climate change: A case of Karachi" was jointly organized by National Forum for Environment and Health and EMC Pakistan Pvt. Ltd. Sindh Transport Minister Syed Nasir Hussain Shah was the chief guest on the occasion. Mr. Naeem Qureshi President of NFEH and Mr. Syed Nadeem Arif of EMC Pakistan Pvt. Ltd were also present at the occasion, while a large number of noted environmentalists, academicians, public representatives, industrialists, and Govt. officials concerned attended the dialogue. Participants of the dialogue were informed that city lacked any mechanism to lawfully stop use of motor vehicle, which had become old and was constantly emitting pollutants. One such programme, which had been launched some years back by provincial government with proper procurement of monitoring equipment and hiring



of staff, after proper allocation of budget, was abandoned without any valid cause.

They were also told that Air Quality Monitoring Stations of Sindh Environmental Protection Agency were no more in use for last six to seven years while one such programme of SUPARCO to monitor level of air and water pollution had been abandoned

some ten years back. This all happened when environment of the city has been constantly exposed to a number of hazardous gasses causing repercussions for health of the citizens. The audience were informed that though Sindh had adopted its own environmental quality standards after adopting provincial environmental protection law in 2014 but it had no binding limitations for industries to reduce harmful emissions of hazardous gasses by them. EMC representative Saquib Ejaz Hussain said in his



presentation on the occasion said that the air quality of the city had severely deteriorated due to rapid urbanization so much so that Karachi had been termed as fifth most polluted city of the world according to a report of World Health Organization in 2016. He said that tree cutting continued unabated in the city for last several years to give way to rapid urbanization so much so that vegetation cover of the city had decreased from two per cent from seven per cent back in 2008. He said that tree cutting in urban centres to be criminalized so to punish people who had been constantly damaging environment for their vested commercial interests.

Farzana Altaf, director-general of Pakistan Environmental Protection Agency (PEPA), said that use of non-degradable plastic bags in Islamabad capital territory had been controlled up to 70 per cent as provincial governments should also follow suit and adopt such measures to prevent further harm to environment.



DG PEPA said that she had been able to convince industries and businesses of the federal capital and of its surrounding areas to fully adhere to national environmental quality standards while the provinces should also adopt similar approach to persuade industries to adopt such provincial environmental standards on voluntary basis rather to lawfully enforce them.

Khumum Sher Zaman, lawmaker of Pakistan Tehreek-e-Insaf in Sindh Assembly, said that he would soon move a resolution in Sindh Assembly so to make it binding upon provincial government to ban use of non-degradable plastic bags in the entire province. He also said that the coal yard of Karachi Port Trust had been functioning without any check despite that activities related to transportation, handling, and storage of coal had virtually ruined environment of the adjoining areas causing serious health risks for the residents, labourers and visitors of that area.

President of Karachi Chamber of Commerce and Industry Shamim Ahmed Feroz said that industries should fulfill their obligation regarding protection of environment by setting up waste water treatment plant on their own without waiting any more for government's support for this cause.

Shabbar Rizvi, Dean of Civil and Architecture Faculty of NED University of Engineering & Technology, said that constant phenomenon of congestion of vehicular traffic in the city had led to the problem of air quality deterioration.

Gulzar Feroz, Chairman of Standing Committee on Environment of FPCCI, said that industries had to fulfill their responsibilities for decreasing level of hazardous gasses in environment causing alarming increase in respiratory illnesses among citizens of the city. He said that Sindh, federal governments, and private sector had to combine their forces to effectively tackle the issue of air quality deterioration occurring at a fast pace.

In his concluding remarks, Sindh Transport Minister Nasir Hussain Shah said that Sindh government was fully committed to revive the proposed system of Karachi Circular Railway for this cause physical encroachments were being removed. While at the same time two separate sections of Bus Rapid Transit Service were being built in the city as the modern modes of mass transit system for people of the city. He also urged and agreed that the Coal trucks which transports the coal from KPT Coal yard creates havoc with the area and he shall raise this issue in the Sindh

Assembly for its immediate remedial measures. He said that Sindh government would soon revive mechanisms to check fitness of both private and commercial motor vehicles so to certify their suitability for their plying on roads of the city to safeguard environment. He said that provincial government's Transport Department would soon launch "City Bus Service" for providing speedy and spacious intra-city mass transportation facility for people of Karachi with operation of fleet of large buses having both seating and standing facility for passengers. ■



SEPA conducted public hearing on the EIA of additional 65 MGD Water Supply Pipeline from Haleji Lake to Pipri Pumping Station. Serious concerns on the performance of KWSB, SEPA, Wildlife Department and Irrigation Dept were raised by Ms. Faiza Ilyas, Mr. Shams ul Haq Memon, Mr. Saquib Ejaz Hussain, Mr. Gulzar Memon, Mr. A.A. Chandani and other stakeholders.

According to Ms. Faiza Ilyas, the report of Sindh Water Commission has clearly that the labs of SEPA and KWSB are non-functional and citizens are being supplied water which is unfit for drinking purpose.

According to Saquib Ejaz Hussain, the wetlands have been turned into wastelands due to ignorance on part of Sindh Government. RBOD is the major threat for Haleji and likewise all the other wetlands are under serious stress. No EIA was conducted for RBOD project. Also illegal hunting practices have ruined the overall ecology of the area and all these activities are in the knowledge of concerned depts. SEPA must ensure strict monitoring of all these projects and violators be punished.

According to Shams ul Haq Memon, KWSB must formulate a wildlife management plan in consultation with Sindh Wildlife Dept and implement it in letter and spirit. Mr. Imran Sabir of EPA criticized KWSB for not doing their job of treating sewage and contaminating sea. NFEH Team also participated in the meeting. ■

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Burgeoning circular debt Ministry of water and power declares NEPRA responsible

The Ministry of Water and Power has acknowledged that circular debt had swelled to Rs400 billion in the energy chain and held the National Electric Power Regulatory Authority (Nepra) responsible for the mounting burden. This negates the government's claim that it has been running the energy sector smoothly after clearing Rs480 billion in circular debt immediately after coming to power in mid-2013. As almost four years have passed, there appears to be no difference as the circular debt has again piled up, standing at Rs400 billion now.

The Independent Power Producers Advisory Council (IPPAC), a lobby group of private sector electricity producers, however, argues that the circular debt has in fact ballooned to Rs414 billion. The power ministry does not accept the figure and terms it Briefing a sub-committee of the Senate Standing Committee on Water and Power, which was chaired by Nauman Wazir Khattak, Water

and

Power Secretary Younus Dagha categorically said the government would not be able to cope with the circular debt unless and until 100% recovery of electricity bills was ensured. He said the IPPAC had no value and the figure given by the body was not authentic. The government had individual agreements with the power producers and the circular debt stood at over Rs400 billion, he said. Dagha blamed Nepra for the swelling debt, pointing out that the tariff determined by the regulator had added Rs150 billion to the bill. He argued that the regulator wanted the power companies to recover consumer bills like the way California did, but it was not possible in Pakistan.

However, he insisted that the Ministry of Water and Power had made efforts - including controlling transmission and distribution losses and stepping up recoveries - to improve the situation, which led to savings of Rs116 billion.

"Circular debt cannot be wiped out unless the power sector is given actual subsidy in the budget and a realistic tariff is set by the regulator," he remarked.

Committee Chairman Nauman Wazir was of the view

called IPP representatives in the next meeting to determine the facts. Wazir gave assurances that the committee would bring the dispute to a logical end by knowing the facts and determining who was misleading about the debt level. He also told the power ministry to present details of agreements signed with the power companies.

About the energy mix in power generation, Dagha said his ministry was working on it but it was unable to provide details at the current stage. He sought six months' time to prepare the details for submission. Work on improving the energy mix by relying more on cheaper power sources like hydel electricity started in 2010 and an international consultant had been invited to give its input.

Taking up the delay in commissioning of the Nandipur power plant, committee members held the then law minister and law secretary responsible.

They called the delay a criminal act that caused a loss of Rs113 billion. They

sum-

moned former law minister Dr Babar Awan in the upcoming meeting slated to find out the reasons behind the delay in giving legal advice on sovereign guarantees. The committee chairman noted that the Ministry of Law took four years to come up with the legal advice, but it was issued in just one day after the intervention of chief justice of the Supreme Court. ■

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CIRCULAR DEBT

Private sector is competent enough to execute bulk water supply projects in Pakistan

We can initiate hydropower and bulk water supply projects in major cities

By Naeem Qureshi

"When we came out of South Korea our first port of call was Pakistan in 2009. Then we built this Patrind Hydropower project, which will soon be commissioned. After Patrind we will evaluate here other hydropower projects. In addition to this, we are also into bulk water supply. We are very much interested in bulk water supply to Islamabad. We have done our preliminary studies on that. At the moment there is no framework available in Pakistan for operation of private sector in bulk water supply. Whenever the govt develops such a framework then investors like us are willing to come here to invest quite a few million dollars for developing bulk water supply projects for our big cities."

