

MONTHLY

ENERGY UPDATE

ISSN 2309-6578

Trap of surplus power
capacity

SSGC resorts to longest
ever loadshedding

KE performance far
from exemplary

HUBCO to retain top
slot as largest IPP

ADB opposes coal-powered plants
yet continues to finance coal

Exclusive Interviews



Khalid Mansoor
CEO, Hub Power
Company



Jahangir Piracha
CEO, Engro Elengy
Terminal Port Qasim



**Rolf Michael Hay
Pereira Holmboe**
Ambassador of
Denmark



**Prof. Dr. Sarosh
Hashmat Lodi**
VC, NED University
of Engineering &
Technology

Pakistan, among most
threatened countries
to climate change





Monthly
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UPDATE** presents

10th Annual

Power Gen

Conference & Showcase 2018

**The Next Emerging Challenge:
Sustainability & Growth**

**May 09, 2018
Marriott Hotel, Islamabad**

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SSGC resorts to longest ever loadshedding

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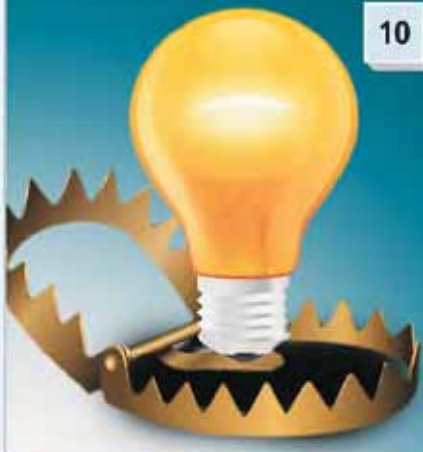
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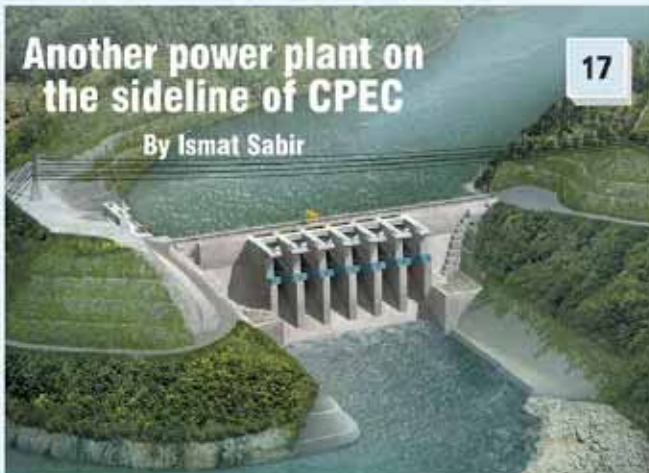
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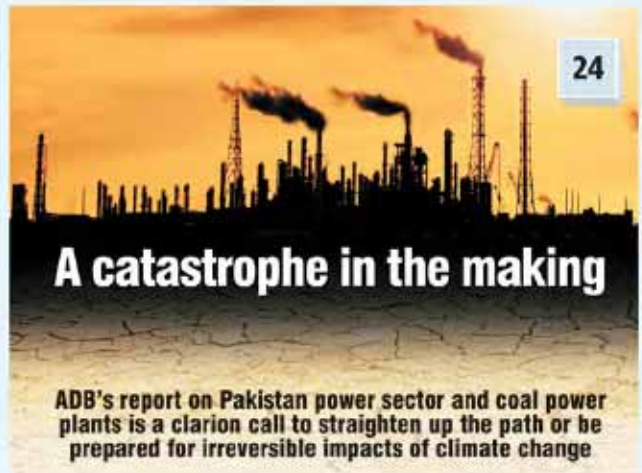
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From the editor's desk...

Gas load-shedding becoming big headache

Low pressure and gas load-shedding has been part of the winter season in Pakistan for years now. The complaints have been similar this year, if not the same. Recently, gas shortage aggravated in many areas of Sindh particularly in Karachi. While this has become the new normal for the country, it wasn't taken well after the government repeatedly boasted about both power and gas surplus this year.

The reason however, behind the recent decline in gas supply had been a fault in the LNG terminal, which cut a supply of 600 mmcf to the national grid due to which a big chunk of indigenous gas meant for Sindh and Blochistan is being diverted to upcountry.

The new RLNG terminal at Port Qasim had reportedly incurred a major technical fault of leakage in an insulation joint that connected the system to the pipeline infrastructure, which eventually forced Sui Northern Gas Pipelines Limited (SNGPL) to divert the gas from the industry to the domestic household sector.

However, the gas supplies in the country shot up as the second RLNG terminal at Port Qasim finally became operational after a long period of delay. Increasing the supply of RLNG by 600 mmcf, the country now has started receiving about 1.2 bcf of imported LNG. The government has claimed it to be a big achievement at a crucial time as many areas of Punjab and parts of Rawalpindi and Islamabad are still experiencing low pressures and gas shortages.

The coming months will tell how tall government's claims stand. However, one thing is worth mentioning when it comes to increasing the resource base: the authorities have thus far focused on imported gas to bridge the shortfalls - whether that of gas or electricity. The present government's interest in the E&P sector has been meagre. This is why there has been no auction of new blocks to the E&P companies by the current government until now; However, nearing the completion of its tenure, the federal government is now looking to go into bidding for new blocks to the oil and gas firms to hunt for new reserves.

The government's enthusiasm for RLNG can also be seen from its upcoming plans. It claims that around 2450 MW RNLG based power plants would be completed by February 2018, which includes Haveli Bahadur Shah Combined Cycle Power Plant and Balloki Combined Cycle Power Plant. It is also considering to authorise private sector to directly supply RLNG to the consumers and is ready to assist the Sindh government to establish its first RLNG based power plant of 1200 MW. Furthermore, a 660 MW RLNG based plant in KP might also get a nod soon. But how the domestic sector and CNG vehicles would survive sans gas supply or low-pressured gas that is continuing for the past many months unabated. What happened to many new sources of gas recovery in Sindh and elsewhere?

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SSGC resorts to longest ever loadshedding

Its gas shortage or company's part of unfair practices

By Sajid Aziz

It's not K Electric or KWSB or any other civic agency that has made Karachiites' lives miserable but it's Sui Southern Gas Company (SSGC) that is resorting to loadshedding for the last many months not only creating social problems but making the people's lives miserable. The SSGC has chosen the time for loadshedding exactly in the morning when the elders are getting prepared to go to their offices, children for the schools and colleges and always remain in a hurry to have shower, breakfast so that they can rush to their destination, alas! its SSGC that once had the reputation of a renowned organization with good business practices with a care for its consumers. Its irony that the same organization has totally failed and flopped in every core of its job.

As it has every day's scenario, the consumers are becoming impatient, the agony they are getting from SSGC is becoming unbearable now. The only thing SSGC is doing now a days is sending bills to the consumers, that too is quite inflated, bigger than ever. It's becoming a mystery that why this problem is persisting for the long time and no official is able to give right answer but a SSGC official requesting anonymity said that low gas pressure irks the people because on one hand it takes a long time to prepare meals and, on the other, the low pressure causes the gas meter to run faster than usual. "It is very difficult for us to curb gas theft because the pipelines are laid underground and therefore the only solution is to reduce its pressure during off peak hours," said the official. It seems that SSGC has resorted to adopt unfair means to mint



money like K Electric.

The burning issue of gas loadshedding was taken up in the National Assembly as Pakistan Muslim League – Nawaz MNA Tahira Aurangzeb even linked the divorce rate to gas loadshedding. Though no such incident has been reported in upper Sindh, heated arguments often take place between husbands and wives over the inevitable delay in meals. In most cities and towns in upper Sindh, more than 80 per cent parts of Karachi, gas is cut off at night and in the morning the pressure is too low that it takes 20 minutes to brew a cup of tea. In Sukkur gas supply is cut off at night and restored at 8am, however, the pressure is very low, often causing schoolchildren and office workers to leave home without having breakfast. Sui Southern Gas Company (SSGC) officials claim that gas pressure is decreased during off-peak hours to 'discourage theft', which mostly is done in collusion with their staff. Residents, especially women, often protest against the gas load-shedding, because they are the ones who suffer the most. Many consumers in upper Sindh have been forced to buy gas cylinders

for gysers and to prepare meals.

Similar reports were received from other parts of upper Sindh such as Rohri, Panoo Aqil, Ghotki, Mirpur Mathelo, Shikarpur, Jacobabad, Kashmore-Kandhkot, Khairpur, Naushero Feroz, Larkana and Qamber-Shahdadkot. Larkana is the only city which has been receiving adequate gas pressure after the overnight cuts. Reports from Jacobabad suggest that the gas pipelines are damaged at many locations due to laying of drains and water supply pipelines but, despite repeated requests and protests, nothing has been done by the SSGC.

In Qamber-Shahdadkot, despite the exploration of gas from the Mazarani Gas Field near Ghaibi Dero, the local residents still have to endure low gas pressure.

Similarly, in District Ghotki the Qadirpur Gas Field produces 460 million cubic feet of gas daily but the people living in nearby villages do not even have gas connections. Those that do have connections experience 12 to 18 hours of load-shedding a day. Some residents of villages have to wait days before receiving gas. ■

KE performance far from exemplary

NEPRA refuses to allow another raise in tariff

By Ismat Sabir

National Electric Power Regulatory Authority (Nepra) is not willing to revise Karachi Electric's (KE's) Tariff upward and the request forwarded to the authorities concerned. KE has demanded that tariff should be fixed to around Rs16 per unit from existing tariff of Rs12.77 per unit which is 25 percent higher than the current tariff. The Company's current losses are 22 percent against Nepra set target of 18.5 percent.

KE had demanded a tariff of Rs15.57 per unit for sustainability concerned authorities of its operations but Nepra turned down the request and granted a tariff of Rs12.07 per unit in its decision in March 2017. KE then filed a review motion seeking a further increase in the tariff. The regulator had determined average tariff for KE at Rs12.77 per unit.

The experts say that the company has done nothing in seven years; so on what basis should the regulator provide relief to the private power sector, which is ready to be again sold to the next buyer.

The company disclosed that no financial institution is ready to lend to the company on the basis of its current balance sheet.

In October, Nepra had allowed 70 paise per unit increase in the proposed seven year tariff to facilitate the sale of majority stakes from Abraaj Capital to Shanghai Electric of China.

The regulator determined average tariff for KE at Rs12.77 per unit, up from Rs12.07 allowed in March

last year. The regulator also noted that KE had been allowed a 20.90 percent loss in the first year, 19.80 percent in second year, 18.75 percent third year, 17.76 percent fourth year, 16.80 percent fifth year, 15.95 percent sixth year and 15.36 percent in the seventh year.

The company will get 17 percent return on equity. The total number of KE's Integrated Business Centers (IBC) are 28 of which recovery from 14 IBCs was 93 percent which accounts for 74 percent of Karachi. If the company improved recovery by only 0.5 percent it would have been at 98 percent. The recovery rate on the remaining 14 IBCs was 76 percent, if the company invests in this sector, it will reach 90 percent.

However, K-Electric made record profits, after-tax, in FY16 that was

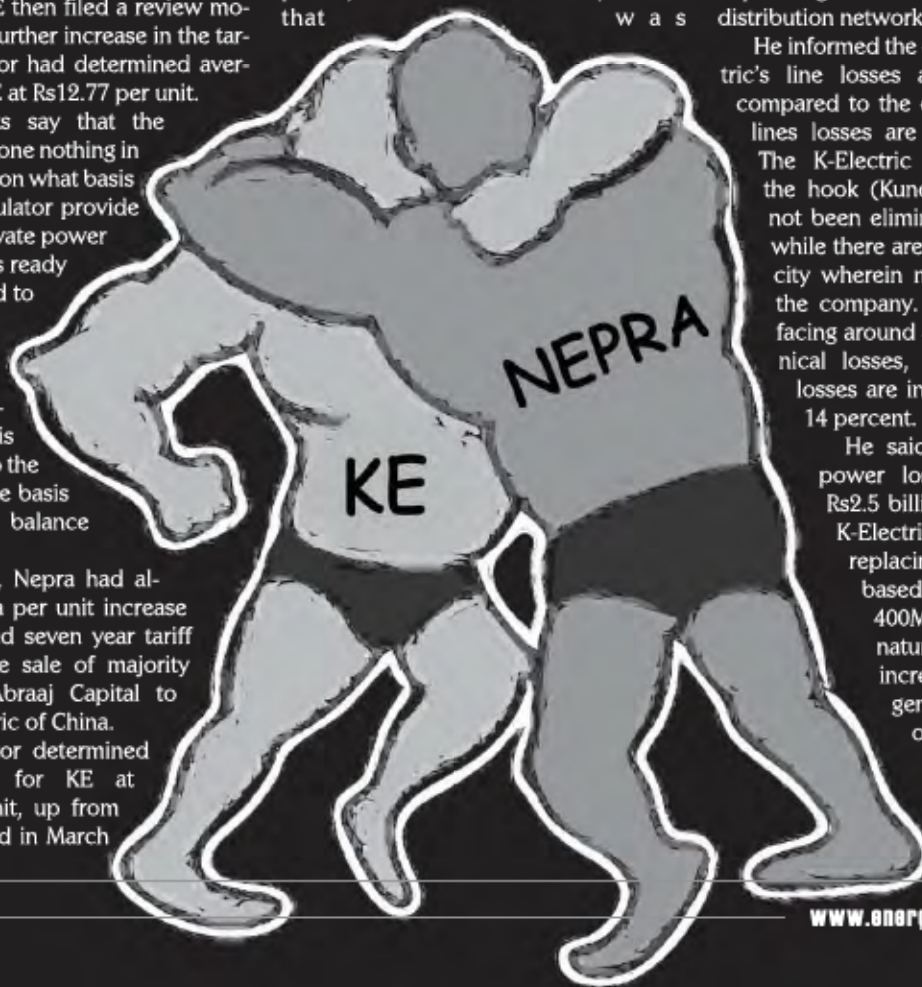
began in FY12. The improvement could be seen in almost all head of accounts, with an exception for high administrative expenses. Low oil prices and lower interest rates have both played their part in helping gross margins and lowering finance cost, respectively.

KE's revival, especially its financial health, was not exemplary in the past four years, which cannot be achieved without bringing in efficiency, commitment and discipline.

K-Electric has planned to invest Rs335 billion by 2023 in power production and distribution sectors of Karachi. This was stated by Chief Executive Officer CEO K-Electric. The CEO K-Electric said the company has made more investment than its commitment which helped improve generation, transmission and distribution networks.

He informed the officials that K-Electric's line losses are 21 percent as compared to the countrywide power lines losses are 5 percent greater. The K-Electric officials said that the hook (Kunda) system has yet not been eliminated from Karachi, while there are certain areas in the city wherein no bills are paid to the company. The company was facing around 8 to 9 percent technical losses, while power theft losses are in the range of 12 to 14 percent.

He said that one percent power losses are equal to Rs2.5 billion per annum. The K-Electric officials said that replacing old furnace oil based power plants of 400MW with liquefied natural gas (LNG) will increase the power generation capacity of the company to 900MW. He said that the company is installing a



660MW coal based power plant. The CEO said that the company has not repatriated any amount of profit earned in Pakistan back to home and the entire amount is being spent on improving the utility. As per agreement with the government of Pakistan, there is no specified target of line losses.

Its percent line losses has been relaxed for some of the power distribution companies, including K-Electric, by 5 percent owing to worse law and order situation to bring it at par with rest of the power distribution companies by the end of 2016. The officials said the K-Electric has failed to meet the targets. The NEPRA was not allowing the companies to put extra line losses burden on the end consumers, as a result it is being added to the circular debt. The K-Electric officials informed the PAC that the company has to pay Rs51 billion to different fuel suppliers, while it has to receive Rs97 billion from various consumers including provincial and federal government departments. The officials of K-Electric said that no dividend has been provided since 2009 as mentioned in the audit report and the company is not sending any sort of overbilling to the power consumers.

It said that K-Electric put an additional burden of Rs14.5 billion on power consumers. The AGP officials said that KE did not operate power plants on full capacity and got expensive power from Central Power Purchasing Agency (CPPA) and the additional cost is recovered from the poor consumers. The company has over a hundred years of experience, has been created in 1913 under the Indian Companies Act 1882. Following independence, it was nationalized in 1952 and then re-privatized in 2005, with the government keeping 26 percent of the stake and transferred 71 percent to a foreign consortium. The firm's turnaround began when a new management, led by the Abraaj Group, took charge in 2008-09. In 2016, Abraaj Group decided to divest its controlling stake that it held under KES Power, the parent company of K-Electric Limited.

KE has also been underperforming the benchmark after a dismal multiyear tariff (MYT) was handed to it in March 2017 by NEPRA. KE immediately decided to file a review petition for its concerns and demanded fair tariff. In response, NEPRA invited both interveners and KE's management for comments. Interveners presented their case where they asked that no relaxation or upward revision be offered to the company.

The company's shareholding as of its June 30, 2016, the Annual Report shows that 66.4 percent of the company is held by KES Power, while another 24.36 percent is held by the President of Pakistan. Historical performance K-Electric has been a turnaround in many aspects. The benefits from its privatization and change in management are reflected in its numbers. From a company with negative gross margins (FY10 and before), KEL has transformed into an entity producing multi-billion-rupee net profits. From catering to bulk of the demand from purchases, K-Electric recently turned into a generation intensive company. K-Electric enhanced its generation capacity by around 1057MW through the addition of four new power plants and rehabilitation of BQPS-1 during the last seven years. Its fleet efficiency has also improved by over 23 percent in the last seven years along with 13.7 percent reduction in T&D losses. Revenue growth has been strong in the past few years, barring FY14 and FY15. Revenue surged to Rs194 billion in FY14 from Rs104

billion in FY10 - recording solid double digit growth rates in FY11, FY12 and FY13.

A breakdown of revenue depicts that the company actually saw a year-on-year gain in sale of energy - from Rs139 billion to nearly Rs149 billion in FY15. Residential and industrial sectors accounted for the biggest chunks in this category, coming in at Rs57, each. Tariff adjustment, which declined from Rs55 billion in FY14 to Rs42 billion in FY15, contributed to the year-on-year decline in overall revenue.

The electricity producer saw a significant decline in its expenses in FY15. Major components, purchase of electricity and consumption of oil and fuels grossed less than the year before. Gross margin, therefore, saw a massive 600 bps jump to 22.7 percent.

Net profits jumped over a hundred percent to Rs28 billion in the year ended June 2015. Much of that is attributable to tax losses carried forward. Hence, net margin jumped over 800 bps to 14.9 percent.

Financial performance FY16 onwards, the power company posted a significant drop in T&D loss in FY16, which became the reason for improved financial performance of the company. Lower T&D losses along with gains, resulting from higher electricity units sent out led to improved earnings for the year. Revenue for FY16 was flat for KE on a year-on-year basis, while the bottom-line was up by 15.65 percent in FY16. Finance cost also aided the growth in the earnings of the company due to repayment of long term financing and revised favorable borrowing terms. Also better working capital management led to better current ratio for the company.

