

MONTHLY

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ENERGY UPDATE

SPECIAL REPORT
1ST INTERNATIONAL
**CONFERENCE ON
PAKISTAN'S
HYDROPOWER
SECTOR**

ENERGY SECTOR HEADING
TOWARDS DISASTER

GAS CRISIS
ROUND THE CORNER

WILL GLASGOW
SUCCEED?

PAKISTAN MAKES VOLUNTARY
COMMITMENT TO
**HALVE PROJECTED
EMISSIONS BY 2030**

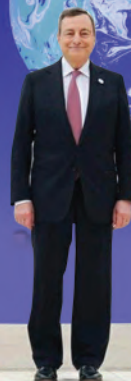


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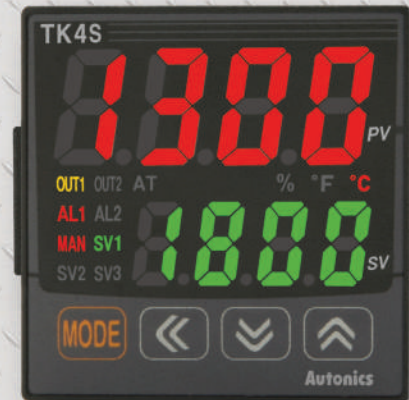
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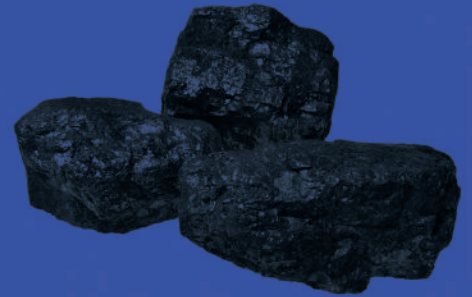
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Why is govt not paying circular debts?

Despite a continuous increase in electricity prices, circular debt has almost doubled in the last three years in the country. Citing the government's failure to address losses in electricity, the ministry reported that the final circular debt for the fiscal year 2020-21 has reached Rs2.28 trillion.

The circular debt has almost doubled from Rs1.148 trillion to a whopping Rs2.28 trillion and this is against the promises that the Imran Khan-led ruling party had made. Circular debt is a public debt that is a cascade of unpaid government subsidies, which results in the accumulation of debt on distribution companies. They had planned to bring the circular debt to zero by December 2020 and the promise they had made now looks like a mere joke. Not necessary to mention the ridiculous commitment by the Energy Minister, Omar Ayub, who claimed a few months back to eliminate circular debt by December 2020. However the factual position is far from the reality as his government is not in a mood to clear the mess. But instead it keeps on increasing the electricity tariff most frequently.

The business community has already expressed its concern over the growing circular debt as it has become a continued threat for the economy, as financial imbalance is looming large because mismanagement, incompetence and lack of transparency have marred the power sector. The circular debt issue should be resolved holistically without escalating electricity cost, as its size has doubled during the last two years in spite of raising the power tariff multiple times in the past, a business leader warned.

Though the government has claimed that it has been making efforts to improve efficiency, the power sector situation remains grim despite putting an additional burden of Rs156 billion on consumers in the past one year by increasing electricity prices. In fiscal year 2020-21, the government provided Rs130 billion less in subsidies as against the requirements based on reduced rate of tariffs for various categories of consumers. The government has recently prepared a plan to reduce the circular debt but the new plan, drawn up in consultation with the International Monetary Fund, shows that the circular debt reduction will largely hinge the electricity prices. The government has added Rs498 billion to the flow of circular debt in the last fiscal year due to less provision of subsidies against commitments and increased cost of inefficiencies.

The continuous increase in the flow of the circular debt during the third year of this government is against the promises that it had made to bring the circular debt to zero by December 2020. It has now made another plan to reduce the debt, mainly by increasing electricity tariff which is not the proper way to handle the issue.



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Will Glasgow succeed?

The Paris meeting abandons years of fruitless efforts

— Shahid Javed Burki —

The climate Summit at Glasgow that brought together close to 200 heads of states and governments in a meeting about climate change. Among the world's largest emitters of carbon, the United States was there, with its delegation led by President Joe Biden. The indication whether China would be represented by President Xi Jinping came late. However, on the eve of the summit Beijing made an important announcement that would have serious consequences for Pakistan. I will cover that a little later in this article.

That a summit on climate would be held in Glasgow was announced at the conclusion of the previous high-level meeting held at Paris in 2015 which followed those held in other places at regular intervals. In 1992, more than 150 countries at a meeting in Rio de Janeiro agreed to stabilise the emissions of carbon dioxide and other greenhouse gases at a level that would “prevent dangerous anthropogenic interference with the climate system”. Rio was followed up with meetings held in Kyoto in 1997, in Copenhagen in 2009 and in Paris in 2015. Of all these meetings, the one in Paris

was the most successful as negotiators agreed on eliciting modest voluntary efforts to keep the average global temperatures from rising 1.5 degrees above preindustrial levels. The Paris meeting abandoned years of fruitless efforts to achieve legally enforceable targets.

The delegates, who went to Glasgow, had lived through a year of extraordinarily environmental upheavals experts believe were associated with global warming. These included huge floods in Europe, India, Nigeria and Uganda; catastrophic wildfires in California, Greece and Siberia; fatal heatwaves in the Pacific northwest; and droughts that seemed to be drying up rivers and reservoirs. In 2018, the Intergovernmental Panel on Climate Change (IPCC) issued what some experts called a deafening alarm. The gist of the report was that if the world had any hope of meeting the 1.5-degree threshold, it must radically transform its energy system in the next 12 years which would mean cutting greenhouse gas emissions nearly by half by 2030 and reducing them to zero by 2050. The IPCC came up with a new assessment of the global situation a few weeks before Glasgow. It was even grimmer than the one three years earlier. But Glasgow occurred when a number of positive developments had taken place. Among them was that Donald Trump no

longer lived in the White House.

Trump not only pulled the United States out of the Paris Accord but also took several other actions to undermine the science of global climate change and encourage the production of fossil fuels. Biden who succeeded Trump has taken the United States through a complete turnaround. In taking several actions, he has matched the IPCC's demands: promising a 50 per cent cut in emissions from 2005 levels by 2030 and net zero emissions by 2050. In the legislation that he has placed before Congress, he would aim to eliminate fossil fuel emissions from power plants by 2035.

Before heading for Glasgow, President Biden had his administration issue a report that painted a picture as grim as the one that was in a succession of reports by the IPCC. The report, the National Intelligence Estimate (NIE), reflects the consensus view of all the US intelligence agencies. It showed a deepening concern of the American security establishment that the changes produced by global warming could reshape the country's strategic interests, offer new opportunities to rivals such as China, and increase instability in nuclear states such as North Korea and Pakistan. “We assess that climate change will increasingly exacerbate risks to U.S. security

interests as the physical impacts increase and geopolitical tensions mount about how to respond to the challenge,” the document states. It also concludes that while momentum to reduce global emissions of greenhouse gases is growing, “current policies and pledges are insufficient to meet the goals that were at the centre of the Paris Accord. The report was not hopeful about the results that might be achieved at Glasgow. “Most countries will face difficult economic choices and probably will count on technological breakthroughs to rapidly reduce their emissions later.” The NIE identified 11 countries — three of them in South Asia — that are likely to face severe global-warming problems. They are in alphabetical order: Afghanistan, Colombia, Guatemala, Haiti, Honduras, India, Iraq, Myanmar, North Korea, Nicaragua and Pakistan.

The report paid special attention to the displacement of people who would be subject to sometimes life-threatening problems posed by climate change. The report estimates that by 2050, up to 143 million people in Latin America, sub-Saharan Africa and South Asia could move for climate-driven reasons. “Absent a robust strategy from the United States and Europe to address climate-related migration, People’s Republic of China, Russia and other states could seek to gain influence by providing direct support to impacted countries grappling with political unrest related to migration,” says the report. Of the 11 countries the report identified as potentially problematic, three are in Central America — the region from which hundreds of thousands people have already headed towards the border with the United States. Washington is struggling to find a way to deal with this pressure on its southern border.