This was stated by Waqar Ahmad Khan, Chief Executive Officer of Star Hydro Power, as Energy Update interviewed him in detail about the independent power production company being here the subsidiary of Korea Water Resources Corporation, doing 147 Megawatts run-of-the-river Patrind Hydropower project in Azad, Jammu & Kashmir. He continues to say that.....

Waqar Ahmad Khan
CEO Star Hydro Power

Energy Update: Tell us about background and progress in building the Patrind Hydropower project?

WAK: We were the first to take on project to be developed after power policy of 2002 that achieved financial close in December 2002. The project commenced construction afterwards as now we are ready for inter-connection with the grid. We will shortly commence operations of the project after completing requirements of (NTDC) National Transmission & Dispatch Company. Our financial close was of 436 million dollars out of this 327 million dollars were of debt, which were arranged from IFC, International Islamic Bank, Asian Development Bank, and Korea Exim Bank.

This project is 100 per cent foreign direct investment in the country. We did this project when neither Chinese nor anyone else was coming to this sector of the country. So in this sense we are the first such project in hydropower sector of the country on basis of foreign direct investment. We did investment to the tune of 436 million Dollars. Construction period of this project was four years as we completed construction on time.

EU: Tell us about technical and other details of your hydropower project?

WAK: Our project included a 46 feet high dam and a two-and-half kilometres

long tunnel housing the power station. We are situated in such an area where environmental footprint is quite negligible as the project is located on a narrow gorge. Our environmental footprint was limited as we required less than 100 acres of land for building the project. The project is getting completed as we will do our commissioning tests as soon as we get the transmission line. Afterwards we will go for commercial operations of the project.

EU: Tell us about activities done by you as CSR (Corporate Social Responsibility) aspect of this project?

WAK: We developed and ran a very detailed programme for local people in the project area. The land purchased for the project was not economically viable but even then quite attractive compensation was paid to owners for land purchasing. Attractive displacement and disturbance allowance packages were paid for purchasing of houses. We are also conducting skill development courses for women. Local people were given preference in giving jobs as our contractors hired area people and also developed their skills. We have also announced a vocational college in the area and we are constructing a building for the purpose. The government gave us the land on which, we are doing the construction for the purpose.

We also did repair work and provision of equipment for schools in the area. We also did water supply projects in the area. We also announced scholarship programme for those among the local area children who will get admission in any of the public sector engineering universities. We provide tuition fee and other additional financial support for such children.

EU: What problems did you face in developing this project?

WAK: We were the first project under the 2002 power policy. The draft concession agreements available at that time were not of such kind that they could be properly implemented for such projects. So we worked with PPIB to modify these agreements after detailed discussion.

They (PPIB) were helpful to us as they understood our requirements for doing the hydropower project. So after due modifications, we prepared the first draft agreement, which we took to ECC (Economic Coordination Committee of cabinet). The ECC then approved it, which is now being used as standard document for such projects. We were ready with our feasibility study for the project in 2007 and afterwards we started our work on the project after these agreements were available to us.

The second biggest challenge was the security situation and macroeconomic instability in the country at that time as no international investor or lender was willing to do a hydropower project in the country. So debt financing at that time was quite challenging. But we involved Korea Exim Bank as it was a long drawn process as it took two to three years. Afterwards, we succeeded in reaching an agreement to the effect that we raised from them 327 million Dollars financing for the project.

The third challenge was that our project is spread over territories of both Azad Kashmir and mainland Pakistan. Some of the structures of the project are located in Kashmir, which is a disputed territory while some of the structures are in District Abbottabad of Pakistan.

So doing structuring of such a project involving dual jurisdiction was quite challenging from perspectives of agreements and financing.

EU: Tell us any other major challenge concerning construction of the project?

WAK: During all this time one of the major challenges comes from local communities in the project area as their expectation becomes too much high regarding the project as in some cases the work is in progress in their neighbourhood or in some other instances land owned by them had to be acquired for doing the project. So in some of such instances expectations of local people become too much high, which could not be overcome in the available finances for the project. So proponents of such projects have to manage similar situations involving high expectations of area people. We had a good team so we managed the entire thing.

Apart from this, as multilaterals like ADB and IFC are involved in the project so they have their own stringent requirements health, social, and environmental standards to be observed by us. We have to ensure that all these requirements are fully met. For the purpose, detailed envi-



ronmental management plans; development action plans, and community development plans were developed. Detailed flora and fauna and fish studies were also conducted in area where the project is located.

This was all done to make sure that impacts of the project on ecology, environmental, and social index were not only minimized but mitigated to the maximum possible extent. This will be helpful in improving net gains of the project.

During construction of the project, we were regularly monitoring all these parameters to make sure that all our measures are getting succeeded while all our goals are also met.

EU: Why the transmission line for the project got delayed?

WAK: The NTDC, which is responsible for laying the transmission line has its own plans and requirements. They, however, observed slackness in laying of this transmission line. It is not such long line as it is 132 Kv line covering not much distance.

Our construction period was of four year as during that period this line could have easily been made available. I'm not privy to their (NTDC) internal workings as to know for what exact reason this line is delayed. The work on transmission line started late and till now it could not be properly commissioned.

There is danger of delay in commissioning of the project for which we have protection available to us in power purchase agreement enabling us to claim liquidity damages. But this will only happen during the situation of dispute, which all parties involved in the project want to avoid at the moment. We are not in the business of making money out of disputes rather everybody want commissioning of the project so that it could generate electricity for doing contribution towards socio-economic development of the country. We are also working with this particular point of view. We also want that transmission

line is available to us at the earliest so that the project gets commissioned and will be able to generate electricity for the country.

Now it is a good sign that the government has been concentrating on construction of new transmission lines for power projects being built in the country under China Pakistan Economic Corridor. In this regard, one transmission line is being built from Mitari to Lahore.

Previously NTDC was not as much geared up so that it could proactively and aggressively pursue its projects while we are bearing loss due to this mistake.

EU: What other projects are being done by your company?

WAK: After completion of this project we will be looking further into possibility of other hydropower projects in Pakistan. Our mandate is basically related to hydropower sector as we belong to Korea Water Resources Corporation, which is a state owned company in South Korea. We have there with us multi-purpose dams, which are not only used for electricity generation but also for bulk water supply to municipalities. We have major share of market in South Korea in this regard. We are also exploring the options of wind and solar power being renewable forms of energy. We are also doing work on water treatment systems as we have research institutes, which do work in this area. Outside Korea, we are looking after investments in bulk water supply and hydropower systems. ■



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The circular debt of power sector has once again reached to an alarming level of Rs328 billion. Although the matter is a serious one but the government has taken a number of steps to bring it under control, including asking the distribution companies to reduce their line losses and pay bills regularly. the circular debt is expected to continue to rise despite a series of surcharges imposed on consumers and other measures taken under a three-year plan.

The government had allocated a subsidy of Rs98 billion in the 2015-16 budgets as compared to Rs221bn in 2014-15 to show lower budget deficit at the cost of power sector's financial stability. Subsidy is actually being passed on by distribution companies to residential, agricultural, AJK while Fata consumers was more than Rs200 billion. Therefore, the question is how this amount can be reduced to this historic level of Rs98bn? The circular debt increased while it had been successfully capped in the year 2015 showing a reduction of 5.8 percent in aggregate technical and commercial (ATC) losses.

The government had allocated Rs118bn tariff differential subsidy for the current year and referred to another Rs20bn subsidy earmarked for K-Electric and Rs98bn for Discos. The TDS for Discos had been worked out by calculating the difference between Nepra determined tariff and effective consumer tariff and the number of units estimated to be sold during the year.

Similarly, the KE subsidy has been estimated after notifications by the government for the fiscal year and adjusting the consumer tariff in line with the power ministry's notifications. It said that once the quarterly notifications are applied, the subsidy is estimated to largely fall in line with the budget estimates.

The major reduction of about 3pc in ATC losses was achieved because of relaxation by the power regulator to allow about 15pc losses in tariff against its previous benchmark of about 12pc but less than 1pc loss reduction was achieved by distribution companies through various measures.

Moreover, the federal government was expected to renegotiate an applicable tariff with Azad Kashmir and

Circular debt reaches to a new high

By Ismat Sabir

make some payments on behalf of the AJK government, besides facilitating recovery of electricity arrears from provincial governments.

The officials said that this amount of circular debt build up was due to a number of policy decisions not implemented by the Ministry of Water and Power. The subsidy of AJK and Fata is based on supposing that timely policy actions in all these areas will ensure that the budgeted amount is sufficient and does not result in the increase of the circular debt.

It is said that the performance of Discos should be such that they adhere to the targets of T&D losses as set by the regulator, which is 15.3pc and recoveries are kept close to 100pc. The finance ministry said that the subsidy amount was the obligation of the government based on the differential tariff set as a policy and paid monthly as per claims received and utmost efforts of the government stands committed to meet the claims under this head, as it has done without fail and on time since it assumed

WAPDA has also failed to outstanding dues to Rs233 billion from the despite tall claims by the key defaulters of are from the of the

recover amounting defaulters Ministry. The electricity bills elite class. Majority defaulters belong to Lahore while a small number belongs to Multan. The high ups of WAPDA said that WAPDA has met failure in effecting recovery from defaulters for want of proper legislation in the country.