While the revenues were again flat in 9MFY17, the firm's earnings for the 9-month period were up by 40 percent, year-on-years. This was attributable to falling T&D losses that further came down by 0.6 percent in 9MFY17 along with improved contribution margins due to gains from sending out additional units and higher thermal efficiencies. KE's generation, in the 9 months period, improved by 13.28 percent. It has been working on its generation, transmission and distribution as well with a long list of projects underway. The ultimate aim for K-Electric is probably to convert Karachi and surrounding areas from a power deficit to a surplus. However, under the current MYT scenario, KEL is likely to opt for a legal way fight its case, which is likely to further increase the ambiguity on Shanghai Electric deal. ■



Enzo Ferrari told a man "you may be able to drive a tractor but you will never be able to handle Ferrari properly" the man was so pissed he vowed to create the perfect car, his name, Ferruccio Lamborghini.



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Trap of surplus power capacity

By Khaleeq Kiani

AS the government procrastinates to make public bankable studies on the energy demand and supply, the debate continues if the nation may be entering a 'capacity trap' followed by another cycle of shortages few years down the road.

That path appears well known in Pakistan. After successful implementing the upfront tariff-based energy policy in 1994, the then PPP government contracted thousands of additional capacity that not only overcame serious shortages but also appeared to create a capacity trap.

The following PML-N government cracked the whip on surplus capacity, launching a campaign against investors for alleged corruption and kickbacks in securing unjustified contracts to stagger upcoming capacity after botched attempts for power exports to India.

The following 1997 policy for hydropower projects offered on paper an upfront tariff of 4.7 US cents per unit to make good use of lean period to develop long-gestation renewable projects against thermal tariff of 5.9 to 6.5 cents per unit. But

The government concedes around 3,400MW of surplus capacity, but claims it can close down old public sector plants and phase out furnace oil-based private plants to evade the trap

intoxicated by surplus capacity at the time, the Wapda management declined to abide by the sovereign policy of the state and offered a tariff of 3.3 cents per unit to move forward.

Around a dozen private investors from South Korea to the United States attracted by 4.7 cents upfront tariff left

Pakistan after wasting their time and money in preparing

feasibility studies. One among them

agreed to go ahead with a tariff

of 3.3 cents and ended up revising

it to about nine cents

per unit when it signed the final

agreement in 2009 on financial close.

The 84-megawatt

project near Mangla Dam was later sold to Hub Power Company Limited before commercial operations in 2013.

Between 1998 and 2013, successive governments struggled to attract a prominent investor to the power sector because of the investor witch-hunt after the 1994 policy despite the fact that shortages starting to return soon after 2000.

In fact, Wapda proposed two projects at Chichoki Mallian and Nandipur (both in Punjab and having a total capacity of 1,000MW) for completion in 2004-05 to meet shortages. Chichoki Mallian never materialised while Nandipur came into being only a year ago amid much fanfare.

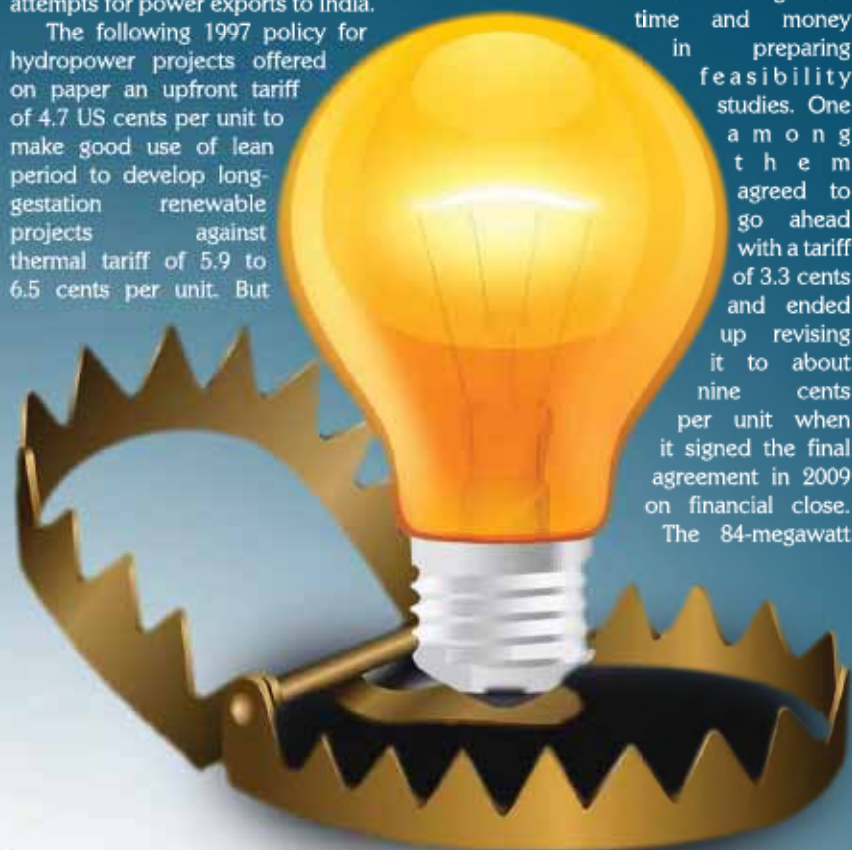
Wapda and the Private Power and Infrastructure Board — a one-window operation for the power sector — offered a number of projects between 2002 and 2013 for bidding but failed except for a few controversial rental power projects. They repeatedly wrote papers to policymakers to inform them that top-quality investors had shied away and only a package deal on a government-to-government basis could secure second-class investors.

That finally delivered, but after two decades of economic loss. Now we again appear to have overcome shortage, and the government expects there will be no load-shedding in the coming summer. It concedes around 3,400MW of surplus capacity but claims it could close down old public sector plants and phase out furnace oil-based private plants to evade capacity trap.

The prime minister claims that the government has not only eliminated load-shedding, but hopes that the country will not face power shortages until 2030.

Meanwhile, the government has again blocked renewable projects when many of them were seeking formal agreements after having achieved significant progress and spent time, money and energy.

Professionals at public sector entities had almost reached a consensus in May last year that enough capacity had been contracted and there should be a slow



paddle on imported fuel-based plants to minimise foreign exchange loss. They forecast a maximum demand of 40,000MW for 2025 based on a GDP growth of 7.2 per cent and hope the proposed staggered capacity will meet that target.

A ban on imported fuel-based projects crossed lines with powerful investors and embedded politicians. The officials were shown the door to accommodate blue-eyed investors.

In fact, the National Transmission and Despatch Company (NTDC) insisted that the country will not need more than 35,000MW by 2025 in case of a low GDP growth (below 6.5pc in the short run) and 40,000MW assuming 7.2pc growth after 2018. Mr Smith forecast a power demand of 37,000MW for 2025 based on all conservative and high growth projections.

During all this debate, the only missing link has been a lack of an integrated energy system planning.

On the other hand, the private sector is nervous that the government at times appeared over-indulging and others complacent in future planning. The Overseas Investors Chambers of Commerce and Industry (OICCI) — a group of 191 multinationals across 14 sectors of the economy — expects almost 70pc growth in Pakistan's energy consumption in 10 years, which is in line with above projections.

In recent engagements with the government the OICCI has

sought broad-based reforms to shift the focus from imported energy sources towards indigenisation.

It feared that pending the commissioning of Thar coal and long gestation hydropower projects, additional power generation will continue to be based on imported coal and LNG which together with high system losses was going to keep the issue of circular debt and high energy costs alive for years to come. ■

Courtesy: Daily Dawn

* DICTIONARY *

A place where divorce comes before marriage

* CONFERENCE ROOM *

A place where everybody talks, nobody listens and everybody disagrees later on

Pakistan's simple climate fix has the whole world watching

Pakistan has planted more than 1 billion trees in an effort to reduce the effects of global warming. Debates about climate policy often swirl around complicated figures: emissions data, statistical projections, and relative pollution figures around the world. But while the environmental impact of various energy forms remains the focus of heavy scrutiny, one elected official in Pakistan has chosen to spearhead a different — and radically uncomplicated — approach.

The idea is simple: trees.

In Pakistan, deforestation has run rampant for years, leaving just a small percentage of its land area populated with trees. Of course, it's far from the only country in the world where such unchecked land use has taken a serious toll.

But under the leadership of star ex-cricketer and Tehreek-e-Insaf party chief Imran Khan, Pakistanis have helped seize the opportunity to make a large correction in the interest of maintaining a healthy atmospheric balance at home and around the world.

Khan's politics sometimes make him a polarizing figure, but the gains in his reforestation effort have largely spoken for themselves. As part of a global effort launched seven years ago, the Billion Tree Tsunami project spent the past two years applying one big number to what can seem an intractably complex policy area.

"If you plant trees ... by the river banks," Khan says, "it sustains the rivers, but, most importantly, the glaciers that are melting in the mountains, and one of the biggest reasons is because there has been massive deforestation. So, this billion tree [program] is very significant for our future."

Now, Pakistan has finished its billion-tree plant a month ahead of schedule. And the Bonn Challenge, put together to replenish 350 million hectares' worth of land within the next 12 years, is that much closer to completion.

Its approaching goal to hit the 150-million mark "will create approximately \$84 billion per year in net benefits that could bring direct additional income opportunities for rural communities," according to the International Union for the Conservation of Nature. "Achieving the 350 million hectare goal will generate about \$170 billion per year in net benefits from watershed protection, improved crop yields and forest products, and could sequester up to 1.7 gigatonnes of carbon dioxide equivalent annually."

Sometimes, the shortest path toward a cleaner, more stable environment runs straight up — into a leafier, greener sky. ■

Courtesy: ET



ADB opposes coal-powered plants yet continues to finance coal

By Sajid Aziz

It is very interesting yet contradictory that Asian Development Bank (ADB) is opposing and maligning the coal powered plants and in the meantime financing such power plants especially in Pakistan.

The Asian Development Bank has recently issued a report that says the upcoming 10 gigawatts generation capacity under the China-Pakistan Economic Corridor (CPEC) which is expected to be commissioned before 2019, will increase greenhouse gas emissions substantially that will worsen the climate change mitigation concerns besides ash handling and disposal problems to also exacerbate negative impacts on the environment, the evaluation report of the power sector of Pakistan released by ADB said.

The report says that future increase in fossil-fuel power generation will contribute to climate change and environmental degradation.

Hmmmm..... the bank itself is funding 600 MW coal plant in Jamshoro.

Currently, more than 60 per cent of the utility electricity generated in Pakistan comes from fossil fuel-based generation, including gas, coal and furnace oil. This level of dependence on fossil fuels, plus the sector's operational inefficiencies with high technical losses and low generation efficiency impact the environment, is contributing to climate change due to high greenhouse gas emissions. The ADB is itself helping fund a 600 MW super critical coal-fired power plant in Jamshoro, Sindh. The agreement for the \$900 million project was signed in March last year.

The CPEC initiative aims at promoting bilateral and regional construction, investments and trade between China and Pakistan. Currently, there are various coal-fired, hydropower, solar and wind-power projects under construction, and



approximately 10 GW of generation capacity is expected to be commissioned before 2019, contributing to a power supply surplus in the short term.

However, the associated investments in manufacturing industries will also increase the load rapidly, reducing the generation surplus. Further, it is not clear whether the current grid system would be able to manage the increased generation and load capacity effectively, with limited sub-stations and transmission lines capacity, a supervisory control and data acquisition (Scada) system (which is yet incomplete), and archaic operational procedures, report points out. A review of ADB's assistance to Pakistan's power sector shows the bank approved \$7.13 billion during 2005 and 2017, for investment projects and other support to the power sector of the country.

After a lull in ADB support for about five years, the first ADB power sector operation was \$37 million private sector loan to the New Bong Escape

hydropower project in November 2005. Since then and up to 2017, ADB has approved 48 operations, including 28 sovereign guaranteed loans, 11 non-sovereign operations and nine technical assistance projects, amounting to \$7bn, of which \$0.7bn was non-sovereign operations financing.

The evaluation report says that disbursements to-date have been low, largely due to slow progress in two multi-tranche financing facility (MFF) programmes.

In particular, the renewable energy financing facility has disbursed 21pc of the approved amount in 10 years, and the energy efficiency financing facility disbursed only 4pc of the approved amount in eight years.

Nonetheless, the transmission and distribution MFF investment programmes, approved in 2006 and 2008 respectively, have progressed well. The second transmission and distribution MFFs, approved within the last two years, are in the process of starting

procurement, so no major contracts have been awarded yet. The \$4.7 bn approved for MFFs substantially reduces the headroom for further investments in Pakistan.

Referring to the issue of circular debt, the evaluation report says ADB could contribute towards addressing the causes that underlie circular debt and the problems caused by it.

Substantially, addressing Pakistan's power sector challenges calls for achieving the outcomes of increased reliability of power supply, share of clean energy, procurement/payment transparency, access to affordable electricity, supply and demand-side efficiency, and competitiveness among power producers, in addition to reduction in subsidisation, circular debt, technical and commercial losses.

For achieving these outcomes, ADB could support Pakistan's power sector at three levels: legal and regulatory framework; governance and capacity development; and investment in power sector infrastructure. The nature of ADB assistance should be synchronised with the needs of the power sector, and in close coordination with other development partners' support. A broad range of assumptions and risks underlie this theory of change, which are closely related to the country's changing political and economic landscape, the report says.

Circular debt, the chronic shortfall between cash inflows and outflows for power sector participants, is the singular symptom of several problems that underlie Pakistan's power sector's performance. Discos' inflows are insufficient to meet all their costs for a variety of reasons. Although transparency in tariff determination has improved in recent years, the actual tariff levels remain below cost of service.

The extensive demand-supply capacity gap of over 5GW in the past decade until recently has led to frequent loadshedding and prompted consumers to invest in and rely on captive back-up generation, report says. ■

***CIGARETTE: ***

A pinch of tobacco
rolled in paper
with fire at one end
and a fool at the other!

***MARRIAGE: ***

It's an agreement wherein
a man loses his bachelors degree,
and a woman gains her masters!

***LECTURE: ***

An art of transmitting Information
from the notes of the lecturer
to the notes of students
without passing through the minds
of either!

Cement in chains

The cement industry has had its fair share of ups and downs, but the struggle lately is real. Despite flourishing local demand in construction, bolstered by housing and infrastructure development, it seems



market access abroad is fast diminishing. This would hit the bottom-lines faster once the industry enters the phase of overcapacity. On the other hand, fortunately or unfortunately, depending upon which side of the table you sit on, many of the expansions coming up in the north are now hitting snags as Punjab wakes up to the environmental emergency in the region and the devastation some cement companies have managed to dredge up.

To recall, a suo-moto case was filed with the Supreme Court (SC), which highlighted that the Katas Raj Temple located in the salt range of Kallar Kahar had dried up. This was a direct result of cement factories located in the area consuming more ground water than they were allowed, causing the water table to deplete. This affected not only the temple itself but the Hindu settlements in the area that depended on this water. Cement companies located there including Bestway, DG Khan, Gharibwal, Pioneer and Maple Leaf were accused of this and Bestway was ordered by the SC to fill up the pond. Estimates by BMA Capital suggest that the restoration of water supply could incur capital expenditure of up to Rs500 million for accused companies over the next few months.

Simultaneously, others concerns have arisen. The Punjab government took note of the excessive use of ground water as well as climate changes and amended the Location Policy under Pakistan Environment Protection Act. Essentially, the amendment requires cement companies to seek mandatory review and approval by Environmental Protection Agency (EPA) before construction. The earlier policy was to go ahead with expansion if the company did not hear from EPA within four months of application.

Furthermore, the Mines and Minerals Department of Punjab (MMDP) prepared a feasibility study to assess the outcome of new or enhanced cement plants in the salt region. The report outlines the criteria for identifying safe (positive) and unsafe zones (negative) for expansions. Those companies already operating in negative zones will have to utilise alternative water resources, while no new expansions would be allowed there.

According to BMA Research, Pioneer and MapleLeaf's new expansions are in the safe zone; while Gharibwal's is in the negative zone. However, all the expansions were put on a hold until SC decided on the matter based on a review of the MMDP report. This is due any day now. ■

Climate instigated threats

By Syed Mohammad Ali

Many security analysts and environmental experts have been pointing out how climate change poses a more serious threat to the stability of Pakistan than terrorism. Climate change has also been dubbed a 'threat multiplier', which can aggravate existing stresses in society

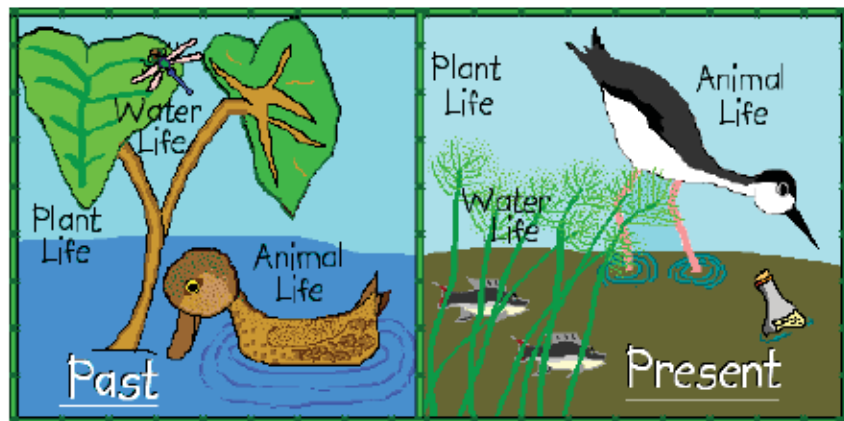
form of unpredictable rainfall patterns, drought and the threat being posed to the Himalayan glaciers which feed our rivers pose major challenges. Such problems in turn pose the risk of furthering social friction based on the competition for ever-diminishing resources.

Water sharing is already a source of contention in our relations with India, and the situation can become more

of climate change which are wreaking indiscriminate havoc around the world. However, we have little capacity to contend with these threats, since climate mitigation efforts have not received the attention they deserve. Besides ongoing deforestation, pollution and a widespread indifference towards conservation of our environment, there is also heavy domestic investments in the use of coal to meet our energy needs.

Boosting the country's climate resilience against exacerbating impacts of climate change, including recurring droughts and floods, shifting rainfall patterns, glacial melt, and depleting river flows, is a Herculean task. While some donor agencies and line departments are working on this issue but that is not enough.

We need much better coordinated efforts involving donor agencies, federal ministries, provincial and district departments. These efforts need to result in effective measures for coping with climate risks through adaptation and mitigation efforts in the agriculture, water, energy and health sectors. Unless we see evidence of such efforts being put into tangible effect, varied climate changes will provide ample opportunity to further myopic and insidious agendas, and add to the restiveness and social friction we are already witnessing across the country. ■



such as poverty, ethnic strife, and political unrest to an extent that sparks major unrest. All these stresses are already a problem for Pakistan.