The NIE report focused on the Chinese situation, looking at it from several different angles. The most important was a pronounced reduction in domestic production of greenhouse gases; it accounts for 30 per cent of global emissions, the largest single source. Beijing will also need to reduce the investment it is committed to make in several countries to ease their energy situations. Pakistan is one of these target-nations; the China-Pakistan Economic Corridor is building several coal-fired plants to help the country deal with severe energy shortages. In a speech delivered at the United Nations in late September, President Xi announced that his country would quickly phase out use of coal in industry and energy production both inside as well as outside. As one observer noted, “Now that Xi has formalised the end of coal, Beijing’s partners like Pakistan, Bangladesh and Indonesia are waiting to find out what will happen to unfinished projects. There are at least 40 planned coal-fired plants with Chinese financing or contractors in limbo, according to Global Energy Monitor (GEM)” an NGO that tracks global fossil fuels infrastructure. The mostly developing countries along China’s Belt and Road Initiative could account for two-thirds of global emissions by 2050, up from 26 per cent in 2019. According to Christine Shearer, programme director for coal at GEM, “we are talking about countries that are still building up power systems. They are asking, ‘If we want to go the route of just solar and wind, what are the examples?’ And there really aren’t any.” ■

CHEAPEST ENERGY

Thar Block II expansion set to become cheapest fuel source for Pakistan



Sindh Engro Coal Mining Company (SECMC) board has approved the expansion of its Thar Coal Block II Mine to 12.2 million tons per annum (Phase III). With this expansion, the coal price of the SECMC mine shall reduce to 27 USD/ton. SECMC is expected to complete this expansion by June 2023. At a price of \$27 per ton, SECMC Block II coal shall become the cheapest fuel source in the country and will ensure economic stability and energy security for the country. It shall enable Pakistan to save USD 420 million per annum on the account of foreign exchange. Additionally, this expansion of SECMC’s Block II mine, shall lead to a reduction of Rs.74 billion in circular debt on an annual basis.

Speaking on this occasion CEO SECMC, Amir Iqbal said: “With the international coal prices recently crossing an all-time high of ~\$250 per tonne and the volatility in the International prices, SECMC, through this expansion not only offers a hedge against market volatility but being an indigenous resource shall ease out the pressures on the Current Account Deficit. Additionally, it is our firm belief that at a price point of \$27 per ton, Thar Coal shall transcend its current utilization in the energy sector to other uses of Coal.”

The cost of this expansion project is estimated to be \$93 Million which shall enable Thar Block II to achieve a sustainable supply of 12.2 million tonnes of coal annually over next 30 years. SECMC currently has an annual production of 3.8 million tonnes which is used for generation of 660 MW electricity since the start of its operations in 2019. In its second phase, which is already under development and expected to be completed

by mid of 2022, SECMC’s production shall increase to 7.6 million tonnes per annum which will enable cumulative power generation of 1320MW.

With the approval for phase III and subsequent reduction in the price of Thar coal as a direct consequence of economies of scale, the Thar dream is all set to positively impact the economy of Pakistan. This means that utilization of Thar coal should not just be restricted to power generation, rather efforts must be made to use this indigenous resource in other sectors such as cement, steel and most importantly for coal beneficiation to liquid, gas and fertilizer – all of which are technically viable with proper use of technology and capital investment. These alternates can save billions of dollars by reducing the import of coal, RLNG and other petrochemical products.

It is also important to note that SECMC’s expansion plans for the mine not only provide Pakistan with a dependable indigenous fuel source but also come at a time when the country – much like the rest of the world – is managing an economic crisis. Commenting on the country’s overall energy sector dynamics, Ahsan Zafar Syed – CEO Engro Energy – said: “Pakistan’s fuel mix is in dire need of indigenization. The recently approved USD 3 billion package by the Saudi Fund for Development and the support extending on deferred payment for petroleum product import, proves that the country needs to quickly develop its local fuel sources to reduce its foreign dependence and ease the growing imbalance in its trade account. Development of Thar Coal projects is a viable solution to arrest the increasing trade deficit and our reliance on imported fuels.” ■

NRTC Energies Born to Indigenize Renewable Energy Technologies

The National Radio & Telecommunication Corporation (NRTC) has established a separate subsidiary — the NRTC Energies — to deal in the renewable energy sector of Pakistan

— M. Naeem Qureshi —

This landmark progress comes to the fore as the Energy Update sits with Deputy Managing Director of the NRTC, Brig (retired) Imran Gul, and General Manager, Marketing, Syed Amir Javed, for an exclusive interview. The session covered present and future plans of the NRTC in the energy sector and other areas to promote indigenisation in the country apart from its core responsibilities.

Following are some important excerpts from the interview for our readers:

Energy Update: What are the basic services of NRTC?

Brigadier (retired) Imran Gul: At the moment we are dealing in more than 45 products. We were basically raised for indigenization in the 1965 war. Our main focus is the production of military equipment. Other than military equipment, we have been doing the project of new vehicle registration number plates in Punjab and Balochistan. We also deal in intelligence equipment, communication equipment, and robotics. We are now in a lead role in all these areas, as all government agencies have been using our jammers in the country. The UN has also acknowledged the technology of our jammers and issued us a letter of appreciation. Our jammers provided absolute trouble-free services to the Sri Lankan army during its deployment as



Syed Amer Javed
GM Marketing - Sales

a part of the UN's Peacekeeping Force.

EU: What are other NRTC projects for the motherland?

Brig (retd) Gul: We have also been involved in the Metro bus project of Lahore as we have been providing all the necessary IT support for the bus service. The NRTC manufactured Pakistan's first DRAP-approved ventilator. Our Prime Minister offered the same ventilator to the Sri Lankan government. The NRTC has also indigenously produced inverters for solar systems. We will enhance our product range related to inverters. We will also explore the option of super capacitor batteries as they have



Brig R Imran Gul
Deputy MD NRTC

long life though we need some more time before we start using the super capacitor technology in batteries.

EU: What are the safety guidelines and protocols of your organization?

Brig (retd) Gul: We do have our own safety protocol, while at the same time we fully comply with the prevailing ISO standards. We always fully take care of the aspect of safety in all our services and productions.

EU: What are the other services and activities of NRTC in addition to its core operations?

Brig (retd) Gul: Our second most important focus is industry-academia linkages. We have partnerships with 11 top varsities of the country. Any of its students who pass with 3.75 GPA in the relevant field or discipline gets our direct employment offer without any interview or recruitment test. We also provide assistance to them to do their final year project. Besides, we have 47 such partnerships with different private sector organizations and such collaborations are increasing day by day. Also, we do health and education projects for local communities in addition to providing employment to locals.

EU: Tell us about the working of NRTC?

Syed Amir Javed: The NRTC has been



NRTC building

PSF to educate students about plastic waste management

The Pakistan Science Foundation (PSF) has announced 'Essay, Poster and Trash to Model Competition' for school students of Islamabad to create awareness about plastic waste management in the youth. "School students from Islamabad can participate in the competition and exhibit their innovative ideas regarding reusing and recycling plastic waste, which is the main source of environmental pollution, said Principal Scientific Officer PSF," Syeda Rehana Batool.

"The main objective of the competition is to create plastic waste management awareness in the youth and educate them about how plastic waste materials are leading to environmental degradation," she said while talking to APP.

The theme of the Poster Competition is "Reduce, Reuse and Recycle Plastic Waste" while the Essay Competition is being arranged on the theme "Innovative Ideas to beat Plastic Waste". The theme of the Trash to Model Competition was "Recycled Plastic Waste Model", she informed. ■



Pakistan Expo 2021

working since 1966. It came into being to manufacture military communication equipment. Since 2010, we have changed our portfolio and added several things to it. Pakistan has always been an energy-starved country. The NRTC, being a national asset, entered into the arena of renewable energy with the aim to play its due role in this regard. Our first project in the energy sector relates to solar power. Now, we are going to do more energy sector projects such as turbine manufacturing and hydroelectricity production. Our first solar power project is that of the Pakhtunkhwa Energy Development Organization aimed at energising 3,038 government-run schools in nine districts of Khyber Pakhtunkhwa.