The non-recovery of heavy amounts from the defaulters has led to increase in circular debt. A massive amount of Rs233 billion from



the consumers who were declared defaulters during the year 2014-15 while the unpaid amount is to be recovered from old defaulters stands at Rs92 billion.

The defaulters on payment of bills include industrialists, traders, politicians, offices and government and semi government corporations. Outstanding dues amounting to Rs66.72 million have to be recovered from electricity bill defaulters from Faisalabad division, Rs6,275 million from GEPCO defaulters, Rs23 billion from HESCO defaulters, Rs178 million from IESCO defaulters, Rs178 million from LESCO defaulters, Rs46 billion from LESCO defaulters, Rs18 million from MEPCO defaulters, Rs13 billion from PEPCO defaulters, Rs35 billion from KEPCO defaulter, Rs72 billion from SEPCO defaulters and Rs38 billion from TESCO defaulters.

The power theft related incidents and number of defaulters have decreased in KP while power pilferage and number of defaulters have increased manifold in the Lahore and Sukkar divisions since the PMN government came to power.

Moreover, the government failed to return loans of Rs136.5 billion that it had obtained from banks to retire circular debt in the power sector, which forced the Economic Coordination Committee (ECC) of the cabinet to roll over the debt for two more years. The main reason for the failure to repay the loans was the postponement of privatization process of power distribution companies.

The government had promised the International Monetary Fund (IMF) that it would retire Rs335 billion worth of circular debt, parked in Power Holding (Private) Limited, by privatizing Faisalabad, Lahore and Islamabad power distribution companies. The government is already charging 43 paise per unit as debt servicing surcharge from electricity consumers through monthly bills to service the circular debt. In fiscal year 2015-16, it collected Rs29.3 billion from the consumers under that head.

The ECC decided to roll over Rs136.5 billion debt for two more years including a grace period of one year, meaning the consumers would continue to pay the interest through their electricity bills. The loan had been obtained in 2012 for two years. In October 2014, the ECC rolled over the debt for two more years after the government could not make repayments. However, the government is paying interest to a consortium of seven commercial banks, which is 1.25pc above the Karachi Interbank Offered Rate (Kibor).

Under a three year \$6.2 billion IMF loan programme, the government had assured the lender that the circular debt would be retired by privatizing the power distribution companies. The plan could not be implemented after the Ministry of Water and

Power refused to cooperate.

Pakistan has promised to the IMF that the initial public offering (IPO) of Faisalabad Company was to be done by February 2017 to be followed by IPOs of Islamabad and Lahore companies by the end of 2016-17. The other source said total circular debt rose to Rs684 billion.

While the government cleared around Rs480 billion in 2013 to power sector. The cost of power generation is as low as it can be due to decrease in crude oil prices in international market. It has given the chance to the government to reduce subsidies and control the budget deficit. The power producers will reap profits. At the end of the three-year bailout of IMF, it was revealed that the plan had been shelved, due to the failure to restructure and reform of DISCOs.

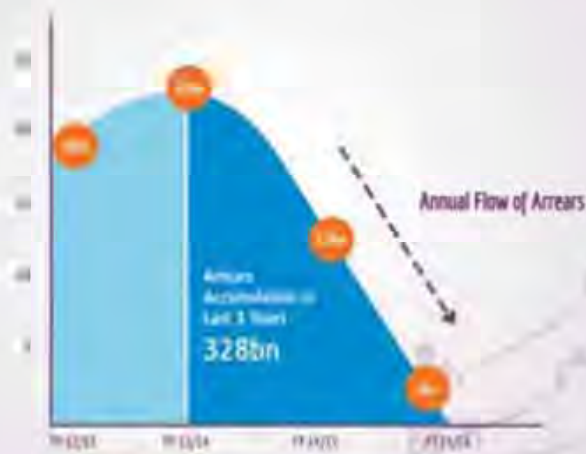
panies sell oil to the IPPs or the Wapda owned electricity generation plants (called Gencos) which produce electricity and sell it to the government run distribution companies referred to as ISCOs (for example Lesco, Pesco, etc), which provide power to the homes and factories and bill them for this service.

The tariff (price) at which the Gencos sell to the DISCOs and the tariff at which electricity is supplied to consumers is determined by Nepra, after receiving government approval.

The first problem which results in the receivables not cancelling out payables is when the tariff is unable to meet the costs of its generation and distribution.

Consumers are being constrained to bear with equanimity through tariff increas-

Accumulation of Power Sector Arrears



However, the annual increase in circular debt power sector has come down from Rs222 billion to just Rs8 billion in 2015-16.

Power sector losses paid out of the federal budget in Pakistan have come down from Rs342 billion in fiscal year 2012-13 and Rs138 billion in 2013-14 to zero in next two years, 2014 and 2015 and 2015-16.

Circular debt arises when one party not having adequate cash flows to discharge its obligations to its suppliers withholds payments. When it does so, the problem affects other entities in the supply chain, each of which withholds its payments, resulting in operational difficulties for all service providers in the sector, none of whom are then able to function at full capacity, causing unnecessary load shedding.

This net unadjusted amount on June 30, 2011 was Rs200bn, which this year is growing by Rs950 million a day. The amount may be much smaller if oil marketing com-

panies. The massive issue of electricity theft in the cases of DISCOs in Hyderabad, Peshawar, Quetta and Fata are now well known; with literally no one is paying bill in Fata.

Poor collection of electricity bills. Rs90bn alone is due from provincial governments. Powerful private individuals and companies are also defaulters as are those who in collusion with Wapda employees do not pay without being disconnected, Rs120bn is due from private consumers.

The correct solution is to either immediately privatise the management or ownership of DISCOs (under an appropriate regulatory framework) or hand them over to the provincial governments. The electricity can be supplied at the provincial borders for the provincial governments to purchase it from the Gencos and manage the DISCOs, thereby relieving Islamabad's overstretched budget from the burden of this seemingly never ending electricity subsidy. ■



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Contact Details

Office # 502-503, Anum Estate, Opp. Duty Free Shop, Main Shahrah-e-Faisal, Karachi.

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Plastic pollution in the ocean frequently appears as seabird guts filled with cigarette lighters and bottle caps, marine mammals entangled in fishing gear and drifting plastic bags mimicking a gelatinous meal. Last year, a study estimated that around eight million metric tons of our plastic waste enter the oceans from land each year.

But where this plastic ends up and what form it takes is a mystery. Most of our waste consists of everyday items such as bottles, wrappers, straws or bags. Yet the vast majority of debris found floating far offshore is much smaller: it's broken-down fragments smaller than your pinky fingernail, termed microplastic.

In a newly published study, we showed that this floating microplastic accounts for only about 1% of the plastic waste entering the ocean from land in a single year. To get this number - estimated to be between 93,000 and 236,000 metric tons - we used all available measurements of floating microplastic together with three different numerical ocean circulation models.

Getting a bead on microplastics

Our new estimate of floating microplastic is up to 37 times higher than previous estimates. That's equivalent to the mass of more than 1,300 blue whales.

The increased estimate is due in part to the larger data set - we assembled more than 11,000 measurements of microplastics collected in plankton nets since the 1970s. In addition, the data were standardized to account for differences in sampling conditions.

For example, it has been shown that trawls carried out during strong winds tend to capture fewer floating microplastics than during calm conditions. That's because winds blowing on the sea surface create turbulence that pushes plastics down to tens of meters depth, out of reach of surface-trawling nets. Our

How much plastic is there in the ocean?

By Kara Lavender Law

statistical model takes such differences into account.

Maps of three model solutions for the amount of microplastics floating in the global ocean as particle counts (left column) and as mass (right column). Red colors indicate the highest concentrations, while blue colors are the lowest.

The broad range in our estimates (93 to 236 thousand metric tons) stems from the fact that vast regions of the ocean have not yet been sampled for plastic debris.

It is widely understood that the largest concentrations of floating microplastics occur in subtropical ocean currents, or gyres, where surface currents converge in a kind of oceanographic "dead-end."

These so-called "garbage patches" of microplastics have been well-documented with data in the North Atlantic and North Pacific oceans. Our analysis includes additional data in less sampled regions, providing the most comprehensive survey of the amount of microplastic debris to date. However, very few surveys have ever been carried out in the Southern Hemisphere oceans and outside of the subtropical gyres. Small differences in the oceanographic models give vastly different estimates of microplastic abundance in these regions. Our work highlights where additional ocean surveys must be done in order to improve microplastics assessments.

And the rest?

Floating microplastics collected in plankton nets are the best-quantified type of plastic debris in the ocean, in part because they were initially noted by researchers collecting and studying plankton decades ago. Yet microplastics represent just part of the total amount of plastic now in the ocean.

After all, "plastics" is a collective term for a variety of synthetic polymers with variable material properties, including density. This means some common consumer plastics, such as PET (resin code #1, stamped on the bottom of clear plastic drink bottles,



for example), are denser than seawater and will sink upon entering the ocean. However, measuring plastics on the seafloor is very challenging in shallow waters close to shore, let alone across vast ocean basins with an average depth of 3.5 kilometers.