There is ample evidence of climate change fuelling violence in major conflict zones around the world today. Researchers have connected the upheavals of the Arab Spring and the Syrian civil war to lingering droughts that drove up food prices and added fuel to the region's simmering social discontent. A lingering drought has also been identified as a catalyst for the recent political turmoil witnessed in Iran.

The impact of rising populations combined with the pressures being exerted by climate threats make for a perturbing combination. Pakistan is now home to nearly 208 million people. This ever-increasing number of people trying to make a living with very limited resources at their disposal, being hit by unpredictable climate disasters, can create explosive circumstances.

Consider, for example, how our unsustainable rate of population growth and irresponsible water usage policies have already severely reduced freshwater availability. Climate change in the

politicised as water scarcity becomes more serious. Future water shortages can also exacerbate inter-provincial rivalries, and add to the burden on poorer households, especially women and girls within them, who are primarily tasked with the burden of procuring water for daily household consumption.

As the impact of global warming continues to unfold, the socio-political and economic consequences of these impacts will worsen. The Global Climate Risk Index 2018 released by a German think tank has ranked Pakistan the seventh country most vulnerable to severe climate change.

Over the past 20 years, we have seen unprecedented flooding events, prolonged droughts and heatwaves. The super floods of 2010 placed Pakistan on the top slot among the countries most affected by climate change as it lost an estimated \$25.3 billion, in addition to causing havoc on the lives of multitudes of marginalised rural communities across the length and breadth of the country.

The per-capita carbon emissions in developing countries like our own are still not as severe as those of major industrialised powers, but the impacts

A man got a call from unknown number..

Girl: Hi, wish u very happy Valentine's day...are you single?

Man: Yes...Yes who are you?

Answer: Your wife!

Aaj ghar aa...phir batati hu..

(couple of hours , He gets Another call from unknown number)

Girl: Are you married?

Man: Yes, but who are you?

Girl: Your girlfriend, you fraud... you cheat.

Man: Sorry baby, I thought it was my wife..

Ans: Wife hi hoon kamine, aaj tu bas ghar aaja. ☹️☹️

Engro Elengy Terminal saves \$1.7 billion by virtue of fuel replacement impact

An exclusive interview of CEO Engro Elengy Terminal, Port Qasim, Jahangir Piracha

By M. Naeem Qureshi

"Pakistan should maximize power production using renewable resources including wind, solar, and hydro power. By doing so, Pakistan would have to import less oil, less coal and less natural gas. It will basically benefit the Pakistani economy and Pakistani end-users of energy as well. This means investing in future. But this policy framework is not fully developed as yet here. So we are looking forward to see a stronger and strategic commitment of the country to renewable energy as future of Pakistan", says Ambassador of Denmark to Pakistan Rolf Michael Hay Pereira Holmboe as Energy Update interviewed him in detail regarding energy, trade and socio-economic situation in Pakistan and the lesson Pakistani government should learn from success story of Europe in these sectors. Following are important excerpts of his interview for our readers.

Energy Update: Tell our readers about Engro Elengy terminal project?

Jahangir Piracha: Engro Elengy Terminal has now been operating at its full capacity that is around 600 to 630 MMCF per day gas volume. We are supplying re-gasified LNG to the government's gas distribution network through SSGC (Sui Southern Gas Company). The SSGC further supplies it to SNGPL (Sui Northern Gas Pipelines Limited). We have been alleviating a lot of energy crisis in the country as now around 2,000 Megawatts additional electricity is available that is being generated in Pakistan on the basis of RLNG supplied by us. Almost all CNG (Compressed Natural Gas) supply sector of Pakistan has been revived. The industry of the country is also being supplied gas. Overall it has been a very good project saving precious foreign exchange reserves of the country.

EU: What challenges you faced while doing this project?

Piracha: Initially there were present detractors of the project among the people. There was also a little bit confusion prevailing in the media about the project when the concerned quarters looked at its tariff. Tariff of the project has substantially come down since the terminal has started operating at its full capacity. A major portion



of the payment we receive from the project goes to FSRU (Floating Storage Re-gasification Unit) facility of the project. FSRU is a big ship-mounted plant associated with our project on the basis of a long term charter. Up to \$1.9 dollars per tonne is given to Port Qasim Authority. People tend to just confuse that whatever we are paid by the government for doing this project is all our money. Actually it is not our money. A big chunk of this money goes to Accelerate Energy, USA. The Accelerate Energy has invested more than \$300 million in the project by bringing its



FSRU. The Engro invested \$130 million in the project mainly to develop terminal, jetty and piping system of the project.

EU: What is the volume of investment made to build and operate this project?

Piracha: There are two major investments involved in the project. One is that of Engro, which it did to develop the terminal's site and shore's site of the project. We made investment of \$130 million for doing this project. The large investment for the project came from the 'Accelerate Energy' as it is the company that brought FSRU for the project. This investment is around \$300 to \$350 million as both of us are getting return on our investment through the tariff, which the government has given to us.

EU: What are your expansion plans?

Piracha: With Shell, Fatima Group, and the trading house Gunvor; we are trying to develop a new project. The Engro being part of a proposed consortium of these companies will try to develop the concept of first of its kind merchant LNG terminal of the country. Merchant terminal means we will not sell gas imported by us to the government as we will find our own customers in the private sector. This concept is ideal for the country as government of Pakistan would have no liability in this project. The government should not get into this business on a long-term basis. It will be an ideal situation for the govt as everything what the govt does, even in good faith, becomes controversial. If it is a merchant terminal then it will operate under a specified policy framework of the govt. This arrangement is better for the government as well. The govt. is encouraging all of us to go and invest in the merchant terminal project. In case of a merchant terminal, I will not sell gas either to SSGCL or SNGPL as I will find my own customers. I might use the pipelined gas network of the govt for the project. The work on this project is being done on an extensive basis as its preparation is likely to be completed in the current year. There are a lot of hurdles and issues in doing this project but we are actively working to resolve all of them.

EU: Tell us about the work you have done to mitigate environmental impacts of the project?

Piracha: To be honest, our project is situated along with the main channel of the port so it didn't involve much cutting down of mangrove trees. We fully acted upon our commitment as duly given in the EIA (environmental impact assessment) study of the project so to plant again and regrow mangrove plants much more in number than the actual number of plants cut down due to the project. We took onboard the WWF (Worldwide Fund for Nature) and IUCN (International Union of Conservation of Nature) with us to fully witness and verify the process of planting and growing again mangrove plants in the area.

EU: What are your activities to fulfil CSR (Corporate Social Responsibility)-related obligations of the project?

Piracha: The substantial part of our CSR-related spending goes to the local communities living near operational area of the project. The fishermen community of the area is mostly benefited by our CSR-related projects. We are mainly trying to improve skill sets of the area people. We are also working to increase livelihood of local women of the area as increasing livelihood of a household woman would benefit the entire family specially its children. We have engaged NGOs working abroad so that the skill set improvement of local people would prove economically beneficial for them on instant basis.

EU: What is about tariff of the project?

Piracha: In the initial year tariff of the project was 66 cents when it was operating at the partial capacity of 200 MMCFD. Then its tariff was brought down to the level of 46-47 cents when the project started operating at its full capacity. I think our rates are very much competitive when we compare with the international market. The rate of FSRU component of the project is also very competitive when we compare with tariff of similar ship-based storage facilities around the world.

EU: What snags the project had to face when it started operations?

Piracha: The NAB had duly and thoroughly investigated the project and had found nothing suspicious at all in the entire affair. Most important the Engro Corporation has invested in the project, which since its inception has never compromised on its ethics and principles to do business in the most transparent, fair, and meritorious manner. The Engro has never compromised and will never ever compromise on its principles for all its businesses including this project. Even for its core business of fertilizer production, it has never compromised on its principles although it had to face highly worsened situation of gas supply that had virtually halted its industrial production.

And last but not the least the International Finance Corporation invested in the project and that too after passage of over one year since the time the project had become operational. The IFC simply means the World Bank got financially involved in the project as we all know that the World Bank only get involved in any of the project after doing its due diligence. So After NAB doing its investigations and IFC getting financially involved in the project, there should be no further room left to unduly raise objections and suspicions about merits, transparency, and fairness of the project.

EU: What would be the situation of shortfall of natural gas after this project gets fully commissioned?

Piracha: Our project is working under a 15-year contract with the govt, which is extendable. The country is facing shortfall of 02 billion cubic feet volume of gas on a daily basis. This terminal with the other LNG terminal at Port Qasim will brought in total 1.2 BCFD volume of imported gas in the country that means shortfall of 800 MMCFD will continue to persist in the country. To overcome this shortfall, our proposed merchant terminal will start importing more LNG into gas supply system of the country.■

Another power plant on the sideline of CPEC

Karot Hydropower to produce 720 MW

By Ismat Sabir

China and Pakistan held a ceremony recently to celebrate starting construction of the Karot Hydropower Plant, one more energy project on the sideline of China-Pakistan Economic Corridor (CPEC). The project would cost \$1.65 billion and scheduled to be completed by 2020. It is one of the China's three Gorges Corporations and the first project to receive funds from China's Silk Road Fund. Upon completion, the plant will provide 720 MW of energy produced from Jhelum River.

The Karot Plant is part of the broader CPEC, which itself is part of China's "Belt and Road" initiative to link China with Europe and all the regions in between. The CPEC is usually understood solely in terms of transportation infrastructure, developing the Chinese controlled port at Gwadar and linking it to China via rail and road. Under the "1+4" cooperation framework unveiled during Chinese

President Xi Jinping's, April 2015, visit to Pakistan, the CPEC is the "1," with the "4" representing key areas of the larger strategy. Energy is one of those four areas along with Gwadar Port, transport infrastructure and industrial cooperation. China and Pakistan officially broke ground on five new energy projects, all of them considered part of the CPEC, during President Xi's visit to Pakistan last year.

Along with the Karot hydropower project, the CPEC also included Chinese construction of the world's largest solar plant in Punjab Province. The first section was to begin providing electricity in August 2015; the second portion was also under construction by Chinese firm Zonergy. After completion by the end of the year, the entire solar plant is expected to produce up to 1,000 MW of power.

Another project is a coal power plant at Port Qasim, which was the first energy project included under the CPEC framework. The plant being constructed by Powerchina Resources Ltd., will

cost \$2 billion and was expected to be completed by the end of 2017. The project will consist of two 660 MW coal plants, for a total energy generation of 1,320 MW.

Chinese investment in Pakistan's energy sector predate the CPEC, are the most famous joint project, the \$10 billion expansion of the Karachi nuclear power plant. Four Chinese constructed energy projects in Pakistan tied to the CPEC are supposed to provide an additional 10,400 MW of electricity by March 2018, which would be more than enough to make up for Pakistan's 2015 energy shortfall of 4,500 MW.

However, it is likely not every project will be completed on schedule or even not at all. But the sheer scale of China's energy plans for the CPEC ensures that it has a chance to be a game changer for Pakistan, where rolling blackouts are common due to energy shortages.

Pakistan had been lobbying the US Islamabad authorities from early last year; who advised to stop doing feasibility studies for Diamer Basha Dam.



Good News

However experts say it took three years for USAID project to start. The agency would put \$20 million into feasibility studies so that international lending agencies such as the ADB would feel more confident funding the project. The USAID got the letter in 2016; they suspected that Pakistan had found funding with the China. In May 2017 Pakistan and China signed a \$50 billion agreement that included full funding for Diamer Basha and four other dams. The new agreement covers Pakistan China, in 2013, funding and technical aspect when the two countries signed memorandums

projects. CPEC is one of six land routes envisioned under China's Belt and Road Initiative. BRI is intended to intensify trade connections across Asia, Europe and the Middle East. The "belt" refers to roads and "road" refers to maritime routes. But roads and rail are actually a small part of Chinese money in Pakistan, less than \$11 billion of the original \$46 billion agreement. It is small because, contrary to popular perceptions, much of the CPEC route is actually financed by Pakistan.

Much of the roads being built are being built by Pakistan's own money,"

officials.

The wage growth in China is exceptionally very high. Therefore, Chinese now want to move some of their light manufacturing to western China and overseas to Vietnam, Myanmar, and Cambodia, says the senior official on the CPEC team. Officials also expect investors from other countries to follow China into Pakistan.

Pakistan's Board of Investment plans to set up nine special economic zones, or SEZs, around the route that will host Chinese factories and be linked to trade flows. The phase 2" of CPEC, most of SEZs are much underutilized.



of understanding worth \$46 billion to build the China-Pakistan Economic Corridor. CPEC has since quietly grown to a \$62 billion investment.

The latest \$50 billion in memorandums now brings Chinese loans and investments in Pakistan to over \$100 billion. A senior member of the CPEC team at Pakistan's Ministry for Planning, Development and Reform predicts that figure may ultimately grow to \$150 billion. If the dams face cost overruns, which are 96 percent on average, that will be a conservative estimate. It takes many years to have any project approved by international financial institutions, says a senior Pakistani official especially Chinese financing. It needs to borrow a billion dollar from the World Bank. It would also take 20 delegations and 15 consultants coming in and making reports. Pakistan can pay depends on the massive new infrastructure stimulates economic growth.

Roads and railways:

Highways and railways are the China-Pakistan Economic Corridor

says Miftah Ismail, who was Pakistan's minister for investment until late last month.

Pakistan will take on in Chinese projects this year \$4 billion in loans and investments, equals what the Pakistani federal and provincial governments have allocated for roads and highways in their own annual budgets.

China is also financing the expansion and improvement of Pakistan's neglected railway system, doubling its speed from 60 to 120 kilometers per hour.

CPEC roads will connect landlocked Xinjiang province in western China through a new port city that is being built on Pakistan's coast, Gwadar. China needs these roads to transport goods out, but it is hard to think of what will go in the other direction. China's exports to Pakistan account for two thirds of Pakistan's trade deficit.

Pakistan will at least, collect tolls on the roads. If out of 10 Chinese containers that move out of Gwadar, one is from Pakistan then it should consider we successful. Otherwise, we will be reduced to toll collectors, say the

Energy and industry

Without energy, there can be no industry. Pakistan has achieved on its own what USAID and many other donors have tried to do for many years: dramatically reduce power blackouts that have the economy. This summer, major cities that once lost power every other hour are losing electricity intermittently for just three to four hours a day. The current government promises to fulfill its campaign promise of completely ending blackouts by the time elections are held in 2018.

The problem is that Chinese companies are cutting corners on plants in Pakistan, even though they are charging a lot for them.

The government reduced blackouts by constructing several new power plants, cutting a deal with Qatar for liquefied natural gas, and driving a hard bargain with General Electric for their most advanced new turbines that use technology that has set a Guinness World Record for efficiency. Pakistan financed three such large gas fired projects, although a Chinese company won the bid to construct the plants and did it in record time.

Said Getty, China and Pakistan have cooperated closely at the strategic political levels. Now the two nations are making efforts to expand their bilateral collaboration economically as well. The construction of the China-Pakistan CPEC is a milestone that signifies this shift.

The CPEC is a large scale initiative to build energy, highway and port infrastructure to deepen economic connections between China and Pakistan. This initiative has been well received in both the countries, although it is not without its problems.

Nevertheless, China and Pakistan regard the CPEC as a new source of potential synergy between their respective national development strategies, which may help the two countries translate their close political cooperation into multifaceted economic cooperation, attain mutual benefits and achieve win-win outcomes. For the economic corridor to reach its potential, however, there are security and political challenges in Pakistan that must be addressed.

China first proposed the corridor project in May 2013. Chinese President Xi Jinping then visited Pakistan in April 2015, and both sides agreed to elevate their relationship to an "all-weather strategic partnership." During Xi's visit, the two countries signed 51 agreements with an estimated value of \$46 billion.

The CPEC has to be understood in the context of China's strategic interests in East Asia and the way the United States has challenged them. Faced with such difficulties, China hopes it can expand its strategic space by heading west. Pakistan serves as a crucial bridge between China and Central Asia, South Asia and the Middle East. Security and stability in Pakistan will make it possible for China to exercise greater influence in these regions and to ensure security at home. China is willing to pour huge amounts of resources into the economic corridor, based on the logic of improving security through economic development.

Likewise, Pakistan has realized that no other country places such high strategic importance in its economic relationship with Pakistan as China does. Pakistan also greatly values the economic corridor and views it as mutually beneficial in terms of politics and economic development. According to Pakistan 2025, a report for economic development published in 2014 by Pakistan's Ministry of Planning, Development and Reform, Pakistan aims to advance from being a lower-middle-

income nation to an upper-middle-income nation by 2025. To achieve this goal, Pakistan hopes to attract increasing amounts of foreign investment. The country is working to improve its overall economy by constructing energy projects and other forms of infrastructure, to create employment opportunities for its populace and to improve its governance.

The logic behind this strategy is that fundamentally improving Pakistan's economy and will help alleviate the challenges posed by political extremists, radicals and jihadists. China and Pakistan share the belief that economic development can help stabilize Pakistan and improve its domestic security situation.

China and Pakistan gradually expanding cooperation, there will be an increasing number of Chinese corporations investing in Pakistan. Different cultural practices and ways of thinking could cause misunderstandings, and this could negatively affect CPEC projects. For these corporations to be successful, they will need to understand local cultures, norms and rules. Having information about services for doing business in Pakistan is also crucial for Chinese corporations.

China should abandon its traditional way of dealing only with the Pakistani government and instead get in contact with local communities to better accommodate local interests so that more Pakistani people can benefit from the CPEC. China and Pakistan need to strengthen their cultural ties and increase people-to-people interactions. This has already begun, due to the increasing economic activity between the two countries, forcing China to become more informed about the complexities of Pakistani society. The China-Pakistan Economic Corridor Council was founded in 2015 to jointly address the challenges arising in the CPEC projects. The council has opened offices in Beijing and Islamabad respectively, and its purpose is to assist with the implementation of CPEC projects. ■

Haseen Habib House Inaugurated

Haseen Habib Trading (Private) Limited is the pioneer and one of the leading Fire Protection and Safety Equipment Company in Pakistan and are in the business for the last 50 years. We are the largest importer, stockiest and installer of Fire Fighting and Safety Equipment in the country. We have been carrying the mission of creating awareness in the society regarding Fire Safety since last 5 decades in order to save precious lives and properties. We proudly announce that by the Grace of Almighty Allah, the inauguration ceremony of our new head office Haseen Habib House, a model Fire Protected building with state-of-the-art firefighting systems took place on February 12, 2018. Governor Sindh, Mr. Muhammad Zubair was the Chief Guest. Haseen Habib House is fully equipped with a Fire Pump, Hose Reels, Sprinklers, Fire Alarm System, Automatic Clean Agent Fire Suppression System, Emergency Escape Chute and an Emergency Evacuation Exit. Haseen Habib House also has full product range display center showcasing the latest and most innovative Fire, Safety, & Rescue equipment. The key highlights of the ceremony were Ribbon Cutting by Honorable Governor, Emergency Escape Chute Demonstration, Honorable Governor's visit to Haseen Habib House and inspection of the state of the art display



center, and an inauguration ceremony at DHA Sunset Club where Honorable Governor – Mr. Muhammad Zubair CEO – Mr. Ateeq Ur Rahman Barry, and MD – Mr. Fawad Barry delivered speeches. The ceremony began with the recitation of the Holy Quran and playing of the National Anthem, and ended with the dua by Maulana Najmul Hasan Abbasi. Mr. Ateeq-Ur-Rahman Barry was also presented Life Time Achievement Award by Honorable Governor, Mr. Muhammad Zubair for his 50 Years services in the field of Fire and Safety. Some of the pictures of the ceremony and Honorable Governor's message is attached with this Press Release. ■

Will Pakistan be able to meet SDG by 2030?