EU: What are your aims and objectives in the energy sector of Pakistan?

Mr. Javed: We aim to start mass production of renewable energy equipment in the country. We will also start indigenous production of solar panels in the country. We will not remain just confined to solar power equipment as we will cover all forms of clean energy like turbine production. This will be our focus area in future as per our five-year programme.

EU: What is your latest achievement in the energy sector?

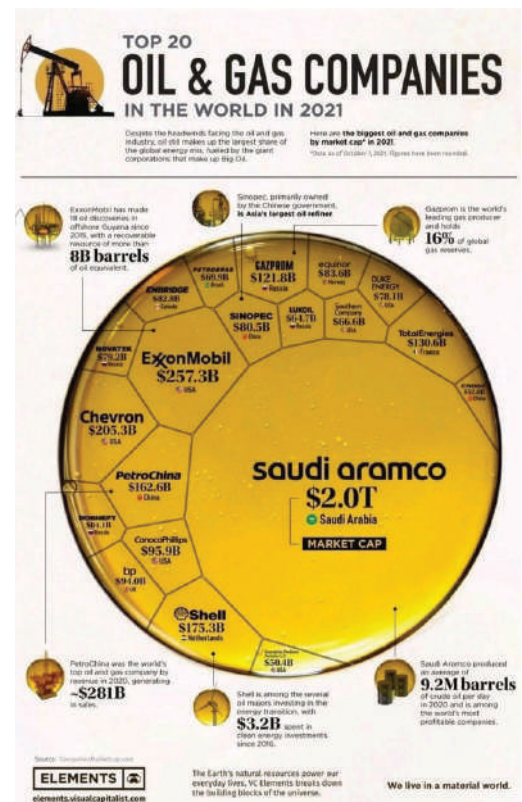
Mr Javed: We have established a subsidiary of the NRTC keeping in view the importance of our energy sector work. The new company, NRTC Energies, will do only renewable energy projects allowing the parent entity NRTC to have full focus on the core capabilities. We aim to get 30 to 40 per cent share of the local renewable energy market with both indigenously manufactured equipment and local repair and maintenance services for the equipment. As the local renewable energy market currently is all about trading, we need to support the local industry enabling it to market locally



manufactured goods. This will surely create jobs, generate additional revenue, slash the country's import bill, increase our reliance on indigenous resources and strengthen local repair and maintenance services. With increase in energy production using indigenous resources, other local industries will also flourish. This initiative will ensure complete transfer of technology from some Chinese and Czech companies to Pakistan. The new company will also do hydroelectricity projects up to design level in the country.

EU: What other new sector are you going to explore?

Mr. Javed: Since we are also in the mass transportation sector, we are interested in getting the relevant technology from Turkey and China to locally manufacture and assemble electric buses. The environment-friendly electric buses will not only ensure quality and inexpensive public transportation services to the masses but also help reduce pollution. We also have plans to build the infrastructure required for their operation. ■



GOVT SHOULD IMMEDIATELY DISBAND
OGRA FOR SAKE OF JUSTICE

OGRA operating illegally since its inception?

— Sajid Aziz —

In the previous issues of Energy Update the writers and oil and gas sector experts have declared the Oil and Gas Regulatory Authority (OGRA) as the biggest enemy of the public and responsible for all major scams and extortion by the oil marketing companies for the last 14 years since its inception, the Federal Investigation Agency (FIA) has proved our claim by arresting the five officers including top officials of OGRA and the petroleum ministry, in connection with a 2020 petroleum scandal during current regime.

“Ogra’s former members gas and oil, Amir Nasim and Abdullah Malik, former ministry of energy director general, Shafiullah Afridi, former assistant director (oil) Imran Abro, and Fossil Energy Chief Executive Officer Nadim Butt have been arrested after registration of first information reports (FIRs) against them for their alleged role in the 2020 petroleum scam. According to FIA the suspects were produced in court and the FIA obtained their four-day physical remand. Furthermore, raids were being conducted to arrest the directors of another oil marketing company, Askar Oil Services Pvt Ltd.

The FIA Lahore had registered the FIRs after completing an investigation into the scam against several officials of OGRA, energy ministry and petroleum division, and two oil marketing companies (OMCs) — Fossil Energy and Askar Oil Services — under Sections 420, 468, 471, 109 of PPC r/w section 5(2)47 of PCA and a section of AMLA 2010.

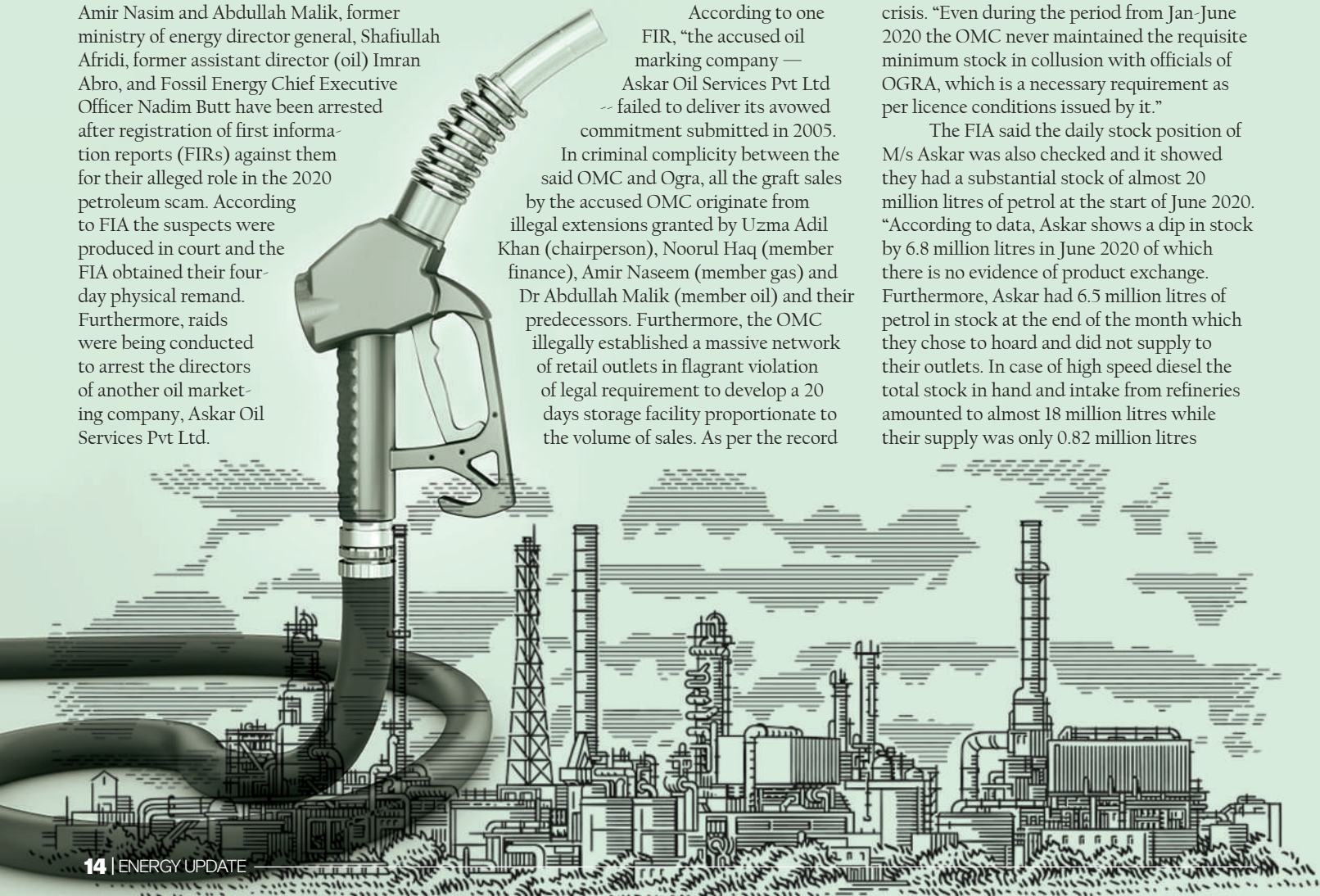
According to the FIA, the OGRA officials nominated in the FIRs have been accused of issuing illegal petroleum licences and the ministry officials of allotting illegal petroleum import quota. “On the other hand, the OMCs in question in connivance with the OGRA officials set up illegal filling stations across the country.