It's also unknown how much of the eight million metric tons of plastic waste entering the marine environment each year lies on beaches as discarded items or broken-down microplastics.

In a one-day cleanup of beaches around the world in 2014, International Coastal Cleanup volunteers collected more than 5,500 metric tons of trash, including more than two million cigarette butts and hundreds of thousands of food wrappers, drink bottles, bottle caps, drinking straws and plastic bags.

We do know that these larger pieces of plastics will eventually become micro-particles. Still, the time it takes large objects - including consumer products, buoys and fishing gear, for example - to fragment to millimeter-sized pieces upon exposure to sunlight is essentially unknown.

Just how small those pieces become before (or if) they are degraded by marine microorganisms is even less certain, in large part because of the difficulty in collecting and identifying microscopic particles as plastics. Laboratory and field experiments exposing different plastics to environmental weathering will help unravel the fate of different plastics in the ocean.

Why it matters

If we know that a massive amount of plastic is entering the ocean each year, what does it matter if it is a bottle cap on a beach, a lost lobster trap on the seafloor, or a nearly invisible particle floating thousands of miles offshore? If plastic trash were simply an aesthetic problem, perhaps it wouldn't.

But ocean plastics pose a threat to a

wide variety of marine animals, and their risk is determined by the amount of debris an animal encounters, as well as the size and shape of the debris.

To a curious seal, an intact packing band, a loop of plastic used to secure cardboard boxes for shipping, drifting in the water is a serious entanglement hazard, whereas bits of floating microplastic might be ingested by large filter-feeding whales down to nearly microscopic zooplankton. Until we know where the millions of tons of plastics reside in the ocean, we can't fully understand the full suite of its impacts on the marine ecosystem.

Yet we don't have to wait for more research before working on solutions to this pollution problem. For the few hundred thousand tons of microplastic floating in the ocean, we know that it is not feasible to clean up these nearly microscopic particles distributed across thousands of kilometers of the sea surface. Instead, we have to turn off the tap and prevent this waste from entering the ocean in the first place.

In the short term, effective waste collection and waste management systems must be put in place where they are needed most, in developing nations such as China, Indonesia and the Philippines where fast economic growth accompanied by increased waste is outpacing the capacity of infrastructure to manage this waste. In the longer term, we must rethink how we use plastics with respect to function and desired lifetime of products. At the end of its life, discarded plastic should be considered a resource for capture and reuse, rather than simply a disposable convenience. ■

(Author: Kara Lavender Law, Research Professor of Oceanography, Sea Education Association. Erik van Sebille, Lecturer in Oceanography and Climate Change, Imperial College London.)

Interview: Rehan Hamid, continued from page #38

EU: As a company, what are the policies of STDC for health safety & environment?

RH: Human safety and asset safety are prime to us and we are committed to act responsibly with respect to people, health, safety and the environment. STDC is an ISO 9001, ISO 14001 and OHSAS 18001 UKAS certified company.

With respect to health safety and environment, we believe in Zero Tolerance for Negligence and Personal Protective Equipment (PPE) are mandatory while performing field work.

We have an integrated policy regarding HSE at workplace that put the relevant values for policy of environment, health and Safety Management System and its practices to meet or exceed customer's requirements and expectation for the satisfaction.

Customer satisfaction is supported by continuous improvement through planning and objectives of E&OHS management system and necessary corrective and Preventive actions against non-conformity at all.

STDC is committed to meet or exceed all legal and relevant legislation and regulatory requirements, agreements and other requirements for Environment, Occupational Health and Safety. STDC shall achieve the effectiveness of management system through review of services. However, monitor and measure the requirements of processes. STDC shall ensure the competence of its workmanship for marvelous outcomes for environment, health, and safety management system through awareness programs and shall make the policy statement transmissible to interested parties.

We have also designed a Worker's Health & Safety Handbook for all our office workers and operations and maintenance field workers to keep them updated with the policy. To ensure immaculate compliance, all field workers are required to keep the handbook with them every time. ■



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Question : What is the truest definition of Globalization ?

Answer : Princess Diana's death.

Question : How come ?

Answer : An English princess with an Egyptian boyfriend crashes in a French tunnel, driving a German car with a Dutch engine, driven by a Belgian who was drunk on Scottish whisky, followed closely by Italian Papparazzis on Japanese motorcycles, treated by an American doctor, using Brazilian medicines. And moreover this is sent to you by Pakistani using American technology, and you're probably reading this on your iPhone or Android or Windows phone or blackberry, that use Taiwanese chips and a Korean screen, assembled by Bangladeshi workers in a Singapore plant, transported by An Indian lorry-drivers.... That is Globalisation!



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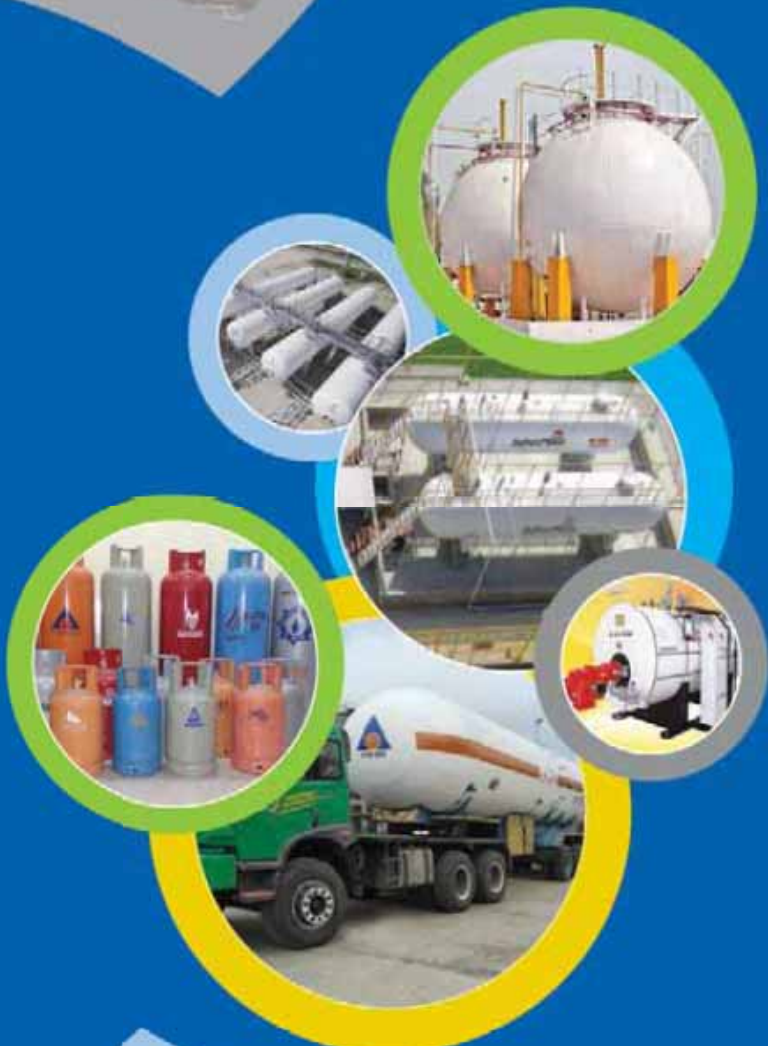
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Thar - giving back to the community

Tharparkar has been in the news for its extreme aridity, poverty, starvation, disease, low literacy and high infant mortality. But the fortunes of the district may be taking a turn for the better.

A \$2 billion Sindh Engro Coal Mining Company (SECMC), the biggest project under the 'game changer' China Pakistan Economic Corridor is at the heart of the Thari's welfare.

"Our work force comprises of 1,200 Tharis, besides 800 Chinese employees and 250 workers from other areas" Shamsuddin Ahmad Shaikh, Chief Executive Officer of both the projects - the Sindh Engro Coal Mining Company and the Engro Powergen Thar (Pvt) Limited - told this writer. "We believe that the local community should be the first to partake of any benefits that result from the Thar project", he asserts.

The SECMC chief informs about the steps taken for local poverty alleviation. "We have set up the 'Thar Foundation' in collaboration with companies engaged in Thar coal projects, together with the Government of Sindh, for the betterment of the people of Tharparkar through graduated and sustainable interventions in the fields of education, healthcare, livelihood, infrastructure, social preservation and disaster management", he says.

It was in 2014, that the Thar Coal Project was included in the CPEC as one of the early harvest projects. The venture comprises

of SECMC and its associated power plant, Engro Powergen Thar (Private) Limited (EPTL) - the later will generate electricity through off take of coal extracted from the coalmine. Main sponsors of the power project are Habib Bank Limited; Liberty Power and China Machinery Engineering Corporation (CMEC).

The Thar projects are being financed in the debt/equity ratio of 75:25. The Mining project would cost \$900m (revised to \$845m in the April 2017 update) while the power arm would need \$1.5bn for its construction.

Mr Shamsuddin Ahmad Shaikh proudly proclaims: "It is the biggest project in the private sector in the history of Pakistan and is also the country's biggest ever public-private partnership".

In the mining project the Government of Sindh has contributed 54pc of the equity portion, while other joint venture partners are Engro Powergen, Thal Limited, House of Habib, China Machinery and Engineering Corporation (CMEC) and Hubco.