By Muhammed Ahmed

The last few years have witnessed greater cooperation between the development and private sector in working together towards achieving social goals. With the launch of Sustainable Development Goals, the United Nations have also emphasized the importance of increasing role of the private sector in tackling global social challenges. Going forward, there is increased expectation from the private sector regarding sustainability, inclusiveness and ensuring social impact instead of social spending.

The United Nations Global Compact, in its report, emphasizes on making global goals local business. The Business and Sustainable Development Commission (BSDC) concludes that commensurate with the new ambition of the SDGs, business practice should evolve in three ways to contribute to sustainable development. First and most important, companies should improve the performance of their core business and explicitly consider its development impact, so jobs are better quality, for example. Second, business should continue to foster the kinds of innovation started during the



MDG era such as partnerships to share risk. Finally, the SDGs are likely to be advanced piecemeal through trial and error. It further suggests setting business strategy and transforming markets in line with the UN Sustainable Development Goals. Achieving the global goals would create a world that is comprehensively sustainable; social fair; environmentally secure; economically prosperous; inclusive; and more predictable. They provide a viable model for long-term growth, as long as business move towards them together. Further, Global Goals opens the 60 biggest market "hot spots" worth up to \$12 trillion a year

in business savings and revenues in food and agriculture, cities, energy and materials and health and wellbeing, by 2030. The total economic prize from implementing the Global Goals could be 2-3 times bigger, assuming that the benefits are captured across the whole economy and accompanied by much higher labor and resource productivity. Keeping the above changes globally, it is high time for the corporate sector in Pakistan to leverage the opportunities by integrating their CSR interventions with SDGs. This may include (but not limited to): Advocacy regarding mandatory CSR contribution by the private sector in Pakistan, improving the effectiveness of CSR Forum through inclusion of all relevant stakeholders and undertaking various joint projects and initiatives, supporting the formation and success of Social Enterprises across Pakistan, incorporating the global goals into company strategy. Integrating the traditional 'CSR' function into the very fabric of the organization, actively engaging all stakeholders including the government, donors, NGOs and the community, with its meager resources and lack of capacity, government in Pakistan would not be able to meet the 17 SDG goals and 169 targets by 2030. Private Sector in Pakistan has the capacity and resources to significantly contribute towards achievement of these goals while simultaneously achieving their business goals. ■

Air University students showcase "Markhor" electric car

Air University students have successfully unveiled an energy-efficient vehicle "Markhor" on the occasion of Car & Bike Show held at Giga Mall. Markhor is a project by team "Mech The Tech (MTT)" which consists of final year students of Mechatronics Department of Air University Islamabad.

According to MTT team, the prototype model was made after iterative calculations and design revisions. "Solid modeling and analysis were performed to validate the design before fabrication," the team lead told. He further stated that estimated target mileage for the Markhor car is 550km/kWh whereas the last year winner in this category achieved 496 km/kWh. The Air University students hoped that their prototype will compete with other international teams in the Shell Eco-marathon Asia 2018 to be held in Singapore from March 8- 11 this year. Shell Eco-marathon challenges student teams around the world to design, build, test and drive ultra-energy-efficient vehicles. ■



Investing in renewable energy means investing in future of Pakistan

Rolf Michael Hay Pereira Holmboe, Ambassador of Denmark

By Naeem Qureshi

"Pakistan should maximize power production using renewable resources including wind, solar, and hydro power. By doing so, Pakistan would have to import less oil, less coal and less natural gas. It will basically benefit the Pakistani economy and Pakistani end-users of energy as well. This means investing in future. But this policy framework is not fully developed as yet here. So we are looking forward to see a stronger and strategic commitment of the country to renewable energy as future of Pakistan", says Ambassador of Denmark to Pakistan Rolf Michael Hay Pereira Holmboe as Energy Update interviewed him in detail regarding energy, trade and socio-economic situation in Pakistan and the lesson Pakistani government should learn from success story of Europe in these sectors.

Following are important excerpts of his interview for our readers.

Energy Update: What is your viewpoint regarding efforts of present government to overcome energy crisis of Pakistan?

Rolf Michael Hay Pereira Holmboe: We all know that any effort to improve energy situation is a long-term effort. It needs a strong and consistent policy



framework. Then you need investments in some of the choke points you have in the energy sector like grid evacuation. If you have a smart grid, an extensive grid, you can draw in electricity from various energy sources. You will have a much better energy situation. I see all these things started occurring but we haven't moved much far yet in this direction. There is a lot of emphasis on getting some new energy, new megawatts to make them available in the market. There has been success in that sense. Right now, I don't have the figures showing how much there is improvement in energy situation. But I'm sure there is some sort of improvement in the situation. But if we look forward, we need stronger commitment, stronger policy framework, and stronger strategy as how best Pakistan can solve its energy problems. One of the main issues in this regard is that if you have a heavy reliance on coal, natural gas and oil for energy production then a lot of money will be drained out from Pakistan much to the disadvantage of its trade balance. So with oil and gas becoming more and more expensive with the passage of time, Pakistan will suffer economically. We are keen to see Pakistani government coming forward with a strong and strategic outlook so that the country could overcome its energy crisis.

EU: Would you like to give detail of success story of Denmark in renewable energy sector?

Mr. Holmboe: Back in 1970s we had an oil crisis due to political reasons. We had less oil for power production. At that time, energy was produced on bases of oil and coal. It basically made us think that we should become much more self-sufficient, much more strategic in looking towards future of the energy sector. A big govt report authored at that time showed future direction of energy market. We came to know that oil is a perishable energy resource as at some point in time



it will end, so we need an alternate source of energy. We had houses in Denmark, which were using a lot of energy for heating throughout the year. But there is a high cost involved in it. A plan was adopted to focus on these issues. One of the options for us was to use renewable energy as soon as possible because it would improve our balance of payments and our economy immediately. We were also required to improve our energy efficiency and also to make strategic investment in research and development in energy sector. The decision taken at that time made Denmark, the world leader in renewable energy production on basis of wind power. We don't have much solar power so we don't have much solar power projects. In the meantime, we also become world leader in providing wind energy solutions as well. We are now the most energy efficient country in the world. These are the same elements that could benefit Pakistan as well. The Danish energy vision stands for unlimited access to renewable energy. As fast as you move forward to adopt the renewable energy, it will benefit Pakistan both economically and in balance of payments. This is because the cost of renewable energy is lower than power produced on bases of oil, gas or coal. It will increase the competitiveness of Pakistani businesses.

Since the time Denmark switched to renewable energy from the period between 1990 to 2013, we had experienced 40 per cent economic growth and that 40 per cent economic growth is achieved by using eight per cent less energy in 2013 as compared to our energy consumption in 1990. We have now the lowest energy prices in the world as far as energy production is concerned but we later tax the energy supplied

to the consumers. So in Denmark people pay actually quite a high price for energy consumption making them to give value to energy resource and also to motivate them not to waste it. On the production side, our energy prices are dropped to the level of 02 to 2.5 cents per kwh. Last year, 43.4 per cent of all the electricity produced in Denmark came from wind energy resource. More than two-third of our energy is produced by any of the renewable resource either wind, solar or bio-mass.

EU: How Denmark could support renewable energy sector of Pakistan?

Mr. Holmboe: There are wind corridors already properly identified in Pakistan. The wind corridor in Jhimpir area is the most obvious one. It has very high potential. Then you have various wind corridors in Punjab as well as you have some similar corridors in Balochistan but they are located far from the economic centres of the country. Pakistan has a lot of potential in the wind energy sector.

There is a Danish company Vestas, which has become world's leading wind turbine producer. What they have been experiencing in last five years is extremely interesting. They are not only working in wind energy sector but also working to combine hybrid resources of energy that means to combine together wind energy, solar energy and battery power. Basically when you are able to combine together wind, solar energy and strong battery power, you can evacuate renewable energy to the grid in a much more phased, consistent, and reliable manner.

For instance, there is a new renewable energy plant in Australia having wind, solar and Tesla battery power. This plant has a storage capacity of four Megawatts electricity, which means that with no wind or solar power this plant could evacuate up to four MWs power to the grid. All these solutions are very interesting for Pakistan but there are constraints here. For instance, right now maximum five per cent of electricity generated in the country could be drawn from all resources of renewable energy whether it is wind, solar, bio-mass, or small hydro power projects. You need to maximize power production on bases of renewable sources of energy. You need a strong commitment and policy framework to do it. Let us suppose a company invests in a 400 MWs-wind power project in Jhimpir corridor. They should have the solemn guarantee from the govt that 400 MWs of renewable energy once generated by the project, would be readily sold to the national grid. If you cannot readily sell electricity to national grid then you can't do any proper and rationale cost-benefit analysis of the project. These are some of the things still lacking in the policy and strategy of your country to come out of its energy crisis.

EU: What are the lessons Pakistan could learn from the cooperation among the European countries in the energy sector?

Mr. Holmboe: The lesson from Europe is basically that their power distribution systems are more integrated, cheaper, and more efficient. Let us suppose there is a sudden boost in energy consumption in Germany as they need additional

electricity for their 50 new factories. This additional energy would be available to the German national grid within a few hours from anywhere in the Europe. The strongest inter-state power network in the world exists in Europe among Norway, Sweden, Denmark, the UK, the Netherlands, Belgium, and Germany. In this regard, one Danish-Dutch wind power project having generation capacity of a hundred thousand MWs electricity, which is going to be built in North Sea, is very exciting.

EU: Any possible effect on this cooperation among EU countries owing to the Brexit situation?

Mr. Holmboe: In my personal opinion, there will not be any effect. We will find ways to keep this cooperation going like we have cooperation with Norway, which is not part of the European Union. But they have aligned well with the EU's rules and procedures so they get benefited from this cooperation in a much the same manner as like the case of any EU country. I'm sure there will be a solution for the UK as well as the UK is very close to the EU as it will remain close to it in future well.

EU: In your opinion what are the solutions to our socio-economic problems?

Mr. Holmboe: A lot of reforms have to be done in this area. China could serve as a model as once being poor, it has now become a rich nation. They did it by prioritizing economy instead of prioritizing security. They invested much in economy instead of investing so much in security. If a situation is ever created where Pakistan is not required to invest so much in security with improvement of relations with its neighbors like

India and Afghanistan, it will allow Pakistan to heavily invest in economy. Then Pakistan is also required to do reforms in the key socio-economic sectors. Then Pakistani companies and organizations are also required to forge alliance with their foreign counterparts being global leaders in the key trade and economic sectors. This will allow transfer of knowledge, resources, and technology to Pakistan. Likewise, Pakistan is also required to invest a lot of money in research and development efforts related to important areas of economy, industry, science and technology.

EU: What is your opinion about China Pakistan Economic Corridor project?

Mr. Holmboe: CPEC is a fantastic opportunity for Pakistan. It will massively benefit Pakistan. For China, it is one of six routes it has lately built to access sea and ports. Pakistan is supposed to do reforms to get maximum benefit from CPEC. With right reforms in transport, logistics, and communication sectors; goods from Pakistan could easily compete with similar foreign brands and products. The transport and communication sector should be made competitive after ending monopolies. Exports from Pakistan decreased not because of lack of access to rest of the world but because Pakistani companies could not compete with their international counterparts. Pakistani companies are required to build partnerships with foreign firms so to become competitive for the international market. In this connection, partnerships with Danish companies could prove very useful for Pakistani companies as Danish firms are global market leaders in a number of important business and industrial sectors including pharmaceuticals. ■

NFEH started tree plantation campaign of spring season



NFEH started tree plantation campaign of spring season 2018 with Go Green Society IBA. 1st event held at a girls school located at Korangi. NFEH will support to all students & youth for this cause. we appreciate IBA's Students for taking up this task #treeplant #nfeh #csr #greenkara-chi #gogreen



NFEH team visited Naya Nazimabad Housing Project for tree plantation campaign. A group photo with CEO Naya Nazimabad Samad Habib, Head of Marketing, Ahmer Rizvi, President NFEH M. Naeem Qureshi, Ruqiya Naeem, Musadiq Aziz, John W. Richard, Ghulam Kibriya and other guests



A catastrophe in the making

ADB's report on Pakistan power sector and coal power plants is a clarion call to straighten up the path or be prepared for irreversible impacts of climate change

By Syed M. Abubakar

The recently conducted independent evaluation by Asian Development Bank (ADB) titled Sector Assistance Program Evaluation (SAPE) for the Pakistan power sector has revealed that through the multi-billion dollar China-Pakistan Economic Corridor (CPEC) project, approximately 10 Giga Watt (GW) of generation capacity will be commissioned before 2019. The report warns that the power sector's energy mix has been affected by diminishing natural gas reserves and sluggish hydropower development, resulting into increased reliance on fossil fuel power generation and coupled with high technical losses, which will exacerbate climate change in Pakistan. Also, the fossil fuel generation will increase Greenhouse Gases (GHGs) that will worsen climate in Pakistan.

The Nationally Determined Contributions (NDCs) that Pakistan had submitted to the United Nations Framework Convention on Climate Change (UNFCCC) as part of its commitment to Paris Climate Agreement also portrays a grim picture that the country's emissions will increase up to fourfold by 2030. Pakistan's NDC further highlights that the country needs US \$ 40 billion in order to reduce 20 per cent of its carbon emissions by 2030 and US \$ 7-14 billion annually if it is to adapt to climate change.

Experts fear the dependence on fossil fuels will add to climate change and environmental degradation in Pakistan and also compromise its national commitments under the Paris Climate Agreement.

Similarly, the Climate Public Expenditure and Institutional Review (CPEIR) by United Nations Development Programme (UNDP) Pakistan has revealed that in order to mitigate climate change, investments worth US \$ 8 billion are needed annually for 15 per cent reduction in GHGs and up to US \$ 17 billion for 40 per cent reduction in emissions. The UN's study further reveals that the average costs for annual adaptation to climate change ranges from US \$ 6 billion to US \$ 14 billion up to 2050.

Pakistan needs to access climate finance from international financial institutions such as Green Climate Fund (GCF), Global Environment Facility (GEF), World Bank (WB) and others in order to mainstream the much needed finance for adaptation and mitigation

of climate change, as the country is again ranked in the list of countries most vulnerable to climate change. According to Germanwatch, Pakistan is ranked number seven in the list of top 10 countries most vulnerable to climate change in the 20-year average.

The ADB report gives the breakdown of power generation sector of Pakistan revealing that out of 112 Tera Watt hours (TWh) of utility electrical generation in 2016, 32 per cent relied on imported furnace and diesel oil, 31 per cent from natural gas, 30 per cent from hydro, 3.8 per cent from nuclear and 1.4 per cent from renewables. The energy mix is expected to change, as new coal-fired power plants will be operational soon. A worrying figure from the report is that more than 60 per cent of electricity comes from fossil fuels. Inefficiencies of the energy sector also affect the environment and contribute to climate change through increase in GHGs.

Experts fear the dependence on fossil fuels will add to climate change and environmental degradation in Pakistan and also compromise its national commitments under the Paris Climate Agreement.

Dr Tariq Banuri, Professor at The University of Utah and Executive Director of Global Change Impact Studies Centre (GCISC) of the Ministry of Climate Change, stressed to adhere to the core principles while taking decisions on energy. "When the decision about coal

plants was taken, the perception was that coal is the cheapest available fuel. This may no longer be true. For example, the Sahiwal coal-fired power project has an agreed tariff of 8.3601 US cents/kWh."

Banuri said, "Last week, I was at the World Sustainable Development Forum (WSDF) in Mexico, where the Mexican Energy Minister announced that they have received bids of US 2 cents/kWh for solar power plants, which is less than one-fourth of the coal-based plants. In other words, the cost argument has shifted decisively towards renewable energy. It is not clear why Pakistan should pay 8.36 cents for electricity from a dirty source instead of 2 cents from a clean source?"

When asked how the modern world has increasingly shifted towards a "triple bottom line approach", where economic efficiency is weighed against social and environmental externalities, Banuri said, "Coal has very high environmental costs, both in terms of smog and air pollution, and climatic impacts. Smog has become a major threat in Pakistan, affecting peoples' health adversely, and also paralysing the transport infrastructure during winter. Citizens are raising their voice about the impacts of smog and it is only a matter of time before they connect the dots and begin targeting the causes of smog, including the newly-established coal power plants."

Dr. Tariq Banuri further said, "There are increasing developments taking place internationally to put a price on carbon and impose penalties on activities that aggravate the problem and increase carbon emissions. The construction of coal-fired power plants are no exception to this and if fossil fuels are discouraged (globally) to that extent, any investment in dirty energy will become "stranded assets", and won't be able to recover their costs. There is a dire need to re-examine the case of coal in the light of accumulating evidence. The government on the other hand has made a good decision by converting some power plants running on coal or furnace oil to LNG, which is far less polluting as a fuel, and can serve as a reference for further action."

Dr. Qamar-Uz-Zaman Chaudhry, who is the lead author of the National Climate Change Policy (NCCP) 2012 of Pakistan and the former DG of Pakistan Meteorological Department (PMD), called for putting in place 'climate-resilient' infrastructure in order to minimise the climatic impacts. According to him, "We don't say not to go for fossil fuels but assess that how we can minimise the impacts aggravated by climate change. Of course when infrastructure will be developed, emissions will rise and we need to see how to minimise the impacts and seek maximum economic benefits. CPEC is a lifeline and we need to see the various angles associated with it."

If energy reliance on coal power plants is necessary, then super critical technology should be used so that emissions are minimal, added Dr. Qamar. He further said, "Efforts should be made to explore other technologies as well, which are less harmful for environment. The prime minister plans to convert coal and oil-fired power plants to Liquefied Natural Gas (LNG)."

Whereas, Dr. Adil Najam, Dean Frederick S. Pardee School of Global Studies, Boston University, categorically said, "Coal, in general, is going to always be an environmental liability. That is obvious, and not really the key point to make. To me, the most important point is that coal no longer makes economic sense. And it will make less and less economic sense in future. Making such an investment is a bad idea for our future children, not only because we will be leaving them an untenable environmental legacy with coal, but because we will also leave them with a horrendous economic burden."