According to one FIR, “the accused oil marking company — Askar Oil Services Pvt Ltd -- failed to deliver its avowed commitment submitted in 2005.

In criminal complicity between the said OMC and Ogra, all the graft sales by the accused OMC originate from illegal extensions granted by Uzma Adil Khan (chairperson), Noorul Haq (member finance), Amir Naseem (member gas) and Dr Abdullah Malik (member oil) and their predecessors. Furthermore, the OMC illegally established a massive network of retail outlets in flagrant violation of legal requirement to develop a 20 days storage facility proportionate to the volume of sales. As per the record

provided by the accused OMC, it has 390 retail outlets which itself conflicts with the figures submitted by the department of explosives numbering its operational retail outlets at 1,019. This mere fact is criminal concealment on the part of the accused OMC. Continued illegal operations by the said OMC were never possible without the collusion of the officials of OGRA, which could have easily halted the marketing of the said OMC by revoking its licence.” The report further said that in clear violation of the licensing conditions, the accused OMC could only maintain stocks having a cover of four days against the mandatory requirement of 20-day cover in June 2020 when the country was facing a petroleum crisis. “Even during the period from Jan-June 2020 the OMC never maintained the requisite minimum stock in collusion with officials of OGRA, which is a necessary requirement as per licence conditions issued by it.”

The FIA said the daily stock position of M/s Askar was also checked and it showed they had a substantial stock of almost 20 million litres of petrol at the start of June 2020. “According to data, Askar shows a dip in stock by 6.8 million litres in June 2020 of which there is no evidence of product exchange. Furthermore, Askar had 6.5 million litres of petrol in stock at the end of the month which they chose to hoard and did not supply to their outlets. In case of high speed diesel the total stock in hand and intake from refineries amounted to almost 18 million litres while their supply was only 0.82 million litres



while the rest was hoarded. The illegal benefit of this amounts to Rs693,000,000. In addition, the supply shown is fudged, as according to retail outlets, the owners of petrol pumps gave statements that they have received no or very little supply. Askar showed a supply of 781,368 litres to these petrol pumps while they have given an affidavit of receiving only 46,987 litres in total. Resultantly, the actual quantum of illegal benefit is far more than the above amount and will be ascertained during investigation."

These illegalities, it maintained, explicitly reflected the "abuse/misuse of official position by the concerned public servants of OGRA along with the OMC in question (the beneficiary in obtaining unlawful gain as abettor)". The crime proceeds obtained are being used in money laundering," the agency said.

The other FIR states: "In a clear disregard to the terms of the provisional licence, M/s Fossil Energy Pvt Ltd failed to deliver on its plan to complete its infrastructure. Instead of taking note of this failure, Ogra officials in question by abusing their official position as public functionary in connivance with M/s Fossil Energy (OMC) acted otherwise and illegally granted permission for marketing of petroleum products to it in September 2019." It further says no sale record was provided to Ogra, the OMC dumped and sold more than 25.023MT of refined petroleum product on retail outlets belonging to other OMCs or operating illegally. "These facts manifestly demonstrate that M/s Fossils Energy Pvt Ltd committed these flagrant illegalities in collusion and collaboration with the concerned officers/officials of the ministry of energy and petroleum which resulted in unlawful gains by the OMC and deprived the rightful OMCs."

This was not the only scandal in isolation, but the entire OGRA seems to be a scam to provide worry free opportunities to the oil marketing companies to loot and plunder the country, its a height of the exploitation by the rulers whether they are from all the three ruling parties i.e. PPP, PML-N, PYI or the army regime, all had allowed the continuation of unconstitutional status of OGRA by not regularize it through the act of parliament and the OGRA continued to operate through illegal notifications. The most suspicious and illegal role of the OFRA is the issuance of notifications of oil and gas prices increase for the last many years and seldom issue a notice price decrease despite falling oil prices internationally.

Very recently the oil price increase by Rs8.45 per litre followed by Rs15 per litres just 15 days ago has proved the dishoesy by the OGRA that is operating just for extending illegal opportunities of price increase, extortion, hoarding, etc. to the oil marketing companies and issuance of licenses to such companies that have now sprung up to over 66 from originally three. These OMC's are willfully meet all the expenses of OGRA officials including higher education of their children, all the expenses of their families' foreign visits, utilities, medical expenses abroad and what not?

What FIA needs to arrest all the present and former top notch staff of OGRA including chief of operations and chairmen in order to provide justice to the nation and recover looted money running into several hundred billions rupees besides disbanding this one of the most corrupt organizations in the public sector. ■

Transition to 100% Renewable Energy is possible!

The Earlier the Better climate change does not allow us any further delay in immediate and direct action. The world must stop burning fossil fuels and switch entirely to renewable energy. However, the deployment rates of renewable energy are still far too slow.

Accordingly, The Global 100% Renewable Energy Platform calls for speeding up the transition to 100% renewable energy globally. Countless scientific studies have shown: A 100% renewable energy supply is possible in all countries, it brings manifold benefits, and the earlier we realise it, the better it is for the climate, for the people and for the planet.

Renewable resources are there in abundance, renewable technologies are readily available and affordable – and they are in fact cheaper than fossil or nuclear energies. Shifting all energy investments to renewable energy and energy efficiency is a must! Supportive legislation instead of obstructive frameworks, the focus on enabling citizens and communities, and continued research are ways to speed up the transition towards a 100 % renewables future.

In the Global100RE Platform, we are united for the real narrative: A 100% renewable energy future is possible. 100% renewable energy must be the new normal. The shift is ongoing worldwide.

Wind, solar, hydro, bio, and geothermal energy sources are available and in common use in many countries and regions. Citizens and communities are installing solar panels on their own houses, utilities are erecting wind turbines, and communities, farmers, and businesses have become producers of renewable energy.

The combined renewable energy potential is practically unlimited for electricity, heating/cooling, industrial processes and transportation. Today the renewable energy industry is flourishing, and competitive in price. Cities, communities and citizens are already making major steps towards the transformation towards renewable energy. And further cost reduction and technical improvements will bring even better and cheaper solutions where needed, like storage of electricity. Renewables are the new normal; they are abundant and cheap. As

a key to solving the climate crisis, from now all investment in energy supply must be in renewable energy .

Nuclear Energy is NOT an Alternative! It is unsafe, expensive, and slow.

In spite of the obvious advantages of renewables, including their abundance, low cost and universal accessibility, some governments, international organisations and industries are highlighting nuclear power as the solution to climate change. In particular, ahead of COP26, we see rising efforts to present nuclear energy as the answer for climate change based on their lower CO2 emissions compared with fossil power plants, but this ignores the high costs and many other disadvantages of nuclear technology. To facilitate the narrative, the nuclear lobby is spreading misleading information with the story that nuclear power is cheap, and not harmful. The most recent and hugely delayed projects in Olkiluoto, Flamanville and Hinkley Point prove that nuclear power is not cheap but is getting more and more expensive, including large cost overruns of the projects. The terrible disasters of Fukushima and Chernobyl teach us all that nuclear power can never be completely safe. And the fact that there is still no solution for nuclear waste, the disastrous impact of uranium mining, the additional risk of terrorist attacks and the threat of nuclear proliferation, should alone be enough not to consider nuclear power as an option.

We state clearly: Nuclear energy is not an alternative. Nuclear energy has again and again proven to be unsafe, expensive, too slow for affecting urgent climate action, and creating unbearable burdens on future generations. Divesting from fossil and nuclear and investing in renewables is a win-win situation. We call on all industries, countries and banks to shift their capital investments immediately and entirely into renewable energy and energy efficiency measures. This shift of investment and jobs is a win-win situation.