The \$1.5bn debt portion in the project would be shared in equal portion by Pakistan and China. While the China Devel-

opment Bank would level \$750m, Pakistani financial institutions in the lead of HBL would extend \$750m for the project. "It is the biggest ever debt provided by the local banks to any private sector project in the history of Pakistan", says Mr Shamsuddin Ahmad Shaikh, which is an indication of the trust and confidence of banks in the project's prospect.

The CEO acknowledges the support of the provincial and federal governments, without which, he says, it would be difficult for the project to come to fruition. "The strategic importance of Thar Coal projects is recognised across the board and transcends political differences," states the company's April 2017 update.

The Sindh Engro Coal Mining Company was established in the year 2009 as a joint venture between the Government of Sindh and Engro Powergen Limited (EPL) with the primary objective of making effective use of the ample coal reserves in the Thar desert to meet Pakistan's power generation needs, spur economic development and bring energy security to the country, the company says in one of its early presentations.

At its peak, the coalmine would have the capacity to dig out 3.8m tons of coal per annum. The power plant, using the Thar coal, would generate 660MW of electricity per annum. After seven years of diligent efforts, the two projects achieved financial close on April 4, 2016. The project is scheduled to be completed

in 38 months - on June 3, 2019.

An April 2017 update about the Thar coal mining and power projects reiterates that the dependence on imported fuel sources is one of the major reasons for Pakistan's electricity problems. Volatile prices of imported fuel, coupled with the sector's inability to transfer its cost of production to consumers has given rise to circular debt resulting in serious solvency issues for electrical utilities and OMCs.

Thar contains the world's 7th largest coal reserves. "With the depleting sources of energy such as natural gas, the Thar projects would provide power to the country through the indigenous sources of Thar coal mine", says the SECMC chief executive.

The capacity of the power project is 4,000MW. "By 2020, when the power generation from our plant would reach 1,320MW, the cost would drop below the international prices of coal, which would make it the cheapest source of power per unit for the country", Mr Shamsuddin Ahmad Shaikh affirms. ■

courtesy: Daily Dawn

'63pc workers hired by mining firm are Tharis'

WITH regard to the report titled 'Mining firms violate labour laws, basic rights of Tharis' published in these columns on April 29, 2017 the Sindh Engro Coal Mining Company (SECMC) has issued the following clarification:

The SECMC has said that "out of 1,630 employees the company has hired so far, 63 per cent belong [to] district Tharparkar, 27pc [to the] rest of Sindh and 10pc [to the] rest of Pakistan. The hiring of local human resource from Thar is done under Khushad Thar (KT) programme through a very competitive and transparent mechanism."

The SECMC spokesperson has said that "KT was established by Thar Foundation under the umbrella of SECMC with [the] sole purpose to give opportunities to the local people of Thar. All the job applicants are registered in a database with their level of education and skills and they are further referred for jobs to SECMC's Engineering & Procurement Contractors (EPC) and sub-contractors on "First In, First Out" basis.

"In one of the recent recruitment campaigns, 25 young Thar Trainee Engineers were selected from all around Tharparkar who underwent a thorough screening process two months ago.

"The minimum wage, weekly rest days, eight hours' duty, overtime against extra worked hours, appointment letter issuance with group life insurance coverage to all skilled staff, entitled leaves, registration with EOBI, medical and first aid facility at site, meals, accommodation and transport facility are being provided as per labour laws in true letter and spirit." ■

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The Benefits of a 'Basin-Wide' Approach: Experiences from Pakistan Hydropower

**Kate Lazarus, Team Leader for IFC's Environmental and Social Hydro Advisory Program
Jahanzeb Murad, Manager Safeguards, Mira Power Ltd.**



EU: As background, please tell us about the extent and details of IFC's current engagements in Pakistan's hydropower industry? Besides providing support to the government, is it possible for IFC to encourage and assist the generation of hydroelectricity in the private sector?

IFC: Pakistan represents IFC's largest exposure in the MENA region, with a current investment portfolio of about \$1.2 billion in 46 companies, in sectors including infrastructure (energy, ports, and transport), financial markets, and general manufacturing and services.

In 2015, we invested a total of \$205 million in the energy sector to help expand access to electricity for domestic users. This included the mobilization of \$155 million from IFC and other financial institutions in the Gulpur Hydro project with Mira Power in the Jhelum-Poonch River Basin, and \$15 million in Gul Ahmed Wind Power to help build and operate a new 50-megawatt wind farm in Sindh Province.

In 2015, IFC acquired a 15 percent stake in China Three Gorges South Asia Investment Limited, the renewable energy platform company in Pakistan of China Three Gorges Corporation (CTGC), to help

develop a series of renewable energy projects that are expected to provide electricity to more than 11 million people.

In March 2017, IFC announced its investment in the \$100 million landmark 720-megawatt Karot run-of-river hydropower project, one of Pakistan's largest renewable energy projects, to help address the severe power shortages and spur growth. This deal marks our first project finance engagement with CTGC, one of the world's largest renewable power companies EU.

Q: What are some of the most pressing environmental and social challenges for the hydropower sector in Pakistan?

IFC: Maintaining Pakistan's rich ecology and diverse environment is a particular challenge, because there are currently so many projects under development in the Jhelum-Poonch River Basin, with limited institutional capacity to manage them. IFC is helping companies and authorities conduct basin-wide studies by drawing on individual project assessments, bringing developers and contractors together, and providing the necessary training to build capacity at local level and in the private sector.

Another pressing challenge in the Jhelum-Poonch is to coordinate companies to better understand the upstream and downstream risks associated with each individual project. We've set up a Pakistan Hydropower Developers' Working Group (HDWG) to bring all the companies operating or planning to develop in the basin together to share information and receive joint training. Through the HDWG, companies can share challenges and learn from each other.

Mira Power: Private sector hydropower development is comparatively a recent phenomenon in Pakistan. There are various international players that bring various ranges of practices, contributing to the formation of this sector. A unified approach is the lacking at present, but IFC as a major financier is contributing to this formation phase. Currently there are various environmental and social challenges.



The capacity and commitment of government institutions needs to be enhanced. Understanding and attention of media and civil society platforms towards environmental and social issues are less common in general. There are less stringent regulatory obligations particularly towards basin-level approaches, therefore there are different standards implemented by different projects within the same basin.

There was a slight hesitation from government due to a general fear of unknown that the implementation of such approaches is time consuming. The severe energy crisis situation was forcing the governments to avoid any risk of delays. Government understanding and capacity has now improved and that fear has reduced due to implementation of Gulpur hydropower project on time.

The Gulpur Hydropower Project is located in the Poonch River Basin and in the Mahaseer National Park. We knew from the start that if we were going to pursue this project with funding from IFC and other international financiers, we would need to work with local authorities to address the complex environmental challenges.

We needed to understand the impor-

tance of the critically endangered and endangered fish species in the Poonch and identify ways to avoid, reduce, and offset negative impacts at a population level and show net gain in critical habitat values to meet IFC's Performance Standards. Through our initial Biodiversity Action Plan, we have been able to support extensive protection and conservation measures that are now being scaled up to a basin-wide Biodiversity Strategy for the whole Jhelum-Poonch Basin, and which involves several private sector developers with IFC loans, academics and NGOs such as the Himalayan Wildlife Foundation, as well as the authorities from the three riparian provincial authorities as well as the central government of Pakistan.

EU: How is the Gulpur Hydropower Project working to achieve net gain in biodiversity?

Mira Power: Together with IFC and ADB, Mira Power planned and implemented Gulpur Hydropower project to achieve net gain in biodiversity which was unprecedented in the country. A basin level approach was adopted first ever and a globally certified computer-based complex modeling approach was used to optimize the project location, design, construction and operations. As a result the original design of the project was discarded on environmental grounds through which a low flow section of the rivers was reduced from six kilometers to a less than one. The project's terrestrial footprint was reduced to almost three times of the original. The originally planned involuntary resettlement of almost 128 households due to reservoir was reduced to zero. The original peaking option was discarded. The environmental and social components were included in the project documents including implementation agreements and other key documents.

The concept of environmental and social cost was rigorously promoted for the recognition and acceptance by regulators.

A Biodiversity Action Plan (BAP) was developed for the Poonch basin by the project in consultation with all stakeholders. The same is implemented through landmark agreement on a novel concept of public-private-partnership for conservation. An implementing agency, a renowned conservation NGO (HWF) has been engaged with Government's Fisheries & Wildlife Department to implement the BAP.

The BAP calls for conservation and protection measures aimed at reducing pressures from deforestation, illegal fishing and gravel mining in the river bed, and enhancing overall habitat quality for the targeted fish species. This is expected to offset negative impacts, and result in net

gain on key biodiversity values, namely the Critically Endangered Kashmir Catfish and the Endangered Golden Mahaseer, which is a valued game fish and an important source of protein for local population. The BAP also includes building hatcheries for these two species, as well as conserving other key ecosystem services such as waterfalls for tourism, as well as traditional livelihood uses including artisanal water-mills.