Dr. Najam, who has also been an author for the Intergovernmental Panel on Climate Change (IPCC)'s report, further added, "We should also make it very clear, in our understanding as well as in our narrative, that there really is no such thing as 'clean coal'. At best that is an aspiration, at worst it's an oxymoron. Yes, there are relatively less and more dirty variants of producing power from coal, but, no, there are no clean versions."

The climate science has already informed that how coal can cook the climate and make it difficult to limit the temperature rise to 1.5 degrees Celsius, as committed by more than 190 countries under the Paris Climate Agreement. The report by ADB is a clarion call to straighten up the path or be prepared for irreversible impacts of climate change. Let's not forget that 2017 was the second-hottest year in recorded human history, without an El Niño event. Unless and until Pakistan slashes its emissions and promotes renewable energy, the consequences for this nation will be disastrous. ■

Courtesy: The News International

All husbands can enjoy 😊😊😊

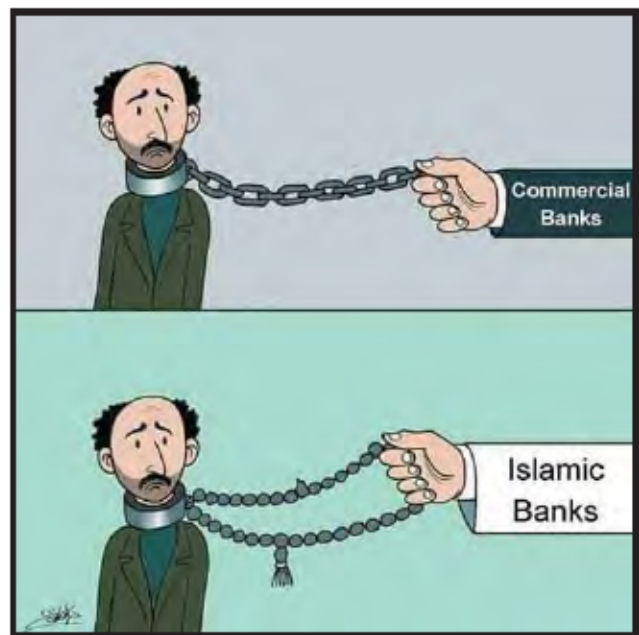
Wife: Shall I prepare Biryani or Pilau rice today.

Husband: First make it, we will name it later. 😊

Husband: I found Aladin's lamp today. Wife: wow, what did u ask for darling?? Husband: I asked him to increase your brain ten times. 😊

Wife: oh..jaan..luv u so much.. Did he do that??

Husband: He laughed and said multiplication doesn't apply on zero. 😊



New energy: gains and pains

Pakistan is adding 21000mw energy by 2022



Pakistan is adding around 21000 MW between FY17-22; and all the additions are in better fuel options than existing heavy reliance on furnace oil; plus, the efficiency of new plants are much better. Isn't it just great? Hold your horses! What is the demand forecast? Will the new additions be completely utilized? Or will the capacity payments become a pain? What about the local refining of FO if we do away with all furnace oil-based plants?

These are some punching questions, the answers to which are hard to find from any document produced by government authorities. Well, the response that usually comes from the government is that they are producing clean and cheap energy and that they've struck the best deals. That might be the case; but you won't buy more than what is required on a discount; would you?

Is this sheer incompetence? Or lack of coordination? Forming an integrated energy ministry was part of PMLN government's manifesto for 2013 election; it took them over four years and a change of Prime Minister to make this happen. Is this too late?

Let's run through the brief history of energy management by the PMLN tenure. It started from 13,200 MW coal plants at ports, but soon the plan was shelved and

replaced by CPEC projects and RLNG plants by Punjab and federal governments.

Once a few projects reached financial close, the then Water and Power Secretary, Younus Dhaga, put his foot down to not let any more imported plant be approved, and made a policy for having indigenous fuel plants (Thar coal, renewable and hydel) for medium to long term. But that was against the liking of a few in the power lobby, and Dhaga was removed from the

ministry.

Now without any sophisticated demand analysis, a plethora of plants are coming online, making the power generation capacity to reach 42,640MW in FY22 from 25,983MW in FY17. A few new plants have been commissioned and rest are coming on gas (RLNG), coal, nuclear, hydro and wind. With every new megawatt being added, RFO is intended to be replaced. The electricity generation from NTDC system was 107.2 billion units in FY17 out of which 29.7 percent share was of FO. Out of 33.5 billion units produced on FO/HSD, 14.5 billion units were generated by plants that could run on gas. With the second RLNG terminal in effect, there is definitely a case of excess supply of gas, and wherever the generation is possible on gas, will be implemented.

According to Optimus Research estimation, the FO/HSD electricity production will reduce to 13.1 billion units in FY18 and virtually to none thereafter. This is a good way of fuel saving as thermal efficiency of new plants is better; and based on current pricing, RLNG and coal are cheaper – FO costs at USD8.44/MMBTU in Karachi versus RLNG (USD7.35/MMBTU) and coal (USD4.0/MMBTU).

EU Report

However, the catch is what to do with domestic refineries' furnace oil production capacity and the capacity payments on new plants in case they are not used. For FO production fiasco, read "Dumping Furnace Oil" published on Nov 28, 2017. Let's deliberate the capacity payment issue here. Optimus Capital Management's calculations show that the increase in capacity payments due to new plant on coal and RLNG would be around \$2.5 billion over the next five years.

If FO is replaced by RLNG and coal, the fuel savings would be around Rs3.1/KWH or Rs90 billion, and adjusting additional capacity payment the negative savings would be Rs1.8/KWH or Rs174 billion. Yes, that has to be recovered from consumers by increasing tariff by the same amount.

The point here is that under the current tariff structure, any new plant would have a capacity charge. The additional capacity cost can be justified only if the power being added is consumed. Else, it's a problem. The energy pundit thinks that the new capacities are a little too much relative to the demand; and this may result in supply glut in years to come. The problem is compounded by incorporating the weak distribution and transmission system of the country. Can 42,000MW be handled by the system by 2022? Would there be demand to meet such capacity? How would local refineries operate in the absence of any demand? What are the political difficulties in retiring old GENCOs? These are the questions that had been dealt with in the drawing board meetings prior to committing too many power generation plants. But there was no coordination or competence of various department linked to energy. We now have an integrated energy ministry; but is it too late?

Well, it's never too late. The energy minister happens to be the Prime Minister, and he probably has too much on his plate to carefully and deeply analyze the energy demand supply dynamics. The need is to slowdown in allowing new plants to come online before it's become too late to handle. ■

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Volatile Matter	29-35 %
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Carbon	39.33 %
Sulfur Gross Calorific	Less than 1%
GCV Value ADB	6,500 Kcal/kg
Type	Bituminous Coal
Shape	Lump form Greater than 20 mm

Value Local Coal Specifications

Moisture	8 to 10%
Volatile Matter	38.69%
Ash	15 to 20%
Carbon	37.55%
Sulfur	3.00 to 5.00%
GCV	5,950 Kcal/kg
Bituminous - A	Coal Type
Shape	Lump

Characteristics are subject to change without prior notice

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HUBCO to retain top slot as largest IPP

Company add another 1650 MW in its generation

CEO of Hub Power Company Khalid Mansoor

By Naeem Qureshi

With addition of another 1650 MWs generation capacity in near future, Hubco to retain its position as biggest IPP of the country. "The present generation capacity of Hub Power is 1601 Megawatts as we are going to add another 1650 MWs generation capacity in a coming few years. So we are going to make our own generation capacity more than double. This shows our confidence in power sector of Pakistan. We have been the biggest IPP (independent power producer) as we will continue to be the biggest IPP of Pakistan".

CEO of Hub Power Company Khalid Mansoor stated this as Energy Update recently interviewed him in detail on expansion plans and future projects of the Hubco and also to know about his expert views on energy sector and power situation of Pakistan and that of the adjoining region. He continues



Eergy Update: What are upcoming projects of Hubco in the power sector?

Mr. Khalid Mansoor: At present the growth initiatives of Hubco have the total worth of \$3.5 billion. As you know very well, we are the integral part of Thar coal and power project. We are equity partners in the project as obviously we are looking forward for a long-term engagement in it. First phase of the project is 60 per cent completed.

The overburden of coal mine has been removed up to the depth of 125 metres. The project is completed within budget while progress to complete the project is 10 per cent ahead of the schedule. The most important thing is that so far there is no incident of human injury among the human resource engaged to do the project. It is a huge project, which is going to take place first time in the country as the project promises to be the game-changer for Pakistan. The social action plan being implemented in Thar

along with the project for the benefit local Thari people is unprecedented. This plan is being implemented to provide health, education, and employment opportunities to local Thari people. We also created the option for ourselves that we will get the first right to increase our involvement in the project whenever the mining project is scaled up. So the moment the board of Sindh Engro Coal Mining Company decided to expand mining from 3.8 metric tonnes to 7.6 MTs, we immediately exercised this

Exclusive Interview

Mr. Khalid Mansoor is a Graduate in Chemical Engineering with distinction and honors. He has been the Chief Executive Officer of Hubco since May 20, 2013. Hubco is the first and the largest Independent Power Producer (IPP) in Pakistan.

Mr. Mansoor has initiated the process of transformation of the Company. Predictive Enhancement and Performance Improvement (PEPI) initiative at Hubco plants was undertaken in consultation with General Electric (GE), USA to improve reliability, availability and efficiency of three power plants of Hubco. World's best safety protocol DuPont HRM is also being implemented at all the plants.

The Company has taken over the O&M of its two plants and also plans to operate its hydel and coal based plants with the goal to provide O&M services locally and worldwide. This would develop indigenous manpower expertise to make the country self-sufficient in various aspects of power plant operation and maintenance.

Mr. Mansoor is the Chairman of Laraib Energy Limited, Hub Power Services Ltd., Chairman & CEO of Narowal Energy Ltd., CEO of Hub Power Holdings Limited and Thar Energy Limited – the HUBCO subsidiaries. He also represents Hubco on the Board of Sindh Engro Coal Mining Company which is setting up first Thar Coal Mine in Pakistan. During his tenure as the CEO, of Hubco the market capitalization of the Company has increased by 135%. He is the President of the Overseas Investors Chamber of Commerce & Industry (OICCI) for the term 2017.

As CEO of Hubco he has been responsible for the growth initiative of the Company and is actively pursuing the execution of over \$2.0 billion 2 x 660 MW imported coal based IPP with dedicated jetty in JV arrangement with China Power International Holdings Limited and a 0.5 billion \$330 MW indigenous coal based IPP at Thar by virtue of its equity investment in Sindh Engro Coal Mining Company leading to investment of over US\$ 3.5 Billion. In the area of natural gas, he spearheaded the development of a 225 MW combined cycle power plant at Engro Powergen Limited. As Chairman of Laraib Energy Limited, which is the owner and developer of Pakistan's first and currently the only Hydel IPP, he is actively promoting the development of Pakistan's hydropower potential as long term sustainable solution for Pakistan's energy needs.

He has over 35 years of experience and expertise in energy and petrochemical sectors in leading roles for mega size projects development, execution, management and operations. He has previously served as the Chief Executive Officer of Algeria Oman Fertilizer Company (AOA) which has constructed a world's biggest ammonia and urea fertilizer complex including around 120 MW captive power plant which is located in Industrial Zone of Arzew, Algeria.

Prior to AOA, he had held the positions of the President and Chief Executive Officer of Engro Fertilizers Limited, Engro Powergen Qadirpur Limited (EPQL), Engro Powergen Limited (EPL) and Sindh Engro Coal Mining Company (SECMC).

He had held various key assignments at Engro and with Esso Chemicals Canada including leading the development and execution of various major diversification and expansion Projects for Engro. He had been a Director on the Boards of Engro Corporation, Engro Fertilizers Limited, Engro Polymer & Chemicals Limited, Engro Powergen Qadirpur Limited, Engro Powergen Limited and Sindh Engro Coal Mining Company. He had also served as a Director on the Boards of Engro Foods (Pvt.) Limited, Engro Vopak Terminal Limited, Sui Northern Gas Pipeline Limited and Chairman of the Board of Engro Powergen Limited in the recent past.



right of ours. We are now doing 330 MW power project on the mine mouth as we have started it from our equity. This project will become operational by December, 2020.

Then comes our second flagship project, which is on the Hub's site. This 1320 MWs power project involves two generation units of 660 MWs each along with an integrated jetty. This project was taken to execution stage in 2016. This is a two billion Dollars project, which makes it the single biggest project in corporate history of the country. The earlier record of single biggest project was also with us as that was of Hubco power plant, which we did in 1996 with the cost of 1.6 billion Dollars. This project of ours is the only power project under the regime of CPEC (China Pakistan Economic Corridor), which is the true reflection of China-Pakistan cooperation as being the joint venture between the two countries. From this perspective, this is a unique project. The first unit of this project will come online in December 2018 while the complete project will be up and running by August, 2019. Together with this, we continue to stay engaged with our extensive social obligations in Thar and Hub areas. Then we are also doing a number of initiatives in our base business so to improve efficiency, reliability, and availability of our existing power plants. The O&M (operations and maintenance) contractors of our three power plants is now one of the subsidiaries of Hubco i.e. Hub Power Services Ltd. This company will continue to explore more and more O&M business here in Pakistan and abroad as well.

EU: Do you think there will be surplus electricity in the country with completion of a number of new power projects?

Mr. Mansoor: Earlier, we suffered a lot due to acute power shortfall in the country. Earlier the government allowed setting up of furnace oil-based power plants in the country on an emergency basis as a shortcut solution to end widening electricity shortfall in the country. All these six to seven projects in the country including the Hubco's project in Narowal were allowed by the country at that time. Resultantly, majority of power production in the country during last five years was done on basis of furnace oil. Just look at the last year's report of Nepra on state of power industry, which says that up to 32 per cent power generation in the country, was done on basis of furnace oil. Now the fuel import bill of the country has gone up to 11 billion Dollars including one billion Dollars being spent on import of LNG while remaining 10 billion Dollars are being used to import oil. This is being done to fulfill energy requirements of the country. Resultantly the cost of electricity has gone up as our power tariff is one of the costliest among the regional countries. This increases the input cost for our industry, which in turn makes products of Pakistani industry more expensive and less competitive in the international market. The biggest challenge for our economy is decrease in our exports that increases our trade and current account deficit. Our GDP also got decreased remarkably owing to power crisis. The availability of power supply in a country has a direct co-relation with the GDP as GDP increases with increase in electricity. So we need more electricity in the country as the government aims to increase GDP growth rate from 3.5 per cent to 6.5 per cent annually. During the time the country was facing serious power shortfall and electricity load shedding went up to 18 hours a day, most of the industrial units established their own captive power plants using diesel as fuel. This electricity cost them up to Rs25 to 30 per unit. This is also increased input cost for our industrial production manifold. Now by June this year, 5000 MWs electricity will be added to the national grid and the country for the first time in last six to seven years will achieve a balance situation in the energy sector. We do need more electricity to increase volume of foreign direct investment (FDI) in the country. The current volume of FDI in the country stands at two billion Dollars annually, which is far less than actual potential of the country. Now the country would be in best of the position to host more industrial activity with improvement in both energy and security situations. The country will go back to the position of what it used to be five years back if it faces power shortfall again even of a single megawatt of electricity. All the investment plans in the country will put on backburner if the power shortfall gets increased once again.

EU: What are other major issues of the energy sector as country generates more and more electricity?

Mr. Mansoor: The additional 5,000 MWs electricity is not being added to our system in one go is our national grid is very much unreliable. The infrastructure in the country related



to power transmission and distribution has become too much obsolete as it got tripped quite frequently with slightest of disturbance in the system. Our transmission and distribution losses are one of the biggest in the entire region. There is need to curtail the T&D losses that now stand at 19 per cent.

EU: What would be the effect on fuel mix being used in the country with increase in its power generation capacity?

Mr. Mansoor: The power sector is making progress toward the stage of indigenization of fuel resources. Earlier our fuel mix was very much inappropriate as it was highly lopsided due to undue heavy reliance on furnace oil for power production. The furnace oil will not at all be used in additional 24,000 MWs electricity the country will produce by the year 2023-2024. Out of this, 9,000 MWs additional power generation will be done on basis of coal. With this, coal will accounts for 18 per cent of our energy mix, which even then would be far lower than fuel mix of any of the regional or global country as far as coal consumption for energy production is concerned. If for instance there will be surplus power generation in the country for a short time period, then power plants will compete with each other to remain in operation on basis of their respective merit order.

EU: How we can reduce our national electricity tariff?

Mr. Mansoor: Our power tariff without any doubt is the highest in the entire region. The electricity tariff applicable to industries is also costlier as it comes to Rs11 per unit with subsidy of Rs3 per unit cost of electricity. The power tariff for industries should further be brought down to the level of Rs 09 per unit. For this we should do effort to decrease our T&D losses in the energy sector as this will automatically bring down electricity cost by 1.5 cents per unit. The government should also seriously look at the issue of natural gas tariff in the country. The government should immediately review its policy to provide gas to industrial sector at a higher cost while the domestic sector is given preference by supplying it gas on subsidized rates. This trend is nowhere seen in the world where domestic sector is given preference over the industrial sector in terms of gas supply. The government should also do work on active basis to explore and utilize new gas reserves in the country whether of conventional gas or that of tight or shale gas. Exploring and exploiting more indigenous fuel resources in the country will be helpful in lessening the reliance on much costlier non-local fuel resources being imported in the country. ■

Photograph courtesy: Bloomberg via Getty Images.

Pakistan, among most threatened countries due to climate change

Govt did nothing to save the nation from looming disasters

By Syed Muhammad Abubakar

Policy-makers should strive for achieving the targets laid out in environmental laws if they are serious in saving the country from international isolation. A developing country like Pakistan, which has contributed negligibly to the phenomenon of climate change, is one of the most affected. According to Germanwatch, a think tank working on climate change, Pakistan is ranked 7th in the list of top 10 countries most affected by extreme weather events from 1997 to 2016, suffering a death toll of 523.1 lives per year. Pakistan also lost US \$ 3.8 billion from 141 extreme weather events during the same period.

Climate science has informed us that global temperatures have risen considerably and the Pakistan Meteorological Department has also testified that the mean surface air temperature in Pakistan has

risen at the rate of 0.099°C per decade from 1960-2010, resulting in a change of 0.47 °C.

To address the dangerous impacts of climate change, the United Nations Framework Convention on Climate Change (UNFCCC), an international environment treaty was brought into force on March 21, 1994. The Government of Pakistan signed the UNFCCC in 1992 and ratified it in June 1994.

"With the federal minister for climate change, Senator Mushahidullah Khan being unable to say a few words on NDCs (at COP23), how can we expect the Western world to give us (climate) finance?"