The nuclear industry and some governments lobby for diverting climate finance into nuclear investment. We have deep concerns that these investments take valuable financial resources away from renewables and further delay of actions to climate mitigation. ■



1st International Conference on Pakistan's Hydropower Sector

Hydropower resource key to achieve self-reliance in Pakistan's energy sector

— Mustafa Tahir —

The Energy Update (EU) has always served as the leading think tank of Pakistan that is at the forefront of the efforts being made to resolve the power crisis of the country by doing maximum utilisation of indigenous energy resources so as to protect both the national economy and the legitimate interests of the power consumers.

In this connection, the EU from time to time has organised seminars, conferences, roundtables, and other moots to conduct threadbare discussions on the national energy issues by combining all the relevant stakeholders at a single platform.

The latest such effort from the EU was its 1st International Conference on Pakistan's Hydropower Sector, which was organised in collaboration with the Private Power & Infrastructure Board (PPIB).

Speaking as the chief guest at an inaugural session of the conference, Federal Energy Minister Hammad Azhar while underscoring the importance of hydropower for the develop-

ment of the country, said that it was imperative to end reliance on costly imported fuels and promote clean and green hydro-based energy.

The energy minister said the incumbent government had declared this decade as "Decade of Dams". The government was attaching top priority to build more dams in order to not only improve the share of hydropower in the energy mix but also help secure more water for agriculture, he observed.

The minister said Pakistan is blessed with approximately 64,000 MW of clean, affordable, reliable and indigenous potential of hydropower. At present, around 9,900 MW hydropower projects were in operation which was only 29 per cent of the current energy mix, he added.

He said it was a proven fact that hydropower projects not only provide green energy to the consumers but also cut down the burden of import bill.

Azhar said the government was also formulating Gilgit-Baltistan Power Policy for the first time in the country's history to tap 21,000 MW hydropower potential of GB. He said although Pakistan had a huge hydropower potential of over 60,000 MW, but the past government had set up all power projects based on

costly imported fuel during 2013-2018 which also affected energy cost. Prices of coal and furnace oil were witnessing a sharp increase day by day, he added.

He said our energy mix was very much vulnerable as the past governments gave priority to setting up power plants based on imported fuel. The minister said dam projects were only in papers during the past governments' tenure. However, the government through National Electricity Policy, 2021 has set the goals about access to affordable energy, energy security, and sustainability through the guiding principles of efficiency, transparency, competition, financial viability, indigenization and R&D and environmental responsibility.

Azhar said in light of the policy, Indicative Generation Capacity Expansion Plan 2021-2030 (IGCEP) had been approved. Under the plan, the share of hydropower in the national energy mix would be increased from 29 to 43 per cent (i.e. from 9,900 MW to 23,000 MW) up to year 2030 by involving both public and private sectors.

Speaking on the occasion, National Electric Power Regulatory Authority (NEPRA) Chairman Tauseef H Farooqi said there were lots of benefits of hydropower as it was an



indigenous source for cheap, clean, and green energy.

He said that he had suggested to the government during a top-level meeting to include hydropower in renewable energy (RE) resource. The Prime Minister also liked the idea and asked the then Minister of Power Division Umar Ayub to include hydropower to RE, he said.

The NEPRA Chairman said that the inclusion of hydropower in RE would be a huge game-changer for Pakistan. He said Pakistan had alone huge hydropower potential on the Indus River. Although its initial setting up cost was relatively high, but its operation and maintenance cost was very low, he added.

He said electricity cost was getting expensive day by day. It could bring a big change if we could replace costly fuel projects with indigenous resources, he said.

Chief Executive Officer PPIB, Shah Jehan Mirza, while congratulating the organizer for holding such an important event said that it was the right time to explore the way for promotion of hydropower. He said a general impression was created that the hydropower was expensive as its construction cost was slightly expensive.

He said hydro and RE were getting more and more importance and there was a dire need of the hour to do more in these sectors. Mirza said currently, the share of PPIB's projects in total generation stood at 50 per cent. Now the PPIB was focusing more on hydropower projects, he added.

Mirza said two mega hydropower projects under PPIB, including 720 MW Karot Hydropower and 820 MW Suki Kinari, were in the construction phase. The Karot project was likely to be completed by next year with an estimated cost of \$1.4 billion, he added.

CEO Pakhtunkhwa Energy Development Organisation, Engineer Naeem Khan, said earlier his organization was dealing with setting up small hydropower projects in remote areas of Khyber Pakhtunkhwa. Now, work has also been started on large hydropower projects with the financial assistance of the World Bank and Asian Development Bank, he added.

He said PEDO had completed some 328 small hydropower projects so far which was supplying electricity to the far-flung areas at cheaper rates. Now, we were planning 700 smaller hydropower projects, he added.

Director Energy Office, USAID, Jenna Diallo said that the US government would continue to provide technical and other support to the energy sector of Pakistan including hydropower. She said that the USAID provided assistance for Kurram Tangi, Gomal Zam and Satpara dams etc in Pakistan. She said the US government also provided assistance in building Tarbela and Mangla dams in 1960.

Earlier, Managing Editor Monthly Energy Update Naeem Qureshi welcomed the distinguished guests and participants of the conference. Qureshi said the conference was being organized to discuss progress Pakistan and the adjoining region had achieved in the hydropower sector.

He said that the conference was expected to thoroughly discuss to take advantage of the government's ease of doing business for finding investment and business opportunities within our allied industries.

Speaking on the occasion, Hydropower DG of PPIB, Dr Munawar Iqbal, said the issuance of the tripartite letter of support (TLOS) through the provinces was one of the methods being used by the PPIB to develop the hydropower generation resources in the country. Two such TLOS have already been issued.

He said the country had the resources to generate up to 64,000 MW hydropower as up till now, only 9,000 to 10,000 MW was being produced which was just 16 per cent of the total hydropower resource potential of Pakistan. He said that Gilgit-Baltistan had the potential to generate up to 21,000 MW hydroelectricity, Khyber Pakhtunkhwa 27,000 MW, Punjab 7,000 MW, and Azad Kashmir 8,000 MW.

The PPIB senior official said that all the relevant stakeholders in the country, both from the government and private sector, should sit together, to make sure that Pakistan took maximum benefit from the untapped hydropower sector in the best interest of the Pakistani electricity consumers. He urged the NEPRA that it shouldn't stop the tariff approval process for the upcoming hydropower projects in the country to ensure their timely completion.

NA Zuberi, Senior Adviser to China Three Gorges South Asia Investment Ltd, said that his China-based energy sector company was one of the leading organisations of the



world in the hydropower sector.

He said that his company was the developer and operator of the world's largest hydropower project i.e. the Three Gorges Dam having a generation capacity of 22,500 MW. China Three Gorges Corporation had a total installed capacity of 124 GW out of which 17.7 GW was overseas as it had emerged as China's largest clean energy company, he said and added that the company had been operating in over 40 countries around the world.

Zuberi said that the company had come into existence in 1993 as now it had a workforce of 35,000 people and its annual profit had increased up to US\$ five billion.

He said the Chinese company had been undertaking six renewable energy projects in Pakistan as three of them were related to wind power while the rest were of hydroelectricity. He said that one such project i.e. Karot hydropower plant was being completed under the aegis of the CPEC. Zuberi said the project was being built much closer to Islamabad as its close proximity to the country's load centre made it a distinguished energy generation plant as compared to similar power projects in Pakistan. He said that once completed, the Karot hydropower project wouldn't face any transmission-related issues. Zuberi said the project had so far paid Rs 10.7 billion taxes to the government in the construction phase only.

The project also generated employment opportunities for up to 3,000 local workforce. He said that the construction of the project had been completed up to 92 per cent as since last year, special standard operating procedures had been adopted for the workers and visitors to the project's site keeping in view the coronavirus pandemic.

NTDC DMD, Muhammad Ayub, said that the National Transmission and Dispatch Company had been ably discharging its national obligations to provide a reliable and stable nationwide transmission system in the country in the best interest of the power consumers.