IFC: Our role is to provide the resources to help our clients and riparian government and other stakeholders support scaling up Gulpur's BAP to the whole Jhelum-Poonch basin, including engagement of other private hydropower developers with existing or planned projects in this basin. This required multiple consultations and permanent engagement with local authorities, hydropower companies, the government of Pakistan, academia and NGOs. IFC is also supporting additional environmental flows, fish surveys and population studies in tributaries that are not earmarked for hydropower development yet, and thus were not covered by any project ESIA.

EU: What are the practical advantages or benefits of taking a cumulative or basin-wide approach to planning?

IFC: Understanding the environmental and social characteristics of a basin is essential for the sustainable planning and management of hydropower development. In the case of the Jhelum-Poonch Basin, modifications are already in place with existing or current projects. It's important that each hydropower developer understand what is happening upstream or downstream in their project, especially with regard to ecosystem connectivity, river flows, sediments loads, and fish population and critical life history's processes.

We believe that when every single hydropower developer conducts its own cumulative impact assessment, the process is ineffective and inefficient. Therefore, IFC encourages and fosters cooperation and coordination amongst different stakeholders. Getting multiple companies on board means they can move toward a basin-wide approach together and manage risks collectively. They can also implement sustainable practices, pool their resources, share data, and coordinate to avoid increased costs. We help clients identify their cumulative risks and guide them toward effective measures to manage or mitigate these challenges, and create capacity among local government environmental authorities.

Mira Power: It benefited the project because we considered this approach at a planning stage. With this approach the project was in a position to demonstrate a net environmental gain which was a

precondition for the approval of financing. The apprehensions of financiers and their stakeholders were resolved due to this approach that triggered change in design which resulted into several advantages to the project. These included but not limited to zero involuntarily resettlement due to reservoir, reduction in terrestrial footprint of the project, a nationwide support from conservationist and civil society, international recognition through various awards and a good reputation at government agencies and financiers etc.

The basin approach provides an opportunity for the developers to plan a project on true principles of sustainability which ultimately defends the project in satisfying the apprehensions stakeholders during various stages of implementation. The initial results of BAP implementation are indicating that the basin is generally improving which is encouraging the sponsor's towards the social responsibility. The project sponsors and financiers are now happy interested to collaborate on future projects.

EU: What are IFC's lending requirements for renewables? Can Mira Power share their type of financing with IFC for others to learn?

IFC: We typically make loans from our own account for seven to 12 years; our investment services also include equity, trade finance, syndications, venture capital, and asset management. What's most important in renewables is for clients to be committed to environmental and social sustainability—transparency, accountability, and sound stakeholder engagement can make or break a project's success, and its lending eligibility with IFC. Our strength as a lender in emerging markets, where renewables are often found, is our ability to manage environmental and social risk by assuring compliance with our Performance Standards, and provide a solid capital position.

Mira Power: Mira Power considers lenders as partners in success. Mira Power has a 17 years loan from IFC on non-recourse basis. Mira Power believes that under the non-recourse financing approach where all the risks are allocated with relevant stakeholders with the help of IFC provided a huge advantage in completion of the project within allocated time and budget. Secondly the environmental and social requirements of IFC are practical if considered at the planning stage. It generally looks tedious initially however it ultimately helps in engaging stakeholders.

Keeping in view the prevailing practices, IFC takes a continual improvement approach in order to help the developers in moving towards a right direction. ■

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NFEH & CSR Club Pakistan teams visit Thar Coal & Energy Project

Shazia Abu Talib, Communication Secretary, CSR Club of Pakistan

Team of National Forum for Environment & Health (NFEH) & Members of CSR Club of Pakistan were hosted by Sindh Engro Coal Mining Company (SECMC) in Tharparker over 2 days visit. We left from Karachi early morning it was an amazing journey to travel from the well-developed roads constructed by Sindh Govt.

All members were very enthusiastic after reaching Tharparker we kicked off our day by visiting Saylani charitable school, hostel where upto 2700 hundred students will be accommodated and a beautiful Masjid which is a remarkable interest towards Humanity.

We then participated in Earth Day celebration by planting trees in Green village there we also visited the Model house constructed by SECMC for relocating the residents where their future power plant



electricity and by 2030 Pakistan will be able to produce least rate electricity as forecasted. ■

Salman Siddiqui, Deputy Manager SSGC

I have been to a few such visits before but none of them can match the one we just had to Tharparker. A number of factors combined to contribute as disjunction of this visit. To begin with the subject itself, as I had never been to a coalmine site before and it was a unique experience, specially getting to learn the amazing details from the articulate Brigadier sahib who had such a wonderful grip on the subject which he very ably demonstrated both at the site and in the conference room. Planting saplings in commemoration of Earth Day and later visiting the model houses to be constructed by Engro for the inhabitants were definitely moments of great delight. Moreover visit to Engro's power plant site was also highly informative and the young UET graduate was equally impressive in sharing details and

answering our queries. The visit to Khushaal Tharparker was also knowledgeable as the young officers of Engro kept on impressing us. But definitely the best was yet to come, as witnessing the colors of happiness and layers of jubilation visible on the faces of villagers of Odani while expressing their gratitude to Engro for rebuilding more than 200 houses that were recently burnt, was indeed heart touching, considering the very fact that Odani was far away from Engro's jurisdiction. ■

Raees Fatta, Saylani Trust

Saylani team is very thankful to entire CSR management and specially Mrs. Ruqaya Naeem and Naeem Qureshi sahab for providing such an opportunity. Everybody is sending messages with kind thankful words. But here I want to give one suggestion here that if we people also share our ideas, suggestions and future plans for the people of Thar. Insha Allah from Saylani you will soon receive a message with suggestions and new ideas for Thar people. ■



will be projected. In order to explore our Natural resource coal we visited mining field where engineers of Engro are working 360 days 24/7 after which a presentation was given where we learnt that our Coal is world's second best quality after Germany. The coal will be extracted by 2019. There are so far 7 power generation companies which will be working in generating



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ConsTech - an Introduction



ConsTech Services Int'l is an Engineering, Trading and Turnkey Contracting Company based in Lahore. ConsTech has its branch offices in Karachi and Islamabad as well.

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ConsTech deals in Industrial and Hazardous Area Lighting Fixtures, Spares, Lighting Components, all types of Lamps, Energy Savers, LED Lamps, Junction Boxes, Local Control Stations LCS, Cable Glands, Blanking Plugs, Stoppers, Reducers, Plugs and Socket Receptacles (Welding Outlets) Electrical Accessories, Fuse, Fuse Gears, Surge Protection Devices (SPDs) and Fuse Switch Disconnectors. ConsTech has recently introduced LED Lighting Products including LED Lamps and LED Street Light Fixtures. ConsTech offers competitive prices for high quality products like Flame Proof Lighting, Junction Boxes, Electrical and Mechanical Products for Hazardous Area and industrial applications.

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Irish beach reappears 33 years after vanishing into Atlantic Ocean

A beach that was swept away more than 30 years ago from a remote island off the west coast of Ireland has reappeared after thousands of tonnes of sand were deposited on top of the rocky coastline. The 300-meter beach near the tiny village of Dooagh on Achill Island vanished in 1984 when storms stripped it of its sand, leaving nothing more than a series of rock pools.

But after high spring tides last month, locals found that the Atlantic Ocean had returned the sand. "It's enormously significant," Sean Molloy of Achill's tourism office told the Irish Times newspaper, recalling how the popular beach once sustained four hotels and a number of guesthouses on the west coast of the island of 2,600 people.

"Achill already has five blue-flag beaches, so we are hoping that in time it will be awarded a sixth."

Eerie model of Picasso's corpse in Spain makes subtle jab at capitalism

A life-size model of the corpse of Pablo Picasso lies on a plinth in his home city of Malaga, eyes closed, hands folded. The artist who transformed his subjects into Cubist abstractions is immortalised in an eerily realistic sculpture dressed in



his trademark blue and white striped jersey and black rope-soled shoes. The work, made of silicon, resin, and fibreglass, with human hair and real clothes, was created by Spanish artist Eugenio Merino – best known for his hyper-realistic models of dictators, including Spain's Francisco Franco. Picasso lies in a small room in the city's branch of the Alliance Francaise cultural institute, the end point of a tour following the landmarks of his life. On the surface, it looks like another scheme to draw in tourists. But, say the organisers, the tour and sculpture are actually a critique of the way the city has used Picasso for commercial ends.

Their Picasso tour passes by the church where he was baptised, his school and the bull-ring, before ending abruptly with his body, laid out near a marble gravestone that reads in gold lettering: "Here lies our good friend Pablo Picasso (1881-1973)".

French artist succeeds in hatching eggs after one week

French artist Abraham Poincheval, who famously spent a week inside a rock and two weeks inside a bear sculpture, has succeeded in hatching chicken eggs after incubating them for some three weeks. Poincheval embarked on his latest project in late March of imitating a mother hen by incubating some 10 eggs with his own body heat inside a glass vivarium at Paris' Palais de Tokyo contemporary art museum.

At the time, he estimated it would take 21-26 days for the eggs to hatch and the first did so. A spokeswoman for the museum said nine had hatched and the chicks were on their way to a farm. For the endeavor, Poincheval sat on a chair, wrapped in an insulating blanket, over a container with the eggs. He could leave his seat for no more than 30 minutes a day for meals.