The UNFCCC organises annual conferences to assess progress in dealing with climate change, the most recent of which, COP23 was held in Bonn, Germany. Many climate conferences held every year under

the banner of the UNFCCC Secretariat have also produced their own agreements, such as the Bali Action Plan, the Copenhagen Accord, the Cancun Adaptation Framework, etc.

On the Ministry of Climate Change (MOCC)'s website, Pakistan is signatory to various international climate-related protocols, known as Multilateral Environmental Agreements (MEAs). Four MEAs have been ratified by the government of Pakistan and the MOCC is working on their implementation. These include UNFCCC; Kyoto

Protocol which extends the UNFCCC and aims to reduce greenhouse gas emissions which Pakistan



signed in December 1997 (ratified January 2005); Vienna Convention for the protection of the Ozone layer (ratified December 1992) and Montreal Protocol on substances that deplete the Ozone in January 1989 (ratified December 1992).

Read also: Between government and non-government

Under the long-standing norms of international climate diplomacy, most developing countries in their Intended Nationally Determined Contributions (INDCs) have made 'conditional' obligations which are contingent upon the provision of support in the form of finance, technology transfer, and capacity building. Pakistan is on the unfortunate trajectory to increase its emissions four-fold by 2030 thanks to its coal usage. Because of this it is demanding \$40 billion to reduce only 20 per cent of its emissions, whereas it requires US \$ 7-14 billion for only adaptation.

When asked whether Pakistan is complying to international climate laws, Dr. Tariq Banuri, a PhD in economics from Harvard University and executive director of the Global Change Impact Studies Centre, a government-run research institute for climate change studies says, "Pakistan has strengthened its systems for collection and dissemination of climate-related information, and has initiated preparation of projects for financing."

He says "Pakistan's core climate-related obligations are domestic rather than international in character, and have to do with the need to protect its citizens from the threat of future climate disasters and climate change more generally."

When asked about the problems faced by the government in abiding by the international climate laws, Banuri says, "Our main obstacles include the absence or weakness of relevant institutions. The government's acute awareness of this weakness is evident from the profusion of institutions established to address the various aspects of climate action. These include the MOCC (established after the 18th Amendment), the GCISC (established formally in 2013, although existing previously as a development project), the Pakistan Meteorological Department (PMD, strengthened since 1996), the NDMA (established in 2007), Alternative Energy Development Board (AEDB, established in 2003, and revamped and strengthened in 2013), National Energy Efficiency & Conservation Authority (NEECA, established in 2016, by revamping and strengthening the previously existing ENERCON), and the National Climate Change Authority (NCCA, to be established in the near future)."

He says, "There is a need for 'high level' political support and supervision for environmental institutions, adequate finance, strong leadership, and investment in capacity building. Those engaged in representing Pakistan on international forums on climate change needs to be trained as well, including the staff of the MOCC, foreign affairs and technical staff from other national institutions pertinent to this subject."

Dr Adil Najam, Dean of the Pardee School of Global Studies at Boston University says, "The reality is that most international conventions are actually very hollow. They really have very few implementable clauses and nearly none for developing countries. The reason countries like Pakistan find it easy to sign them is because most of these conventions do not ask countries to do anything, especially developing countries. Mostly the only requirement is to attend meetings or submit a report or two. This is not a Pakistan problem, this is a failing of international environmental policy."

He adds, "A good example - actually, a bad example - is the Paris climate agreement. All the international celebrations aside, the fact of the matter is that from a legal point of view it has nearly no implementable clause. Countries say what they can do voluntarily and then the convention politely asks them to do what they can. That's it!"



"With the federal minister for climate change, Senator Mushahidullah Khan being unable to say a few words on NDCs (at COP23), how can we expect the Western world to give us (climate) finance?"

Dr. Najam sounds one note of optimism in this scenario. "The one major exception is in the area of wildlife and especially trade in endangered species. That convention has teeth - meaning, implementable clauses. Which is why it is also followed and implemented better."

Dr Pervaiz Amir, Director, Pakistan Water Partnership (PWP) and a senior expert on climate issues, expresses his disappointment over the fact that Pakistan's policy-makers love to sign international environmental treaties but when it comes to implementation, they lack the will and the capacity. "The Nationally Determined Contribution (NDC) submitted to the UNFCCC by Pakistan reveals that the country demands US \$ 40billion for mitigation and US \$ 7-14billion for adaptation (to climate change). We don't say how we are going to do that! To attract donor funding, one has to develop bankable projects, which we haven't made (as of now) and that keeps our pace slow in international climate negotiations."

Dr Pervaiz further says, "With the federal minister for climate change, senator Mushahidullah Khan being unable to say a few words on NDCs (at COP23), how can we expect the Western world to give us (climate) finance? We have lagged in securing climate funding and Bangladesh, Sri Lanka and India are successfully securing it from developed nations. The quality of our communication to UNFCCC is extremely poor."

"Only a few lawyers in Pakistan focus on environmental problems in the context of global scenarios," he adds.

With Pakistan going down the path of increasing its emissions four-fold (by 2030) through continued reliance on coal-power plants and then demanding billions of dollars for climate change adaptation and mitigation from the Western world, it doesn't look as simple as it seems, because the entire pool of developing nations which have developed bankable projects are in an advantageous position to secure climate funding.

As our Intended Nationally Determined Contribution (INDC) highlights, "Pakistan reiterates its commitment and obligations towards the UNFCCC and Paris Agreement, and the objective to limit the average global temperature increase to 1.5 to 2.0 degrees Centigrade," the policy-makers should strive to achieve the targets laid out under international environmental laws on climate, which Pakistan is signatory to, if they are serious in saving the country from international isolation and also to protect its people from the catastrophic impacts of climate change. ■

Renewable energy can be delayed, but it can't be stopped

By Syed Akhtar Ali

The Ministry of Energy (Power Division) has issued a policy order recently which has drawn severe criticism from some renewable energy stakeholders as well as Sindh and Khyber-Pakhtunkhwa. The policy order is based on decisions of the Cabinet Committee on Energy. Following are the main points carried in a circular issued recently.

Competitive bidding will be held for solar, wind, hydro and bagasse projects irrespective of the location or status. All resource risks (wind speed, hydro, etc) have been shifted to the developer/seller.

The project life for renewables has been reduced to 15 years instead of the

existing 25 years. There is a considerable consensus, in particular among end-users and buyers as well as the regulator Nepra, that competitive bidding should take place in renewable energy as it has proved successful in bringing down energy prices.

This has happened in a number of countries such as India, Mexico, Brazil, USA, the UAE and Saudi Arabia. There was confusion, however, which emanated from the following: Nepra continued to entertain tariff applications on cost-plus basis while having stopped processing upfront tariff cases. This had created an anomalous situation lacking rationale for allowing one mode and not allowing the other.

There were requests from the provincial governments to allow existing projects, especially on wind power

in Sindh. Zonergy of Quaid-e-Azam Solar Park went to court asking for the originally high tariff for the remaining 600 megawatts while solar prices came down very significantly in the meantime. The common thread is that the investors (vested interest) would like to benefit from the high tariff for the one last time before competitive bidding, which will result in lesser prices, probably tightening profit margins. The view is short-sighted as the renewable energy market will expand under the lower tariff. The case for Pakistan to ramp up its renewable energy generation

On the other hand, under the confusion and controversy of competitive bidding and also under the fear of an energy glut in the interim period with the induction of 10,000MW this year (2018), no renewable project



could be inducted for almost two years and the industry is running in an unemployed status. This is probably a legitimate complaint of the investors. They also complain that every now and then a fossil fuel (LNG)-based project is approved and the renewable sector has received an unequal treatment. And the competitive bidding could have been organised much earlier without loss of a major chunk of time.

Easier said than done. Competitive bidding, technically called Reverse Auction Mechanism, has not been organised in Pakistan and there is no prior experience. Power Minister Awaiz Ahmed Khan Leghari has announced competitive bidding in the next two months, of which one month has already passed. There is a strong case for expediting the process with a package of 1,000 MW of renewable portfolio.

It is obvious that the time for renewables, especially of solar and wind, has arrived. One may delay it for a while but cannot stop it. Fossil-based energy is costing in the region of Rs8.5 to 10.5 per unit as opposed to the expected wind and solar tariff of below Rs5.

Solar appears to have more potential and attractiveness as it is available in all parts of the country, while wind is restricted to only Sindh. However, wind's hybridising potential with solar gives it a unique comparative advantage, offering higher availability and cost advantages of a common infrastructure. Hybridisation is getting increasingly popular. Recently, solar-hydro hybrid power plants have been built in China and Australia. A lot of unutilised land is usually available within and around hydroelectric power plants which can be amply utilised by solar power plants, offering comparable advantages as may be available in other hybrid plants such as solar-wind.

Regulated rates have been high due to a high rate of return of 17% in foreign currency which in terms of local currency turns out to be 22%, something unheard of in any part of the world. Similarly, under the regulated tariff system, debt terms also remained high, without differentiation of a weak or strong borrower. Under competitive bidding, the market would price these parameters.

An unintended victim of competitive bidding would be the local companies whose credibility and books would result in higher rates of lending than their foreign competitors. Something may have to be done about it. Local investors should come up with reasonable concessions in this respect without affecting the prices significantly. Another important issue which should have been debated before issuing a policy order is of reducing the tariff/PPA (power purchase agreement) period to 15 years.

An important point worth considering is that the tariff model is cash flow-based and not cost-based. What would be done with the residual assets which would still have a working life of 5 to 10 years? If equity is to be redeemed in 15 years, tariff would be high. Who would manage the project/company? Do we intend to accumulate public sector interests from the back door? If the IPP is supposed to fend for itself for the period after 15 years, there is to be some market mechanism. Hopefully, electricity exchanges may come about in the time horizon of 15 years. These details have to be worked out including the associated tariff methodology before such a policy order is issued. This would particularly hurt competitive bidding and

may fail the entire initiative. It would be highly recommended that this policy proposal be withdrawn from consideration.

Similarly, the proposal of introducing take-and-pay contracts is in circulation. Such a proposal may be introduced for captive power or when the electricity market/exchange starts working so that the IPPs may be able to unload the capacity into the open market. Without such an arrangement, this would result in a higher tariff due to higher risk and lower capacity utilisation assumptions based on which risk assessments would be carried out by potential investors and IPPs.

Fortunately, a power policy committee has been formed which may be able to consider these issues and forward suitable recommendations. Demand and supply issues may be sorted out due to the receipt of a consultant's report, depending on its quality. ■

(The writer has been member energy at the Planning Commission until recently).

PPL strives to establish commercial viability of unconventional discoveries



Pakistan Petroleum Limited (PPL), one of the key players in Pakistan's E&P sector is playing its due role in the development of unconventional reservoirs in the country. In order to explore tight gas potential in the lower Indus basin, PPL drilled a well in Naushehro Feroze exploration lease. Tight gas potential was confirmed through successful drilling and testing of first well Naushahro Feroze X1 (NF X-1). Due to the tight nature of the reservoir this discovery initially did not appear commercially viable. After detailed post well analysis and numerous sub-seismic geological and reservoir modellings, PPL re-drilled this well horizontally to total length of 4940 metres and completed with state of the art multistage frack technology. Where the Chiltan Limestone reservoir was successfully drilled in a horizontal section with total lateral length of more than 1.3 Km. The well was completed with ten stage open hole packers and fracking sleeves.

This well made history in drilling industry of Pakistan, by becoming one of the deepest and longest horizontal wells in tight carbonate reservoir. Later, all ten stages were stimulated (frac/acid) and successfully tested at 4.5 MMscfd with 1850 psi flowing wellhead pressure with 9 fold increase in production. In the future, "PPL plans to work on two additional tight gas discoveries to establish commercial viability," says MD and CEO PPL Syed Wamiq Bokhari. "The company's effort in tapping unconventional reservoirs has the potential to add substantial reserves to Pakistan's hydrocarbons base," he adds. NF X-1 is in Naushahro Feroz Block, Sindh, with PPL as operator holding 90 percent working interest and the remaining 10 percent held by Asia Resources Oil Limited. ■



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By Engr. Nadeem Ashraf

“NED University to become a carbon-free campus till 2021 - Prof. Dr. Sarosh Hashmat Lodi”

We have not developed our infrastructure for resource generation for decades, says VC of NED University of Engineering & Technology

The NED University of Engineering & Technology is going to complete 100 years of its establishment in 2021 and for that memorable occasion we are trying our utmost efforts to declare NED University a "Carbon-free" campus on its centennial year. Though this target is a bit difficult but not impossible to say the least. We have to do hard work for it", this was stated by Vice-Chancellor of NED University of Engineering & Technology, Karachi. Prof Dr Sarosh Hashmat Lodi as the Energy Update recently interviewed him in detail. In the interview, Dr Lodi talked about present and future programmes of his university, linkages it was going to develop with the industry, about energy crisis of the country, and overall scenario of higher education. He continues to say that.....

Energy Update: What is your opinion on the energy issue of Pakistan?

Dr Sarosh Hashmat Lodi (SHL): The energy is such an important matter that you can't imagine about life without it. With the passage of time, consumption of energy and reliability on it has been increasing. Keeping in view development in the IT sector, you need uninterrupted power supply. The world's population is increasing likewise population of Pakistan is rapidly expanding. Challenges of Pakistan are a little bit different. We also don't have capacity to meet these challenges. There is also been shortage of resources. The way development takes place in the world, very soon such motor vehicles will come in the market, which are called autonomous cars. We have to see on what fuel these cars will be operated as either they will be battery-operated, energized by solar power, or they will be fossil fuel-powered. If these vehicles will be driver-less cars then they should require internet connectivity as they will be driven through the GPS (Global Positioning System). We lack infrastructure for such innovations. The

requirement of energy could be such that in case any new category could ever be defined for Nobel Prize then it could be in the area of energy. Such is the importance of energy.

EU: Kindly elaborate detail of efforts done so by the NED University in the area of Energy?

Dr. Lodi: We have done so much work in the area of energy at the NED University and we are keen to do more work in this regard. A few years back we established a research board on energy. Then some of our alumni members have been running an organization having the name DICE. They established the NED-DICE energy innovation centre. Apart from this Prof Dr Saad Ahmed Qazi and one of his university colleagues have done a lot of work to convert NED into a green campus. We have solarised some of our departments including the Civil Engineering Department. A portion of Electrical Engineering department will also be solarised. We have held some meetings with the K-Electric and STDC (Sindh Transmission & Despatch Company) in order to get to know what help they could



do for us. So in this manner we are slowly and gradually inching towards the goal of becoming an efficient and more reliable organization. When we will execute these plans, not just the required infrastructure will be built but our students will also be involved in the process for their learning and capacity building.

EU: Do you think we should promote alternative sources of energy in the country?

Dr. Lodi: At present one of the sources available to us for electricity generation is hydro electricity. Now you see well how much infrastructure we have developed in last 70 years for hydro power. The second in line is nuclear power, which has also not been developed much. New nuclear power facilities are being developed in the country but still the technology doesn't contribute significantly towards the national energy mix. The third one is the use of fossil fuel for power generation as you saw that in the decade of 1990 several plants were established in the country by the independent power producers (IPPs). Regardless of the advantage and disadvantages of these IPPs, we were able to overcome energy crisis to a large extent. But again availability of fossil fuel is limited. For us the fossil fuel means furnace oil or natural gas, which is being used for electricity generation. Now these resources have become depleted while their prices have also increased. The availability of fossil fuel is going to become a major issue.

EU: Are you satisfied with work so far done in the energy sector?

Dr. Lodi: We are always required to strive for the best as the more you work the more it is better. We have to devise a

policy to kick-start things at the most bottom level. We should know in future how much human resource we will need in this sector and in what manner they will be employed. We have to get to know what will be our energy mix after next ten to 15 years as we have to develop resources in accordance with our future needs.

EU: Are you satisfied with efforts of the government in this regard?

Dr. Lodi: Much work is being done in the regard but pace of this work is slow. The projects being commenced today will be materialized after the gap of at least five years. The government has been giving much emphasis on setting up of new power plants. The Sindh government has laid its own electricity transmission network as several things are being done in this regard.

EU: What is your opinion about the present scenario where new public and private universities are being established in Karachi?

Dr. Lodi: There are total 25 universities in the city including both in public sector and private sector. Given the massive population of Karachi, this number should be 100 to create the desirable impact on the society. The total yearly in-take of students by all the universities in Karachi could not go beyond 10,000. This is nothing as compared to several millions of people living in the city. Along with the standard, the higher education opportunities should be available on widespread basis. Moreover, the higher education is not a like stand-alone system as it should be part of a composite system that provides continuity of education from primary level till graduation for every student. Unfortunately much work has to be done to improve quality of education at the primary and college level. We are supposed to get a more polished student if there is much attention on education systems of schools and colleges. Under the present system, the students are used to go to tuition centres where they learn to solve the problems but there is no opportunity available for them to gain knowledge. A student would be in the best position to utilize his or her resources after gaining knowledge.

EU: What steps you have taken so far to develop and promote linkages between NED University and industries?

Dr. Lodi: It is very much important for the universities to maintain linkages with

the industries especially in the case of engineering and technology universities. We have started a number of initiatives in this regard. The first one is that an industrial advisory board is being established in every teaching department as in each of such instance three to five persons from the outside were being requested to come and review the process of curricula development and teaching methodology at the campus. We should come to know what is required to be done by us. There are two components of engineering as one is engineering knowledge and the other is engineering practice. We could give engineering knowledge as we could not do practice as it would be done with the involvement of industry. We will get to know well about requirements of the industry after their involvement with us. On informal basis the industry gets

engaged with us somewhere or at some level but there is no mechanism for formal engagement of the industry. As for this purpose industrial advisory boards are being established. We are also fortunate enough to have two industry-funded chairs on our campus as both are professorial positions. One is PPL chair on which an academican has been working while the other one is funded by the NED University's alumni, which is vacant as a suitable person from the industry will be searched to fill up this position. Industry itself is composed of two parts is one is public sector and the other one is private sector. With public sector, we keep on engaging ourselves at various levels in the advisory capacity. A formal mechanism is required to engage with the industries of private sector as well. ■

Women Cricket match at Thar History marked in Thar as young girls play Cricket



Girls students of Thar Foundation schools play one-day cricket tournament; As part of the Thar Foundation's larger agenda of empowering women in all fields and after successful launch of its women dump truck driving program, the Foundation marks history of Thar by initiating girls-specific sport competitions and events in the area. A cricket tournament was held in this regard in village Bitra of Islamkot, in which female students of the Thar Foundation-run schools in villages Bitra, Tharyo Halepoto, and Mansingh Bheel participated vehemently.