He said the NTDC as per the energy policies of the government had been giving connectivity to the new power generation projects that were being built on a least-cost basis. He told the audience that electricity demand in the country would increase to 29,000 MW by 2025 while it would further increase to 37,129 MW up to 2030.

He said the country had set the target of generating up to 40 per cent of the electricity produced in the country on the basis of hydropower by 2030. He said the country had planned to reduce reliance on imported coal for power generation as of now it accounted for 11 per cent of the power produced in Pakistan that would decrease to eight per cent in the coming years.

He said the NDTC would contribute its due role to indigenization of power generation so that up to 2,030, 91 per cent of electricity produced in the country could be generated from the indigenous resources as compared to the present ratio of 60 per cent.

Syed Akhtar Ali, former Member Energy of Planning Commission of Pakistan, talked about the latest trends around the world to increase the storage capacity of the renewable energy projects to resolve their intermittency issue. ■



Invest in water management and early warnings to tackle rising water-related hazards: WMO

“Increasing temperatures are resulting in global and regional precipitation changes, leading to shifts in rainfall patterns and agricultural seasons, with a major impact on food security and human health and well-being,” says World Meteorological Organization Secretary-General Prof. Petteri Taalas.

“This past year has seen a continuation of extreme, water-related events. Across Asia, extreme rainfall caused massive flooding in Japan, China, Indonesia, Nepal, Pakistan and India. Millions of people were displaced, and hundreds were killed. But it is not just in the developing world that flooding has led to major disruption. Catastrophic flooding in Europe led to hundreds of deaths and widespread damage,” he points out.

“Lack of water continues to be a major cause of concern for many nations, especially in Africa. More than two billion people live in water-stressed countries and suffer lack of access to safe drinking water and sanitation,” he explains at the official launch of WMO’s report titled *The State of Climate Services 2021: Water*.

The report, which is part of a series on the state of climate services released annually by WMO since 2019 on the request of UN Framework Convention on Climate Change, highlights the need for urgent action to improve cooperative water management, embrace integrated water and climate policies and scale

up investment in this precious commodity that underpins all the international goals on sustainable development, climate change adaptation and disaster risk reduction.

Water-related hazards and stress

According to the report, 3.6 billion people in 2018 had inadequate access to water at least one month per year but their number is expected to cross 5bn by 2050.

“We need to wake up to the looming water crisis,” says Prof. Taalas.

In the past 20 years, terrestrial water

Since 2000
flood-related disasters
have risen by 134%
compared with the two
previous decades

storage has dropped at a rate of 1cm per year. The biggest losses are occurring in Antarctica and Greenland, but many highly populated lower latitude locations are also experiencing significant water losses. The situation is worsening by the fact that only 0.5% of water on Earth is useable and available freshwater.

Since 2000 flood-related disasters have risen by 134% compared with the two previous decades. Most of the flood-related deaths and

economic losses were recorded in Asia, where end-to-end warning systems for riverine floods require strengthening. The number and duration of droughts also increased by 29% over this period, with most drought-related deaths reported in Africa.

To reduce water-related disasters, climate services for water, end-to-end early warning systems, as well as sustainable and additional investments in integrated water resources management and adaptation are required. Despite a 9% increase in financial pledges made to tackle Sustainable Development Goal of Water and Sanitation for All, official development assistance (ODA) commitments remained same at US\$ 8.8 billion between 2015 and 2019.

To implement and improve effectiveness of climate services for water, the report recommends investment in integrated water resources management to better manage water stress especially in Small Island Developing States (SIDS) and Least Developed Countries (LDCs); financing end-to-end drought and flood early warning systems in at-risk LDCs including for drought warning in Africa and flood warning in Asia; filling capacity gap in data collection for basic hydrological variables; improved interaction among national level stakeholders to co-develop and operationalize climate services with information users to better support adaptation in the water sector; filling data gaps for climate services in the water sector and joining the Water and Climate Coalition. ■



China's coal exit will not end Pakistan's reliance on dirty fuel

—◆ Zofeen T. Ebrahim —◆

Just a few weeks ahead of COP26, China, the world's biggest public financier of coal, announced that it will end investments in overseas coal projects. It raised hope in countries that want to make low-carbon energy plans and panic among those who feel they cannot do without coal.

The announcement could mean the cancellation of over 40 gigawatts (GW) of pipeline projects in 20 countries, even though China has not invested in any new coal projects since the beginning of 2021.

Pakistan is one of the Belt and Road Initiative countries where coal formed a major part of energy projects under the China-Pakistan Economic Corridor (CPEC). Of the 18 'priority' energy projects (11.87GW) financed by China at around US \$19.55 million, nine (8.22GW) were coal-fired.

Of these, four — the Huaneng Shandong Ruyi-Sahiwal Coal Power Plant, the Port Qasim Coal-fired Power Plant, the HubCo Coal-fired Power Plant and Sindh-Engro Thar Coal Power Plant — are complete and have been supplying electricity to the national grid since 2017. Together, their energy output is 4.62GW.

Michael Kugelmann, deputy director for the Asia programme at US-based think-tank the Wilson Centre, said China's exit from coal is a "blessing in disguise" with opportunities for "bilateral clean energy cooperation" — a clear win for the environment.

Even Muhammad Badarul Munir, the chief executive of the 100MW Quaid-e-Azam Solar Power Pvt Ltd (QASPL) plant, said the end of China's attachment to overseas coal projects is a "great piece of news", as it may force the Government of Pakistan to focus on the much-ignored area of solar power.

Back in 2014, QASPL made headlines. As part of the China-backed 1,000MW Quaid-e-Azam Solar Park in Punjab province, the company set up the first 100MW of electricity in just under a year. Two years later, Chinese company Zonergy added another 300MW of solar energy to the national

grid. "For the last five years, work on this first energy project under the China-Pakistan Economic Corridor has been at a standstill, despite the infrastructure in place for the remaining 900MW," Badarul Munir informed.

He added that now is a good time for the state to pursue new investment: currently, solar energy in Pakistan is sold at US \$0.037 per kilowatt-hour (kWh), compared with the \$0.14/kWh tariff that the government is stuck with buying from solar projects set up in 2014-2016 under a 25-year agreement.

The policies behind the talk

"We believe green is the way to go," Asad Umar, federal minister for planning, development and special initiatives, told The Third Pole. "We have always been very critical of the imported coal plants that we inherited from the previous government," he said.

"Even before the recent announcement by China, greening the future development pathway was practically in motion. We had shelved two negotiated imported 2,400MW coal projects under CPEC," Malik Amin Aslam, the federal minister for climate change, added.

But the clean energy source Badarul Munir has in mind is different from the one the government has its sights set on: hydropower. Umar, who also heads several CPEC committees, said the "big dams that are being set up will have massive hydel energy capacity" and that his government favours them. Yet this in no way means the government is completely washing its hands of dirty fuel.

The coal projects in the pipeline under CPEC "will continue", according to Umar. However, all "future thermal projects will be using the indigenous coal from Tharparkar only", he said, adding this was reflected in the recently approved 10-year energy roadmap.

The Indicative Generation Capacity Expansion Plan 2021-30 (IGCEP-2021), approved by the electricity regulator last month, is a document that forecasts and calculates future electricity demand.

"The renewable energy share in the total mix in 2030 will be 60 per cent, a pledge made earlier by Prime Minister Imran Khan at the Climate Ambition Summit 2020," said Umar. But Haneesa Isaad, an energy researcher with US think-tank Institute for Energy Economics and Financial Analysis (IEEFA), found that the renewable energy in the overall energy mix is skewed towards hydropower, with 46pc allocated to the latter by 2030 and just 16pc to solar and wind.

"It's a blatant violation of the targets set in the Alternative and Renewable Energy Policy, 2019, which states that renewable energy, excluding hydropower, is to have a 30pc share [including solar, wind, bagasse, geothermal and biomass] in the generation mix by 2030," said Isaad.

Over-reliance on a single source of power, Isaad said, could threaten the reliability of power availability in the country. "Fuel diversity is extremely important for energy security in times of climate crises that are upon us," she said.