This Sky glass pool in downtown Houston will send shivers down your spine

Want to try something daring enough? We have something for you. The Market Square Tower in downtown Houston has a swimming pool just for you. Before you start your speculations over the swimming pool, we must tell you that it's not an ordinary one.

The swimming pool is actually a glass pool which is built 40 stories up. The new apartment building showcased its swimming pool on its social media in a video with bird's eye view of downtown.

The "sky pool," the 777 Preston apartment's swimming pool extends 10 feet beyond the side of building, 500 feet above Preston street.

Prices to live at the apartment range from \$1,805 for a 564-square-foot studio, to \$18,715 per month for a 2,993-square-foot penthouse.



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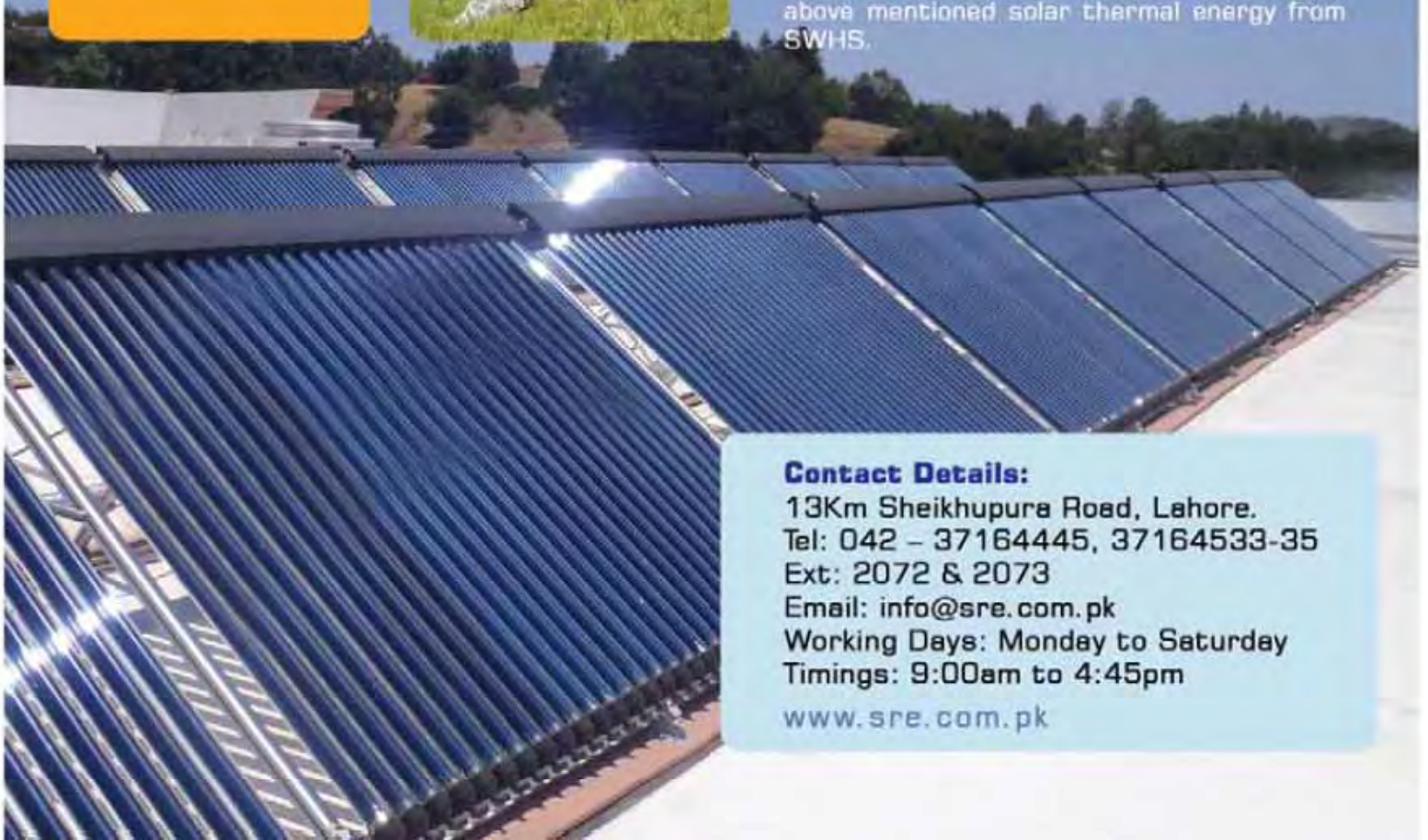
We Siddiq Renewable Energy (a subsidiary of Siddiq Shafi group) are the pioneers in Pakistan for installing industrial scale evacuated tube based non-pressurized solar collector system for process water heating with 60 m³ or 60,000 liters/day at 60°C capacity.

This system has a collector area of 400 m² with an efficiency of 76%. We are taking an average annual output of 922,762.0 Kwhth (9227 MWhth) from our SWHS. 40 % of the hot water needs are met by this system. It has considerably reduced the fossil fuel consumption at our facility resulting in good monetary savings in shape of lower energy costs with a payback period of 3-5 years depending upon the energy mix. The following explains the process flow for gaining the above mentioned solar thermal energy from SWHS.

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PPL-funded NICU inaugurated at Indus Hospital



MD & CEO Pakistan Petroleum Limited (PPL) Syed Wamiq Bokhari inaugurated the PPL-funded Neonatal Intensive Care Unit (NICU) at Indus Hospital (IH)'s Shaikh

Saeed Memorial Campus (SSMC), Karachi on May 2. CEO, IH Dr. Abdul Bari Khan and Senior Manager Administration, SSMC Dr. Farah Bari along with representatives from both organizations were present at the event.

Speaking on the occasion, Bokhari highlighted PPL's role as a responsible national entity and its abiding commitment to the well-being of underserved communities, particularly with respect to mother and child healthcare.

Earlier in December 2016, PPL donated Rs. 12.4 million to IH as part of its Corporate Social Responsibility (CSR) programme to fund the operationalization of a state-of-the-art NICU at IH's SSMC located near Korangi, Karachi, catering to over 0.5 million people living in the vicinity beside those coming from other areas.

IH was established in 2007 to extend free-of-cost quality treatment to the underserved. Currently, IH serves around 1000 in- and out-patients daily through its eight facilities across the country. ■

PPL supports Rangers Special Children School

Pakistan Petroleum Limited (PPL) donated Rs. 3.6 million to Quaid-e-Azam Rangers Special Children School (QRSCS), Karachi for monthly fee of 10 deserving students over a period of 10 years until they complete their matriculation.



MD & CEO PPL Syed Wamiq Bokhari handed over the donation cheque to Principal, QRSCS Zahida Jalees in the presence of officials from both organizations at a simple event organized at the school.

Speaking on the occasion, Bokhari highlighted, "As a responsible national company, PPL remains committed to serving marginalized communities, including those with special needs, through a viable and diverse CSR programme. We have supported a number of educational and sports efforts to enable challenged individuals throughout the country to develop their full potential and lead a normal life."

PPL has been adjudged as one of the largest corporate givers in terms of volume of donations for 12 consecutive years by the prestigious Pakistan Centre for Philanthropy. The company spent over Rs. 990 million for CSR initiatives during 2015-2016. ■

SECMC and Reham Khan inaugurate first free Wifi villages of Sindh



With an aim to make people empowered through access to information, the Sindh Engro Coal Mining Company (SECMC) with the support of Wateen Telecom inaugurated first Free WiFi villages of Tharparkar, Sindh.

The inauguration was performed by SECMC CEO, Mr. Shamsudin Shaikh and TV celebrity and Filmmaker Reham Khan during a ceremony held here in village Senhri Dars of Taulka Islamkot, Tharparkar.

Speaking on the occasion, Mr. Shaikh said that in the first phase, two villages, namely Tharyo Halepoto and Senhri Dars has been provided with the Free WiFi facility at the speed of 3MB. While in the second phase, he added, all the schools of Thar Coal Block II will be made Free WiFi. "We want to take children of our host communities into the 21st century at par with children of urban centers of the country," said, Mr. Shaikh. He said, they are working on to making entire Thar Block II as Free WiFi block in the upcoming

phase and ground work is being prepared in this regard.

"We are already implementing a comprehensive Corporate Social Responsibility (CSR) plan for provision of quality education, state of the art health facilities and clean drinking water facilities to the host communities with around population of 10,000 inhabitants," he said. "Provision of scholarship to deserving students and Thari Trainee Engineers program has also been underway for Thar Coal Block II residents," Mr. Shaikh added.