Teachers and families of the playing girls as well as the Thar Foundation staff participated to support the young players. The first match was played between the teams of Mansingh Bheel and Tharyo Halepoto, win by the latter after a tough competition. The final match of the tournament was played between the Tharyo Halepoto and Bitra teams. After an interesting competition, the Bitra won the match to grab the trophy. The awards and trophies were presented to the respective teams by the Foundation's manager Sabeen Shah, SECMC senior officials Ahmed Munib, Fayyaz Soomro, Kamran Hussain and Engro Powergen Thar Limited officials Farhan Ansari and Raja Touqeer were also present among others to witness the remarkable event. ■

Pakistan needs 20% more forest area to ensure green environment: Research

By Nawaz Khuhro

Pakistan needs to raise its forest cover from 5% to 25% to meet its economic, employment and green environment needs says a team of Preston Institute of Management Science and Technology's (PIMSAT) final year students of MBA Syeda Bushra Hasan, Mehwish Saqib and Dinsha Vania.

Forests are the source of economic support, employment, oxygen generation, livestock grazing, furniture products, boats, household oven fire, hotel fuel in cities and town, sports goods and construction industry, according to a new research. Briefing on the research, Syeda Bushra Hasan said that trees play a vital role in economic support and green environment, hence the need to conduct mass tree plantation in villages, towns, cities. "There is also a need to plant trees at new avenues like along roads, highways, streets, houses and gardens. The environment had become a big sector of life and

needed more attention and funds from government," Bushra Hasan said. Trees also provide clean oxygen for survival of human beings and animals, she noted in the research.

Mehwish Saqib said that the government needs to make mass tree plantation in Karachi for reducing air pollution and providing clean air to citizens for their good health.

"Those people who have the space should plant at least one or two trees as this would also provide them with fruit and clean air," she said, adding that according to the Ministry of Climate Change, Pakistan's current forest area was 5% of the total land area, which is low and should be raised to a significant level.

While, Dinsha Vania said that Pakistan needed mass tree plantation at plain, hilly and other empty areas with the support of private organisations besides the government. Funds should be sought from corporate sector because government funds would not be enough, he advised in the research report.

According to the research, massive forest hacking is being continued in the country. Estimated 500,000 workers are employed in forestry, and its related business like logging, carpentry, and timber products manufacturing and tourism. The forests contribute only 0.3% to GNP due to low concentration. Forest products are exported abroad. Forest is also source of tourism. Massive corruption has plagued this vital sector. The report said that 20% more land of forests are needed to ensure green environment in Pakistan because the international environmental standards states Pakistan needs 25% forest area for economic stability and environment protection. A healthy tree with length of five meters creates oxygen for four people daily. Mangrove forests along coastal areas stop cyclones or divert them. 50% oxygen in the atmosphere is created by forests and trees, while other 50% is generated by oceans, according to a NASA report. The annual forest budget of each province should be doubled for reforestation, tree plantation and



their maintenance. Federal government funds should also be provided to each province for this cause besides, funds from IUCN, WWF, World Bank, ADB, USAID and other agencies should also be sought.

An action plan comprising of all stakeholders should be prepared. Seminars and conferences should be arranged for raising awareness about importance of forests and trees. Tube-wells should be installed for supply of water to forests. Separate forest police backed by rangers should be introduced at district level. District task force comprising three judges, two NAB officials and 20 local community people should also be formed with high salary package, health cover, insurance and security. The government in collaboration with NGOs and local communities should execute joint work for reforestation and tree plantation. New forests should be planted at barren and hilly areas with water supply arrangements through tube-wells and canals.

Mangrove forest should be raised along coastal belt of the country. Mass tree plantation should be initiated in all villages, towns, and cities. Mango, guava and kino orchards should be planted at feasible places across the country with government subsidies. Hacking of forest should be halted permanently with the help of police, task forces and rangers. Efforts should also be made to recover all encroached forest lands. All forests and planted trees should be protected. Agriculture inputs like water and cattle manure should be given to trees for their healthy growth. The number of planted trees should be recorded and documented and if trees are lost during growth period, the same number of trees should be re-planted. Lessons should be learnt from whole process of reforestation and tree plantation. ■

Safe Shelter, Clean water for all

The launch of 1000 green shelters programme, which aims to reach out to disadvantaged communities under Heritage Foundation's initiative of "Safe Shelter, Clean water for all" took place here in Makli Goth, Thatta earlier today. The event also marked the closing of the four-day workshop on Zero Carbon, for senior students of architecture, that took place at Zero Carbon Cultural Centre (ZC3).

The green shelters programme will be facilitated through the Zero Carbon Cultural Centre (ZC3) that has been set up by Heritage Foundation at Makli, from where prefabricated panels for construction of shelters and eco-toilets along with other necessities for an improved quality of life will be provided free of any monetary cost. The methodology relies on the motto 'Doing something for others does something good for you too'. Hence all beneficiaries have to agree to provide voluntary work equivalent to number of days at one day per Rs500 of cost of gift, for the benefit of the community.

The workshop for students of architecture studying in Sindh and Balochistan was conducted with the collaboration of PCATP (Pakistan Council of Architects and Townplanners) and INTBAU (International Network for Traditional Building, Architecture and Urbanism), Pakistan chapter, at ZC3, Makli Goth. ■

SEPA Exempts Nine Selected Projects for environment checklist

The Sindh Environmental Protection Agency (SEPA) has de-notified the requirement for environmental approval for nine types of projects.

These projects are low-impact environmentally and can now be started without applying for the SEPA's approval by submitting an Environmental Checklist. This move affirms the government's commitment towards implementation of Ease of Doing Business (EODB) reforms in Sindh. SEPA has also improved the timeframe for granting environmental approvals. The approval process for Environmental Checklists will now be completed in 15 working days compared to 30 earlier.

This reform will facilitate getting construction permits more smoothly and readily; this ease of processes is aimed at incentivizing the inflow of business toward the province of Sindh. The nine projects exempted from environmental approval include: Warehouses for storage of non-hazardous/non-combustible materials having total covered area less than 2,000 sq. yards (except cold storages), multi-storied buildings excluding educational institutions, restaurants and hotels with a height up to 70 feet and covered area up to 2,000 sq. yards, parking Plaza/Building for parking vehicles covering area up to 2000 sq.yards, marriage halls and banquet facilities up to 500 square yards of plot size, baking and confectionary units up to 500 square yards of plot size and without installation of boiler or pressure vessel, bus and Wagon stands up to 4000 square yards, small scale brick and block manufacturing units (non-kiln) up to 2000 square yards, motor vehicles workshops and maintenance garages up to 500 square yards and basic Health unit with less than 10 beds capacity.

"This step will not only help spur quicker business activity in the province but also reduce the unnecessary workload on an important agency like SEPA," said Naheed Memon, Chairperson Sindh Board of Investment (SBI), and focal person for EODB reforms in Sindh. The aim of these reforms is to make Sindh an easy and competitive place to do business. With regards to this endeavour, the Government has formed Sindh Investment Climate Improvement Cell (SICIC) – a dedicated unit for execution of the reform agenda. This reform is a part of the larger plan developed with the help of World Bank to introduce Ease of Doing Business reforms at the federal and provincial levels. ■



Mega oil city to be constructed in Gwadar under CPEC



Pakistan has decided to construct a mega oil city at Gwadar on 80,000 acres under much hyped China Pakistan Economic Corridor (CPEC). This mega oil city will be used for transportation of imported oil through the Gwadar Port to China. The oil will be imported from Gulf and will be stored at this proposed mega Gwadar oil city. The distance to China will be reduced, and it will take just seven days to cover the distance from Gwadar to Chinese border as import through western China took almost 40 days by covering double distance.

"We have forwarded PC-1 to the Ministry of Petroleum for acquiring 80,000 acres for this mega oil city at Gwadar with estimated cost of Rs10 billion. There will be additional cost for construction of its storage and other aligned facilities with the help of investments," Director General, Gwadar Development Authority (GDA), Dr Sajjad H Baloch, told Islamabad based journalists who visited the Gwadar Port last week. This visit was arranged by the Planning Commission in order to show case different ongoing projects under CPEC.

A refinery, petrochemical industries and storage will be established in the oil city, he added. The Gwadar oil city, he said, would be used for storing oil for its onward transportation to China. Usually, it takes 40 days for vessels to transport oil to China but via Pakistan it will reach

China within 7 days, he added. He said that the total area of Gwadar Model City is 290,000 acres which includes 160,000 acres of residential area while the remaining is for industrial purposes. A Chinese company is working on the Model City Plan and it will be ready by August 14, 2018.

To another query regarding different measures for overcoming water shortages at Gwadar, he said that the current water requirement stood at six million gallons per day and there is no direct water supply taking place to the area. Two MGD water is being supplied from two water small dams through tankers and nearest distance is almost 70 kilometres. "We have a deficit of four million gallons per day in water supply to the area," he said and added that by 2020, the water requirement of Gwadar would be 12 million gallons per day, for which additional arrangements were made to get 10 million gallons of water.

New Gwadar International Airport: Earlier, the journalists visited the site of proposed new airport at Gwadar. The China Airport Construction Group Engineering Company representative Jianxin Liao told the visiting journalists that they were conducting soil investigation on the basis of which, the design of new airport at Gwadar will be finalised. He said that the procured land for this new airport stood at 4,300 acres, and this airport will possess capacity to

handle one million passengers on annual basis. He said that by April this year the design will be completed after which the cost of the project will be estimated. It will be the biggest airport of Pakistan.

The Civil Aviation Authority (CAA) representative Zohaib Soomro said that the initial cost of the project was estimated at \$228 million, but its cost would be finalised after completion of design, and it would be estimated again. The sources said that it would be premature to give any assessment related to cost, but it would be more than \$2 billion to \$2.7 billion at least if we want to construct state of the art airport in accordance with international standards. ■

Fun Corner

A frustrated husband in front of his laptop:

dear google, please do not behave like my wife...

Please allow me to complete my sentence before you start guessing & suggesting.

A married man's prayer;

Dear God, u gave me childhood, u took it away
U gave me youth, u took it away.
U gave me a wife..... Its been years now,
just reminding u.....

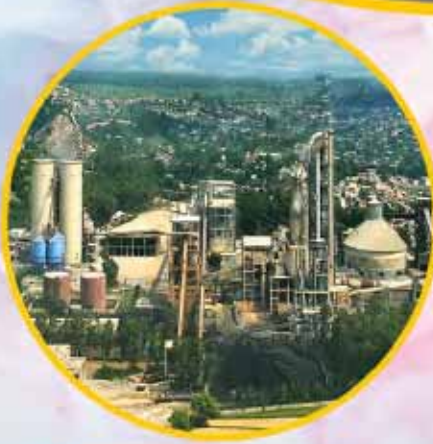
A man gifted his wife a diamond necklace for their anniversary and wife didn't speak to him for 6 months.

Was the necklace FAKE?
Nooooo! That was the deal.

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Policy changes in power pit centre against provinces

The government decision to introduce competition in the country's alternative energy market must help bring down power prices, but it can hurt new investment in renewables in the short to medium-term.

The move can also force a shutdown of numerous 'initiated' but smaller hydro, solar and wind schemes where implementation agreement (IA) or energy purchase agreement (EPA) are yet to be signed between the government and the investors.

The Cabinet Committee on Energy (CCoE) last month significantly changed the renewable energy policy of 2006 for all alternative energy sources including wind, solar, biomass, bagasse and small hydropower projects below 50 megawatt capacity.

The changes will replace feed-in or upfront tariffs that have attracted substantial private capital into such projects with competitive bidding, cut the power purchase contract period from 25/30 years to 15, and pass on the risks of variability in wind speed, solar irradiation and hydrology for small hydro projects to the sellers.

"The changes in the 2006 policy were long overdue," argued Vaqar Zakaria, a director at Hagler Bailly Pakistan, who has rich experience in energy and environment management.

"The upfront tariffs guaranteeing profits for renewable generation were

given in the policy to kick-start private investment in alternative energy sources. Such incentives are meant to be for a limited capacity and period.

"But in Pakistan solar and wind (power) projects have become such money making machines (for investors)... and consumers here have been burdened with the high cost of electricity (owing to a lack of competition in the market). There's no other example like this in (the rest of the) world."

The changes in the policy for renewables has nevertheless pitted the governments of Sindh and Khyber Pakhtunkhwa, (and Azad Kashmir) against Islamabad as these feel that the new policy would deal a serious blow to smaller wind and hydro projects where letters of intent (LoIs) or letters of support (LoS) have been issued to investors.

Both Sindh and Khyber Pakhtunkhwa have already challenged the federal government's authority to make these changes without discussing them at the platform of the Council of Common Interest (CCI) and demanded that they be withdrawn.

"The provinces feel — and rightly so — that small hydropower and wind power investors in Khyber Pakhtunkhwa, Sindh (and Azad Kashmir) — have been disadvantaged because the government is building large projects based on imported coal and gas in Punjab," says a



senior official of the Private Power Infrastructure Board (PPIB).

The official, who requested anonymity, claimed more than 70 small hydro-power schemes with aggregate capacity of 200MW to 250MW will be affected by the policy change. "A few of these projects are at an advanced stage of completion."

An Alternate Energy Development Board (AEDB) director, who also declined to give his name, contended that the government had rejected a proposal by the board to exclude the already 'initiated' solar and wind schemes from the application of the changes in the renewables policy.

"These investors had decided to launch their projects based on the incentives given in the original 2006 policy. They should not lose their money because they couldn't see the policy changes coming or because the government decided not to warn them of the changes it planned to make."

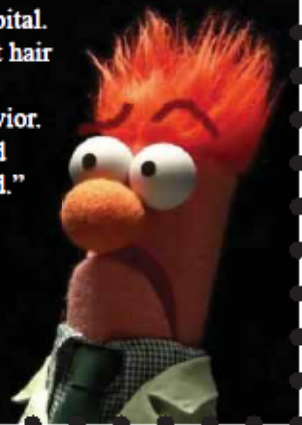
The changes could affect projects with a combined capacity of 2,000MW to 3,800MW, he added.

The AEDB official was of the view that the new competitive regime could hurt investor sentiments and hamper investments in solar and wind generation in the short to medium-term.

Alternatively he argued that new investment could still be attracted in alternative energy sources provided the government came clean about how much of solar, wind or bagasse based power it wanted to add to the grid in, say, the next five to 10 years.

"We can develop different business models to bring new investment in renewables. That should not be a problem

A newly appointed doctor visits the mental hospital.
He sees a patient with torn clothes and unkempt hair shouting "Laila, Laila".
He asks the nurse about the reason for his behavior.
Nurse says "the patient used to love a girl called Laila but couldn't marry her. So he became mad."
The doctor visits the next ward. There also he sees another patient with torn clothes and unkempt hair shouting "Laila, Laila".
The doctor looks at the nurse. The nurse says "He is the one who..... MARRIED Laila"



if the government makes its intentions clear."

Investors like Nadeem Babar, who have invested their money in both conventional and renewable generation, are not very concerned about the competitive regime in the renewables market except in the reduction in the contract

power purchase period to 15 years.

They also think that the government should have given a cut-off time to investors who have already undertaken wind, solar or small hydro power schemes instead of implementing the changes without a warning.

"The problem is that the centre has

created excess generation capacity (based on conventional imported fuels) and now wants to discourage new projects. It (government) doesn't want to decline anyone but also doesn't want to encourage new investment at this moment. That's why this sudden decision to introduce competitive regime.

"I strongly feel that the government should have excluded the projects where it has issued LoSs and LoTs from the purview of the new policy. It shouldn't have suddenly pulled the rug from under their feet," Babar contended.

Vaqr, however, has a different point of view. "Investors have become used to enjoying high tariffs and guaranteed profits and capacity payments for 25/30 years... they have made a money-making machine out of the power (sector). What are we doing to our country and consumers?

"Consumers have paid a heavy price for electricity for quite a long time because of governmental policies. Now is the time investors understood that markets in countries like ours have such risks. They shouldn't be complaining because they didn't see it coming. Let the cheaper put up the next power project."

Courtesy: Daily Dawn ■

Lawmakers discuss policies to accelerate global energy transformation

Lawmakers from around the world gathered in Abu Dhabi to discuss the policies needed to accelerate transformation of the global energy system, in a Legislators Forum organised by the International Renewable Energy Agency (IRENA) and a Parliamentary Forum jointly organised by the United Arab Emirates' Federal National Council (FNC). Held the day before the opening of the Eighth Assembly of IRENA, the 2018 IRENA Legislators Forum, "Renewable Energy – the Role of Legislators in Catalysing Action to Accelerate the Energy Transformation" is the third meeting of its kind hosted by the Agency and seeks to facilitate dialogue between legislators on the deployment of renewables and the critical challenges facing the global energy transformation. Participation in this year's Forum doubled from last year's, including attendees from 30 countries around the world. "Legislators have a key role to play in enacting and overseeing the laws that govern the energy sector, and in widening the support for renewables through their respective constituents," said IRENA Director-General Adnan Z. Amin during the opening of the Forum. "As the energy transformation gathers momentum, it increasingly brings with it important economic, social and environmental benefits to citizens and communities all over the world," continued Mr. Amin. "Therefore it is crucial that as our energy system evolves, lawmakers' remain engaged and informed advocates of a low-carbon energy future." In addition to covering areas of policy, legislation, and the tools necessary to support legislators, discussions at this year's Forum focused on renewables deployment from the power sector to end-use sector, and on raising the level of ambition of renewable energy in Nationally Determined Contributions under the Paris Agreement. "Legislators play a significant role in supporting the advancement of renewable energy technologies and their faster deployment by contributing to the development of enabling policy frameworks, institutional capacities and encouraging public-private partnerships," said His Excellency Dr. Thani Al Zeyoudi, UAE Minister of Climate Change and Environment, participating in the session. "The UAE unveiled an ambitious energy strategy with targets of 44% renewable energy, 38% gas, 12% clean coal, and 6% nuclear by 2050, while reducing the country's carbon footprint from power generation by 70% and reducing residential energy consumption by 40%." His Excellency added. "Energy transformation is a global priority and we see a strong commitment among many parliamentarians to contribute to it," said Inter-Parliamentary Union Secretary General Martin Chungong who delivered a keynote speech during the event. "We need to keep parliaments informed and make sure that they have the capacity to legislate and support efforts in this area." Lawmakers participating in the Forum took part in a Public-Private Dialogue, consisting of a roundtable discussion with members of the Business and Investors Group of the IRENA Coalition for Action, government representatives, and parliamentarians. Yesterday, prior to the Legislators Forum, IRENA partnered with the FNC to convene a joint Parliamentary Forum on the implementation of the Sustainable Development Goals and strengthening the engagement with the private sector in this context. ■

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HNF install Solar Filtration Plant



Human Necessity Foundation (HNF) inaugurated Clean Drinking Water Solar Filtration Plant which is dedicated to Shaheed Junaid Jamshed. The plant is located near Karachi Toll Plaza and will be providing clean drinking water to more than 10,000 to 15000 beneficiaries. The project has been completed in 40 days with estimated cost of 50 to 60 thousand dollars. HNF has completed projects in all provinces especially more than 75 projects in Tharparkar Sindh still 40 projects are ongoing in Tharparkar Sindh. More than 25 projects completed in Punjab Baluchistan and KPK, more than 100 projects are in pipeline to be completed in current year.