Push to go further on clean energy

If developing countries are to move away from coal, developed countries need to come forward, said Aslam. "Our major energy plans are [based] on renewables and we need the world to step up and assist countries like Pakistan that are committed to a clean energy transition," he told The Third Pole.

The good news is that the world's top two polluters have come forward to show support. China has promised to support developing countries in "green and low-carbon energy" and United States President Joe Biden has pledged to double climate financing for developing countries.

Still, Pakistan hopes for "cooperation with the Chinese [for] expertise" in exploring gasification and liquefaction options to move away from coal combustion, said Aslam.

Muhammad Mustafa Amjad, a representative of the Pakistan Renewable Energy Coalition, a group dedicated to a cleaner energy transition in Pakistan, is not convinced coal gasification is a good idea. "The options are not only economically prohibitive but would also lead to higher emissions than

Instead, he said: “Pakistan can ask for technology transfer, increased financing for renewable energy and other nature-based solutions as well as investments in grid upgradation so that more renewables can be incorporated into the energy mix.” This, Amjad said, should be echoed in Pakistan’s revised Nationally Determined Contributions (renewed plans to cut carbon emissions) and be reiterated at COP26.

With China's coal exit, however, Thar coal may get a new impetus. Of the eight coal plants in Pakistan's pipeline, six are in Tharparkar, in Sindh. Of these, five are at various stages of completion with the sixth, Oracle, only on paper. The Jamshoro, Lucky Electric and Siddiqsons plants in Thar do not fall under CPEC.

Not only did the two companies (part of CPEC) win the race, the SECMC especially will continue to play an important role in Pakistan's future energy plans.

Lignite has more sulphur and ash content and produces less energy when burnt than hard coal. This means that burning lignite in coal power plants creates more air pollution emissions per

With a current annual mining capacity of 3.8 million tonnes, the SECMC provides coal to not just the EPTL, but will be catering to the coal power plants that Pakistan had set out to build, or are in the pipeline.

“Decommissioning them would entail heavy financial costs, which the government cannot afford,” he added.

“Thar coal is indigenous, abundant and has a low forex requirement. The 8,000MW of coal and 5,000MW liquefied natural gas (LNG) based power plants with long-term agreements to purchase power from fossil fuel-based power plants will continue to run to provide the much-needed baseload for the country,” he said.

Given the incredible price surge of gas and coal supplies, Isaad said the time was right for Pakistan to “invest in adequate renewable energy and a storage-based back-up”. But she also admitted: “Pakistan’s energy transition or a move away from fossil fuel-based power will not happen overnight; it will have to be a carefully planned and a well-thought-out phase-out.” ■

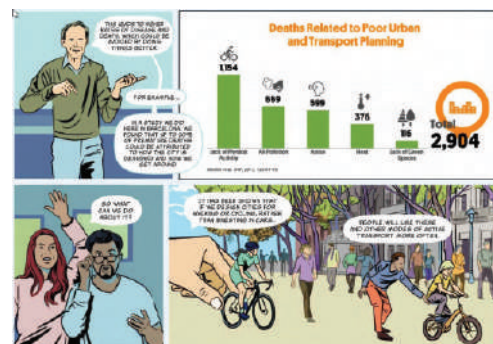
RESIGNATION



—◆— Ahmad Fraz Khan —◆—

He had followed the appointment of Muhammad Ayub, who held the charge between May 20 and August 3 — around two-and-a-half months — and was reverted to his post of Deputy MD. Mr Ayub, one of the senior officials, was given additional charge after Khawaja Riffat Hassan was removed from the post. According to an official notification, the NTDC Board of Directors in its 309th meeting, held on November 3, approved Mr Ahmad's resignation. It also approved waiver of one-month notice period after the deduction of leave balance as per employment agreement on compassionate grounds on the account of "certain family health issues".

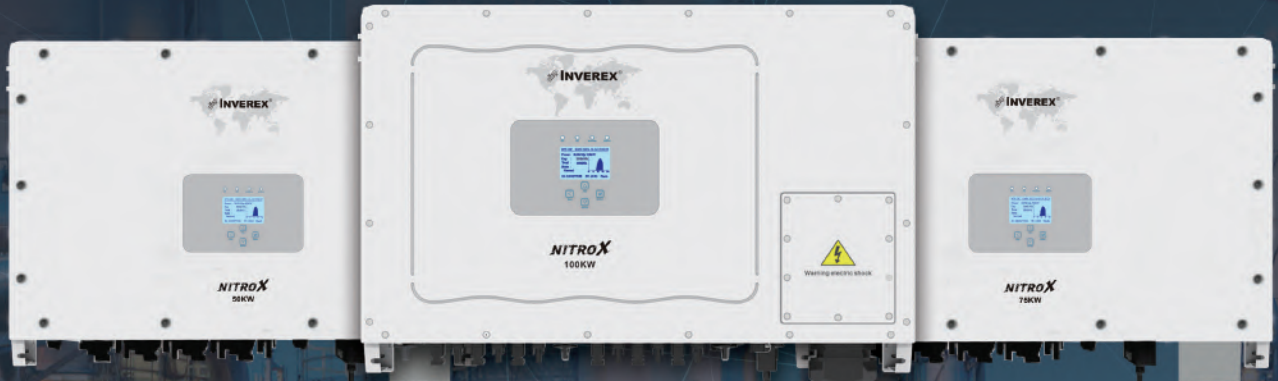
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Scramble to meet energy shortages after suppliers default

—◆ Khaleeq Kiani —◆

With prices of Liquefied Petroleum Gas (LPG) touching Rs217 per kg, up 67pc over last year, the government was scrambling to address energy shortages as winter sets in amid default by suppliers of Liquefied Natural Gas (LNG) to deliver committed cargoes.

Energy Minister Hammad Azhar held back-to-back meetings with relevant companies in the energy supply chain, power and petroleum divisions and the finance ministry to cope with supply shortages through diversion of gas from southern to northern region, prioritisation of sectors to be fed with limited gas availability and financing arrangements to ensure alternative imported fuels.

This was necessitated by two LNG suppliers — Gunvor and ENI — declining to meet their contractual obligations to supply one cargo each in November, leaving authorities in a state of shock as they were already facing gas shortages. “We are working at multiple levels to minimise disruption,” said a senior government official. He said the Ministry of Energy had also activated diplomatic channels and engaged with the LNG suppliers in an effort to make them honour the commitment.

He said it was hoped that one of the two cargoes would be salvaged while the other might not be possible due to technical reasons.

There were indication that ENI of Italy would address its default and deliver committed quantities even if with certain adjustments in schedule for technical reasons, but Gunvor was purely a commodity trader and unlikely to avoid wilful default.

The price differentials between term contracts with Gunvor and ENI and prevailing global market prices are mouth watering — between \$10-12 per million British Thermal Unit (MMBTU) and \$30-35 per MMBTU — apparently a reason for the suppliers to default. On the other hand, the penalty for default in contract is about \$3 per unit (30pc of the contract price).

ENI has a 15-year contract with PLL at 11.95pc of Brent while Gunvor had five-year contract at 11.63pc of Brent.

The relevant ministries — power, petroleum and finance — and supply chain entities like PSO, Pakistan LNG Ltd, SSGCL and SNGPL besides the exploration and production companies

and power entities were called to examine if gas supply sources could be switched and how the difference could be met through alternative fuels. It was prioritised that export sector industries, power sector and fertiliser units would be supplied with maximum available local gas and imported LNG.

The only saving grace was the late arrival of mild winter that has reduced the need for cooling (air-conditioners) with little requirement for heating (geysers and heaters) and enough stockpiles of furnace oil for power sector. Non-export industry and CNG would suffer the most, followed by residential consumers.

An official said the current furnace oil stocks at around 350,000 tonnes were enough to meet power sector demand for 15 to 20 days while PSO had already placed tenders for reinforcement of another 160,000–170,000 tonnes of additional furnace oil.

But the key problem here was the liquidity crunch of the PSO, PLL and gas companies.

These companies required over Rs160bn to overcome the situation but it was agreed among the relevant ministries to move a summary for supplementary budget grant of Rs60-70bn to ensure opening of letters of credit which are recovered from the power sector with a substantial time lag.