Ms. Reham Khan said "Internet has become necessity of life and provision of the same free of cost to the socioeconomically downtrodden people of Tharparkar is a noble cause". "Internet facility will empower them with information and education. Resultantly, they shall be standing at par with fellow countrymen of urban centers," she said. ■

Pick your role! *Project Manager* is a Person who thinks nine women can deliver a baby in One month. *Procurement manager* is a Person who thinks it will take 18 months to deliver a Baby. *Operations Manager* is one who thinks single woman can deliver nine babies in one month if she works harder. *Marketing Manager* is a person who convinces anyone that he can deliver a baby even if no man and woman are available. *Financial Budget Team* thinks they don't need a man or woman; they'll produce a child with zero resources. *Planning and Technical Team* thinks they don't care whether the child is delivered, they'll just document 9 months. *Quality Manager/ Auditor* is the person who is never happy with any delivered baby. *HR Manager* is a person who thinks that... a Monkey can deliver a Human Baby - if given 9 Months. *Customer* is the one who doesn't know why he wants a baby. ■■■■



PSO's managerial excellence at JIMCO terminal



Vice President Operations, Total Parco, Rene Pierre Raffalli and other high officials, recently visited the JIMCO Oil terminal in Mehmoodkot, Punjab to review the termi-

nal operation. JIMCO Oil Terminal is a joint venture of Pakistan State Oil (PSO), Shell Pakistan and Total Parco (former Caltex Pakistan) is being managed by PSO. He was briefed regarding the installation, product storage capacity, modes of receipts and upcoming storage enhancement projects and HSE practices in operations. They also visited the operational areas and the new 26 point filling gantry at the terminal. Rene Pierre praised PSO team over its professional management of the terminal at par with world's best practices and operating procedures. He expressed his

appreciation for the command and control system which facilitates safe and professional handling of the product on large level. He also praised PSO's effective and cordial working relationship with JIMCO partners. Writing his thoughts in the visitors' book, Rene Pierre stated: 'I am delighted to be here at this state of the art facility being superbly managed by team PSO. I was told that the facility is crucial to maintain an uninterrupted supply of fuel across Punjab which further necessitates that it functions without a hitch. I congratulate PSO for effectively managing the facility which is vital to meet the country's fuel needs, as well as for the smooth



operation of the partnering OMCs.' JIMCO Oil Terminal was commissioned in 1981. As is spread over an area of 53 Acres. The terminal has total product storage capacity of 25578 KL of HSD/SKO. For the last few years, PMG is also being handled from the terminal to facilitate PSO's retail customers and depots. The usual transaction mode from JIMCO is Rail/Road and pipe line. Along with a daily average throughput of 15000 KL handled safely. This Terminal has maintained a leading position in health safety and environment. ■

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The next French President is 39 years old. But that is not the news. He is married to a 64 year-old, that is still not the news. His wife was his class teacher 24 years ago...not still the news. His then class teacher had a daughter who was his class-mate...everybody including his parents thought this teacher's daughter was his girlfriend...nope they were wrong. He fell in love with his class teacher when he was 15...she was "happily married" with 3 kids...now the "happily married" is relative in this context. At 17, he promised to marry her. She was at the time 42 years. They got married in 2007 with our man now 30...well she was almost 55. Next month he is going to be sworn-in as the President of France 6 months to his 40th birthday while his lovely wife who has 3 adult kids and 7 grandchildren (her first child is two years older than her husband while her second child, the former classmate/sweetheart is the same age as him). His name is Emmanuel Macron (39) and he is the next President of France.



PSO declares profit for Rs14.2 billion for 9 months

The Board of Management (BoM) of Pakistan State Oil (PSO) convened on Sunday, April 23, 2017 at company's head office PSO House to review the company's performance for nine months period from July 1, 2016 to March 31, 2017 of financial year 2016-17. Meeting was chaired by Mr. Musadik Malik.

During the period, the company showed volumetric growth in Mogas of 11%, in HSD of 12%, in JP-1 of 22% and in FO of 15% over same period last year (SPLY). LPG business showed a growth of 132%, CNG business grew by 15%, Lubricants sales volume grew by 25%, whereas LNG business grew by 107% over SPLY. Moreover, PSO continued to lead the liquid fuel market with an overall market share of 55.1% (9MFY16: 55%). The market share of Black Oil rose to 72.7% from 69.5% SPLY, whereas the market share in White Oil stood at 44.6% vs 45.9% SPLY.

Due to commitment of our employees, the company had Profit After Tax (PAT) of Rs. 14.2 billion (9MFY2016 PAT: Rs. 4.6 billion). This was due to favorable growth of sales volume & net margin and reduction in finance cost (despite increase in average borrowings by Rs. 19.5 billion) during the period due to effective treasury management. Keeping into account the performance of the Company, the Board declared an interim cash dividend of 100% i.e., Rs. 10 per share.

Additionally PSO imported 69% of industry imports to ensure uninterrupted product supply across the country. Furthermore refinery upliftment improved to 37% (9% increase over SPLY) and new Cards business solution went live on March 1, 2017. Non Fuel Retail initiated deployment of "Refuel" vending machines and ATMs at PSO's retail stations nationwide. The company is also undertaking brand building activities and corporate campaign was launched in January 2017 with the theme 'Every Journey Begins Here'. PSO CSR Trust has been formed for carrying out CSR activities in the fields of Education, Health Care, Community Building and Disaster Relief.

The outstanding receivables (inclusive of LPS) as of March 31, 2017 stood at Rs. 285.5 billion (June 30, 2016: Rs.

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Pakistan finalizes policy recommendations to use biomass technologies in industry



The United Nations Industrial Development Organization (UNIDO) in collaboration with Alternative Energy Development Board (AEDB) organized a workshop to collect feedback from stakeholders on biomass policy. Recognizing the need for tapping all possible energy sources available to Pakistan, especially renewable sources such as biomass, UNIDO is implementing a Global Environment Facility (GEF) funded project titled, "Promoting Sustainable Energy Production and Use from Biomass in Pakistan". The project aims to promote the market-based adoption of modern biomass technologies for industrial and rural energy applications with particular focus on the introduction of biomass gasification technology. In keeping with the project aims and objectives, UNIDO is providing technical assistance for the development of concrete policy recommendations for policies and regulations relevant to the promotion of modern biomass technologies for both existing and future policy regimes with particular focus on utilization of biomass energy in industries. Deriving lessons from international best practices, UNIDO Pakistan's technical team developed the following documents: Recommendations to existing policies and regulations for better promotion of biomass, recommendations for the management and pricing of biomass resource, technical quality standards for biomass gasifier manufacturing and import.

The consultative stakeholder workshop, had over 70 participants including representatives from AEDB, NEPRA, Provincial Energy Departments, private sector, academia and several other stakeholders, provided those present the opportunity to comment on the aforementioned documents developed in order to finalize them before official submission to AEDB for implementation. The event was chaired

by the Chief Executive Officer of AEDB Mr. Amjad Ali Awan. He stressed that such events are important opportunities for sharing of knowledge, experiences and expertise to influence the policy making process. He highlighted the importance of biomass energy technologies both as a means to address the energy challenges in the country and an important opportunity to save fuel and diversify its energy mix to include clean indigenous energy sources. Mr. Neil Buhne, the United Nations Resident and Humanitarian Coordinator in Pakistan described biomass as a 'huge resource' for the country with immense benefits not just in energy and economic terms but also as a driver to bring about several social and environmental benefits in the country. He linked promoting biomass with the achievement of several sustainable goals and highlighted the importance of biomass as part of the larger bio-economy with volume of over 2 trillion dollars globally. Speaking on the occasion, the UNIDO Representative to Pakistan Mr. Esam Alqararah informed the audience of the role and mandate of UNIDO to promote clean and sustainable energy solutions such as biomass for industrial and other applications. ■

Global 100% RE to launch international event

The Executive Committee of Global 100% RE will launch event of the Global 100% Renewable Energy Platform, taking place at Gustav-Stresemann-Institute in Bonn, Germany, in May 2017. Over the course of the last couple of years the Global 100% RE Campaign has succeeded in creating a global movement for 100% Renewable Energy focusing on inclusive bottom-up processes and uniting very big, worldwide networks in the field. After years of functioning successfully as a network, the campaign will become a legal entity in the form of The Global 100% RE Platform. This will be a pivotal moment for accelerating the campaign's outreach and operability, as well as demonstrating our commitment to making Global 100% RE a reality. In addition to the official ceremony, participating organizations will present actual solutions and strategies for achieving Global 100% RE. ■



"They won't let me through security until I remove the bullets from my Word document."

A Student who got 0% Marks, was surprised because his all answers were seemingly correct. Read his answers and have a blast.

Q.1 - In which battle did Tipu Sultan Die? Ans. - In his Last Battle.

Q.2 - Where was the Declaration of Independence Signed? Ans. - At the Bottom of the Page.

Q.3 - What is the Main Reason for Divorce? Ans. - Marriage.

Q.4 - Ganga Flows in which State? Ans. - Liquid State.

Q.5 - When was Mahatma Gandhi Born? Ans. - On His Birthday.

Q.6 - How will you Distribute 8 Mangoes among 6 People? Ans. - By Preparing Mango Shake.!!

Q.7 - India Me saal bhar Sabse Zyada Baraf Kaha Girti Hai...??? Awesome Reply By Student :- "Daaru K Glass Me..."

Q.8 - Why Hindu Law does not permit Second Marriage...??? Ans. - Indian Constitution - Article 20(2)-says, "No man can be punished twice for same offence"

Have a laughing day





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