The Human Necessity Foundation was founded in July 2015 as a CHARITABLE NOT-FOR-PROFIT organization. The purpose is to provide clean drinking water to people in need. This severe water problem was highlighted by the media where in some areas death was pronounced due to people not having access to clean drinking water, especially in the remote areas of Pakistan. Therefore the foundation commenced, installing Solar Water Plants worldwide. The objective of the foundation is very clear, to help people who are becoming victims of drinking contaminated water and those that have no water. People that have no access to clean drinking water, no electricity and no proper roads deserve the most basic requirement of life that is clean water. ■



Mr. Shamsuddin Ahmed Shaikh (CEO of Engro Energy Ltd (Formerly Engro Powergen Ltd), SECMC), Giving Winning Trophy Syed House Prayers occasion Gen Fajr 18 th Annual Athletic Sports at Generation's School ■

PPL donates equipment to Lady Dufferin Hospital

Pakistan Petroleum Limited (PPL) donated Rs. 9.02 million to Lady Dufferin Hospital (LDH), Karachi for purchasing equipment for its operation theatre. MD & CEO PPL Syed Wamiq Bokhari



presented the donation cheque to Member, Management Committee LDH Dr. Faridon Setna and Medical Superintendent LDH Dr. Zeryab Setna at the head office in the presence of representatives from both organizations.

"As a frontline national company, PPL takes pride in reaching out to marginalized communities in remote as well as urban areas of the country to improve their well-being for over six decades," highlighted Bokhari while speaking on the occasion. He further emphasized on bringing together philanthropic measures for ensuring free-of-cost quality healthcare for mother and child against the backdrop of one of highest maternal mortality rates in Pakistan.

LDH was instituted in 1898 as the first women hospital in Karachi to provide obstetric and gynaecological care services. ■

PPL grant for Chair at MUET

"As a leading national Exploration & Production company, Pakistan Petroleum Limited (PPL) remains committed to strengthening academia-industry partnership for nurturing young talent informed with latest



research and technology," highlighted MD and CEO PPL Syed Wamiq Bokhari during handing over of Rs. 7 million grant for operationalizing a Petroleum Engineering (PE) Chair at Mehran University of Engineering and Technology (MUET), Jamshoro. PPL has committed nearly Rs. 50 million over the next five years for the PE Chair.

PPL has operationalized chairs in leading public and private sector universities, including a PE Chair at NED University of Engineering and Technology, Karachi as well as a Geophysics Chair at Bahria University, Karachi Campus. A similar chair is also established at University of Sindh, Jamshoro which will soon be operationalized. ■

Saudi Arabia Plans \$11 billion Investments in Water Sector in 2018

By Suphiya Kanwal

According to Saudi Vision 2030, an ambitious blueprint launched by Saudi government in order to reduce Kingdom's dependence on oil, diversify its economy, and develop public service sectors such as health, education, infrastructure, recreation, and tourism— mostly on private partnerships with local and foreign investors.

It is attracting investments worth \$11 billion into large-scale water projects across several regions of the kingdom, primarily in water desalination, report Zawya citing a Saudi official.

Around \$10 billion will be invested in desalinated water projects, and \$1 billion in sewage water treatment plants, according to Mohamed S. Al-Abdalla, energy and water sector manager at the Saudi Arabian General Investment Authority (SAGIA).

"These investments will mainly go into five mega water desalination projects and three sewage treatment plants," Al-Abdalla said.

The largest desalinated water investment will be in Jubail 3, which is an Independent Water and Power Project (IWPP) with a water production capacity of 1,170,000 cubic meters (m³) per day and power capacity of 3,000 Megawatts (MW).

Related article: Saudi Selects Dupont to Accelerate Desalination



Improvements, Privatization

The four other Independent Water Projects (IWP) are at Yebrin, which is a water purification plant with a production capacity of 800,000m³/day, Rabigh 3 (with a capacity of 600,000m³/day), Yanbu 4 (450,000m³/day) capacity; and Shuqaiq-3 (420,000m³/day).

The Kingdom has prequalified nine consortia for its mega desalination public-private partnership (PPP) project Rabigh 3, reports MEED.

The state owned utility Water and Electricity Company (WEC) last August requested expressions of interest for the 600,000 m³/d seawater reverse osmosis (SWRO) desalination plant in Rabigh

near Jeddah.

WEC, which is owned 50 per cent each by Saline Water Conversion Corporation (SWCC) and Saudi Electricity Company, aims to award the project, with a 25-year concession, by August 2018.

The largest sewage treatment plant planned is in Jeddah and has a production capacity of 500,000m³/day.

Another sewage treatment plant will be at Dammam and have a production capacity of 300,000m³/day and a third will be built at the Northern borders (Tarif, Arar, Rafha), with a production capacity of 86,000m³/day.

Last week, the Saudi environment minister announced plans to build nine desalination plants at the Red Sea for more than \$530 million and with a total capacity of 240,000 cubic meters of water per day. These small-scale plants aim to increase production efficiency of state-owned Saudi Saline Water Conversion Corp (SWCC). But these projects constitute a small portion of the total investments in water set for this year, Al-Abdallah said.

Earlier this year, SWCC announced that it had raised its production of desalinated water to five million cubic meters per day at the end of 2017, making the kingdom the largest producer of desalinated water in the world. ■

WATER

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NFEH holds 10th International CSR Summit & Awards 2018



Group photo of NFEH's CSR Award Winners with chief guest State Minister for Information Marriyum Aurangzeb and State Minister for Petroleum Jam Kamal and others.



Pictures of different speakers of NFEH's 10th CSR Summit 2018 include State Minister for Information Marriyum Aurangzeb, State Minister for Petroleum Jam Kamal, President AJK Sardar Masood Khan, CEO Lahore Waste Management Company Syed Bilal Mustafa, SVP National Bank Ovais Asad Khan, CSR Head Hashoo Foundation Aisha Khan, President NFEH M. Naeem Qureshi, Secretary General NFEH Engr. Nadeem Ashraf, President CSR Club Anis Younus, Project Manager SABAQ, Muneeb Ahmed Khan, Head of CSR SSGC Shahbaz Islam and others.

NFEH organized Seminar on CSR Policies



(From l to r) President NFEH M. Naeem Qureshi, Former Fed. Minister Javed Jabbar, MPA Sindh Assembly Mehtab Akbar Rashdi, Journalist Afia Salam, VC SMIU Prof. Dr. M. Ali Sheikh and President CSR Club Pakistan Anis Younus Pictures speaking at Seminar on CSR policy.



Group Photo of Speakers and Participants at Seminar on CSR Policies by NFEH with Chief guest MPA Sindh Mehtab Akbar Rashdi. VC SMIU Dr. M. Ali Sheikh, President NFEH M. Naeem Qureshi, Secretary General Engr Nadeem Ashraf, Secretary General CSR Club Pakistan Ruqiya Naeem & others also seen in the picture.

IEA identifies four major shifts in world energy scenario

EU Report

Rapid deployment and falling costs of clean energy technologies; drop in PV cost by 70%, Wind by 25% and battery cost by 40% were the major shifts in energy scenario during 2017. Further to growing electrification of energy; consumer spending on electricity almost equaled their spending on oil, shift to a more services-oriented economy and a cleaner energy mix in China, resilience of shale gas and tight oil in the United States who becomes the largest oil and gas producer in the world; 15 million barrels of oil per day and 13 mmbob of natural gas per day.

Let's analyze how these four major shifts effect Pakistan. Pakistan is facing double digit transmission and distribution losses, grid constraints coupled with "Circular Debt Issue". Under the prevailing scenario the more electricity we produce and transport the more will be the loss. We can very easily incentivize off-grid electricity generation based on renewables – localized power production through renewable resources financed by crowd funding principle. Being a country blessed with abundant solar energy in south, hydro resources in the north and wind resources in coastal Baluchistan, we need to create an energy mix which can capitalize on falling PV, turbine and battery prices. This is the only quick and sustainable way to keep pace with electrification of energy in Pakistan in line with World Energy Outlook 2017, while circumventing the grid bottlenecks and circular debt issue.

Imported LNG has its own issues. ICE Brent quotations have remained around \$64 per barrel during November 2017 and this level is expected to prevail, if not rise, till March 2018. At this Brent price level (LNG imported by Pakistan from Qatar is linked to ICE Brent quotations) expected LNG DES price is around USD 8.55 per MMBTU and re-gasified RLNG price at Karachi port equals to approximately USD 10 per MMBTU. In line with the LNG price notifications published on PSO website,

the RLNG Price with GST @ 17% on Distribution Network will come out to be around USD 15.1 per MMBTU. This is approximately PKR 1600 per MMBTU at current USD exchange rate.

During these winter months, SNGPL and SSGC would not be able to sell the imported LNG as re-gasified natural gas to "Special Consumers" at RLNG price notified by OGRA. SNGPL and SSGC shall be constrained to meet domestic gas demand and to sell this RLNG to

from consuming RLNG on distribution network? How the gas dispatch priorities dovetail with NTDC electricity dispatch priorities during winter season? How long shall it take to replace FSRU with land based LNG re-gasification and storage terminal? Today the world meets its growing energy needs through dramatic New Policies Scenario, with the lead now taken by natural gas, by the rapid rise of renewables and by energy efficiency. Improvements in efficiency



consumers on distribution network at OGRA notified gas prices ranging from PKR 125 per MMBTU (PKR 146 @ 17% GST) to PKR 600 per MMBTU (PKR 702 @ 17% GST). The total difference of price ($1600 - 702 = 898$ per MMBTU or $1600 - 147 = 1453$ per MMBTU) for each MMBTU of RLNG sold as natural gas (rather than RLNG) by the two utility companies shall be borne by Tax payers of Pakistan. The LNG DES price of USD 8.55 per MMBTU is more than double, at current oil basket price, the average wellhead price offered by these two utilities to domestic gas producers i.e. somewhere around PKR 400 per MMBTU. It is beyond any rational understanding to answer the following questions: Why are we importing LNG to sell it at a loss through distribution network? How can we differentiate a natural gas consumer from an RLNG consumer on distribution network? How can we stop a natural gas consumer on distribution network

play a huge role in taking the strain off the supply side.

US LNG has entered the market ensuring that gas remains affordable and secure, beyond the current period of ample supply and lower prices. The number of LNG-importing countries has risen from 15 in 2005 to 40 today. Gas supply also becomes more diverse as liquefaction sites continue to increase, with the main additions coming from the United States and Australia, followed by Russia, Qatar, Mozambique and Canada. Price formation is based increasingly on competition between various sources of gas, rather than indexation to oil. With destination flexibility, hub-based pricing and spot availability, US LNG acts as a catalyst for many of the anticipated changes in the wider gas market. According to IEA report, the new gas order can bring dividends for gas security, although there is the risk of a hard landing for gas markets in the

2020s if uncertainty over the pace or direction of change deters new investments. Over the longer term, a larger and more liquid LNG market can compensate for reduced flexibility elsewhere in the energy system (for example, lower fuel-switching capacity in some countries as coal-fired generation is retired). Pipeline gas transactions over long distances may be adversely effected; however, shorter pipelines would be more feasible between neighboring countries when compared to LNG regasification and transportation costs.

Indigenous Oil and LPG production has not been much of a consideration in Pakistan, despite the fact that there is significant increase in Oil and LPG production during last few years. Pakistan needs to incentivize the indigenous production of these two hydrocarbons, more so for LPG being the second best choice for a clean environment after natural gas.

EIA report also emphasizes that as oil and coal fall back and renewables ramp up strongly, natural gas becomes the largest single fuel in the global mix in the Sustainable Development Scenario. ■

WWEA appoints Rian van Staden

The Executive Committee of the Global 100% Renewable Energy platform has appointed a new Platform Coordinator to help implement a work programme with a strong focus on further expanding the global movement towards a fully renewable energy-based economy. Rian van Staden is a former Executive Director



of the International Solar Energy Society and has served as consultant to the renewable energy sector for more than 20 years with clients on local, national and international level, covering everything from investment and financing, policy, technology, advocacy and development. ■

Large investors dominate German wind auctions

Few large investors dominated the German wind auctions in 2017, while local community wind projects, so far drivers of the market, will hardly play a role any longer, without major changes to the regulations. The rules which were set up by the German government to protect community energy investors have failed to achieve this goal. In addition, the NRW State government has created additional challenges which may lead to job losses and generally shrinking wind investment in the state.

The onshore wind auctions are about to squeeze out small – up to now the main drivers of the market – as the successful bids are falling of community power, more projects were submitted by which, like several others, made community energy.



introduced in Germany in 2017 and community based investors the German wind market – and Although more than 95% of under the EEG's legal definition than one third of the successful only one project developer use of the legal privileges for

Even the amendments to the auction scheme as introduced for 2018 are not expected to stop the traditional community energy actors from being the main losers. With the auctions, a system has been set up in which success is determined by market power and the ability to speculate. Community based investors are usually not able or willing to take part in such financial speculations, and, unlike utilities, they are not able to simply charge higher prices to end consumers.

As a consequence, WWEA and LEE NRW are demanding rapid action on the federal level. Stefan Gsänger, WWEA Secretary General: "Internationally seen, Germany has been a pioneer and an example for how community energy can make local citizens benefit ecologically and economically from the shift towards renewable energy. In order to continue this role model, the new German government must act quickly: There must be an adequate community energy definition in place, and smaller projects must be exempt from auctions, in accordance with EU de minimis rules. Community wind and small projects should get a remuneration without being forced to participate in auctions, in order to reduce their planning risk. This could be conducive to community power and renewable energy all over Europe and worldwide as many other countries tend to follow the German example in renewable energy policies."

Jan Dobertin, LEE NRW Managing Director, sees the NRW government obliged to act: "Community energy integrates citizens into the Energiewende and is essential for a successful shift to renewable energy, the Energiewende. Therefore the state government should undertake everything possible in order to support this model which has been the basis for the broad social support. And the government must refrain from setting up additional barriers."

The NRW state government is, however, continuing its steps against wind power based on the false claim of a lack of acceptance amongst the population. In particular community energy has ensured high support rates amongst local citizens, as proven by several studies. Introducing stricter setback rules or excluding forests for wind projects would be counterproductive and largely stop new wind developments. ■

Thar the promising Energy Capital of Pakistan

Thar coal and power project all set to revolutionize lives of poor Thari people

Recently a group eminent personalities belonging to different walks of life were taken to Thar where they witnessed themselves progress on coal mining and related power generation project in block-2 of Thar coalfields. The Sindh Engro Coal Mining Company arranged the visit as the company along with its local and Chinese partners have been doing this project for the first time in the history of the country. The delegation witnessed that open-pit coal mining work has been progressing very well and soon project would be in a position to extract indigenous coal reserves of Thar. The extraction of massive coal reserves of Thar will be done for the first time in history of the country. They also witnessed progress on adjacent power generation project that would utilize Thar coal only for power generation at a massive scale. The visitors were briefed the timelines and strategies in progress that will make Thar the Energy capital of the country very soon. The visitors also briefed about welfare and philanthropic initiatives of Thar Foundation to uplift and improve quality of life of Thari people so that they could also become beneficiaries on equal basis of the coal and power generation project being



A group photo with lady truck drivers
Thari women and guests

done there. The delegation were briefed about welfare projects being run and implemented there for health, education, livelihood, skill development, and basic such other needs of Thari people living in surroundings of block-2 of Thar coalfields.

Following are the worthy comments of some of the delegation members who shared their opinion about the project being done in Thar:

Dearest Shams, your work is inspirational. The impact on the community because of all the interventions under your leadership will be exponentially high. It was a pleasure and a privilege to be with the group at Thar. It gives one the hope that our country has many sons and daughters of the soil who would not hesitate to even give their life for their homeland. Please do let me know if I can contribute to the development of Thar in any way. Warm regards

Ainee Shehzad, Director of Studies,
Karachi Grammar School. ■

Dear Shams Bhai

Thank you for arranging a visit to Thar. It was an amazing trip. An eye opener. I am very happy to see the developments Engro is doing. The work of Thar Foundation, especially in the field of Education, health and human care is remarkable.

I salute you and your whole team for what you all are doing.

Wishing you all the success and achieving targets.

I will be happy to support in the



Shams ud din Sheikh, CEO, SECMC, Chairman PSP Mustafa Kamal, Naeem Qureshi Editor
Energy Update and other guests

Thar Visit



SECMC has planned to plant one million trees by 2019, A guest busy with tree plantation at Thar

field of Inspection and quality control whenever needed.

Regards, Farrukh Mazhar. ■

What we saw beyond our expectations, it was overwhelming and dazzling. Twilight has appeared in form of this wonderful project. God willing, a bright shining sun will take away darkness, wait and frustrations of more than two decades of not utilizing huge Thar coal reserves.

SECMC and Engro-power corporate social responsibility efforts were not only inspirational but transformational to people who use to live in abject poverty. You and your team has set benchmarks in environmental compliance, CSR and public-private partnership for other companies to follow in South Asian region. I will use another Allama Iqbal verse to express it.

Professionalism, technical expertise and making use of state-of-the-art technology has remain hallmark of Engro

same is true for this project.

My prayers and Regards to Shams Sahab and His Team. You people are among many Heroes of this country
Asim Riaz GM HDIP. ■

Dear Shams

Stay blessed you and all team members. The rate at which both mine and power side are moving is highly appreciable please keep it up. I am indeed very pleased to witness the CSR side of the project. It was an overall very encouraging and reassuring visit. I'm sure under your leadership and able members like Ahsan Syed and Abul Afzal Rizvi our shared vision of THAR becoming the game changer will soon become a reality !

Adil khattak, CEO Attock Refinery.■

It was so heartening and fulfilling experience. Great promise and the management can take pride in the achievements in a landmark socio-economic development signature model and setting new standards worth emulating that made me feel proud.

My compliments to your entire team and to the fruits when the leadership across the political divide can come together to achieve development goals. Those who conceived and those who helped in execution.

Shall always cherish the visit and your hospitality and warmth . Wish you God speed and all success. Allah bless you all.

Wajid Jawad.■

Thank you very much for your visit to THAR. We were honoured by your



A picture of Ms. Huma Shams with a guest

presence. May Allah help us achieve our targets and complete the project in time within budget. May Allah also help us take care of people around us - the real stakeholders and owners.

Shamsuddin Shaikh CEO SECMC.■

Dear Mr Shams Shaikh Sb

And All team Members

Thankyou for your Hospitality.

I have a few things to say as under:

The Development in Thar is Great achievement and both projects are in safe and active hands. The work in remaining 12 blocks must be superior than this Block and all stakeholders and owners of further blocks must learn from running work and allied things.

All people who visited today must send their children and friends to Thar, as younger generation must and also know the desert and its treasure.

Respects & Regards

Dr Ayoub Shaikh, Editor, Daily Awami Awaz Karachi.■



An areal view of coal mining at thar coal field



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