Detailed work sheets examined during hectic consultations showed that additional gas shortage at a given time would be 100-200mmcf in November and options were examined on how to manage power sector, export industry and fertiliser. The 200mmcf gas shortage could be overcome through 150,000 to 200,000 tonnes of furnace oil.

There would be some adjustments in gas supplies between Sui Southern and Sui Northern gas companies with the support of exploration and production companies. Qatar was being requested at the highest level to help provide an additional cargo during November.

It was noted during these meetings that Pakistan was supposed to get 11 LNG cargoes in November, which include seven from the Long-Term Agreement with Qatar, one each from the long-term contracts with ENI and Gunvor and two cargoes from Spot purchases. However, after the default of ENI and Gunvor, the number of cargoes will reduce to nine. On the other hand, the Oil and Gas Regulatory Authority (Ogra) on Monday notified LPG price of Rs2,560 per cylinder of 11.8kg (Rs217 per kg) for

November, 6.5pc higher than Rs2,404 per 11.8kg cylinder during the current month. When compared with November of last year, the LPG prices have gone up 67pc from Rs1,530 per cylinder and 97pc higher than Rs1,298 per cylinder in June 2020. ■

Courtesy Daily Dawn



View Point of Pakistan to utilize Thar Coal indigenous resources till 2090

— Muhammad Aijaz Umer —

World is moving towards reducing the emission of carbon dioxide gas from Power generation sector to control world average temperature rise to a level of 1.5C to 2 C up to the end of the century which is an appreciable effort. The share of Renewable energy generation is on rise and phasing out of fossil power generation is declining. It is a matter of fact that among fossil fuel power generation Coal is a dirtiest fuel emitting around 850 gram/KWh with the modern available technology of super-critical Rankine Re generative Reheat Cycle. The equivalent Power generation with liquid fuel firing will emit half of carbon dioxide and with Natural gas combined Cycle Power plant it will reduce to one third. So, phasing out of Coal firing in Power generation is logical step.

The modern world is planning towards burning of enriched hydrogen or 100 % hydrogen in Gas turbine to get free carbon dioxide emission energy generation. The second popular research is going on, to install carbon capture plant with the power generation units to capture the carbon dioxide, store it and feed it to depleted oil fields to enhance oil recovery. Both these methods will increase the levelized cost of electricity thus economy will suffer. The green hydrogen at the moment on large Hydrogen plant will end up at a level of 2.5 to 3 USD/kg of hydrogen which is correspond to around 25 USD/MMBTU of LNG equivalent. In the same way if we install Carbon capture plant on fossil fuel power plant the tariff will increase to 80 %.

The Renewable energy Solar PV, Wind and hydel is on rise but all these technologies of Power generation have availability issue. With Solar PV at a location where we have good solar resource the availability cannot

achieve more than 20 % without battery storage, the battery storage solution at the moment is a costly solution. Similarly, the good wind corridor availability of Power generation cannot increase more than 35 % and similar is the case of hydel power generation with availability of 60 %. It is worth mentioning here that availability is an opportunity cost. Higher is annual availability of Power plant lower will be the levelized cost of electricity. There are many other factors to reduce the cost of electricity such as EPC cost of equipment, maintenance cost, insurance cost, cost of arranging money etc. but availability and fuel cost are playing major role in ultimate cost of electricity.

Nuclear is one of the solutions for power generation but it needs enriched uranium U-235 of at least 3 % while Natural uranium contains only 0.7 % U-235. The technology of enrichment of uranium is limited to few countries and top of that due to many accidents in the world this technology has safety issue of emission of radioactive emissions in case of accident. There are three types of radioactive emissions named as Alpha, Beta and Gamma rays out of these three radiations Gamma rays are very dangerous for human body, it can pass through human body due to its high penetrating power and can cause cancer in human body cell.

Now gas firing CCGT whose EPC cost is lower compared to coal fired Power plant but the availability of gas is another issue for country. The gas is depleting in Pakistan and if we will import LNG at a rate of 8 USD/MMBTU then with high efficiency power generation CCGT plant which consume around 5.9 BTU/KWh the fuel cost component will be around 4.58 cent/KWh and if we import LNG at a rate of USD 30/MMBTU and burn in highly efficient CCGT the Fuel cost component will be around 17 cent/KWh. No way to burn such an expensive LNG even in highly efficient CCGT technology.

Now the option left for a country whose

economy is already derailed and in a bad shape is to burn indigenous coal. Pakistan has seventh largest Coal reservoirs at Thar of Lignite coal. The Fuel cost component as per document of NTCD merit order dated 01-10-2021 the fuel cost component of Engro Power Thar mine mouth Power generation unit is Rs 2.29556/KWh which is 1.35 cent/KWh.

Coal firing on this globe was started more than 200 years before and during the industrialization period the world average carbon dioxide increase very rapidly from 360 PPM level to 420 PPM level and the contribution of Pakistan from Power sector to increase this level of carbon dioxide is almost zero. The advanced countries burn coal in power sector, produced electricity at a lower rate and improved their economy. Now all large emitters of Coal burning such as USA, China and India, Europe put their target to phase out Coal burning, Major countries of Europe put 2050 as zero carbon target China put a target of 2060 while India put 2070 as a Net zero carbon emission limit.

We at Pakistan just started Coal burning at Thar which is our indigenous fuel. This fuel started helping to improve the economy of this progressive Nation whose economy is badly suffered due to various reason and one and important reason is expensive cost of electricity. Pakistan knows very well that power generation through Coal is a method of pricing more carbon dioxide in Environment but keeping in view the bad economy and almost zero burning of Coal in Power generation, World leaders must allow this country to burn indigenous Coal for Power generation. I humbly request GOP to fight the case in COP meeting to allow Pakistan for net zero carbon emission up to 2090 and allows international lending to set up Coal fired Power plant at mine mouth of Coal reservoir at Thar. Please try to understand the Earth is a mother land for all of human beings. ■



First Hybrid Renewable Energy Park

— EU Report —

Engro Energy Limited (EEL) signed a Memorandum of Understanding (MoU) with the Sindh Transmission and Dispatch Company (STDC) and the Directorate of Alternate Energy (DAE), to establish a renewable energy park at Jhimpir, which will provide electricity to industry at Port-Qasim and Dhabeji. Under the terms of the MoU, Engro will be responsible to build the first hybrid solar PV and wind park in the country whereas STDC and DAE will be responsible for laying the transmission network and facilitate the provision of required land for the project, respectively.

The MoU jointly spearheaded by the Government of Sindh was witnessed by Sindh Minister for Energy Imtiaz Ahmed Shaikh; Engro Corporation President Ghias Khan; Engro Energy CEO Ahsan Zafar Syed; STDC CEO Muhammad Saleem Shaikh and other leadership. The MoU was signed by Engro Powergen Qadirpur Limited (EPQL) CEO Shahab Qader, STDC DAE Director Imtiaz Ali Shah.

Sindh Chief Minister Murad Ali Shah pledged complete support for this renewable energy park stating: “The people’s government has always strived to work on meaningful projects that benefit the common people and the industry. Our robust energy-focused plans, including this RE Park venture is expected to deliver tremendous socio-economic benefits by elevating the stature of the Sindh Province as the industrial & renewable energy hub of



Pakistan.”

Sindh Minister for Energy Imtiaz Ahmed Shaikh appreciated Engro’s trust in the efforts of the Sindh government for creating a business-friendly environment and said: “We are striving to turn Sindh into an energy-abundant province using our indigenous and natural resources. Our success with the Thar Coal project is in line with BB Shaheed’s vision and now the Sindh government is focused on developing its renewable energy resources to provide low-cost energy to our industries.”

Engro Corporation President Ghias Khan expressed his gratitude to the Sindh government for its generous support and highlighted the benefits of the project, stating that; “Engro has always maintained that we aim to solve some of the most pressing issues of Pakistan and our communities. The construction of this renewable energy park is testament to this vision which will bring up to 20% reduction in electricity cost of

industrial consumers, stimulate industrial growth in the country and increase the competitiveness of local industries in international markets.”

Engro Energy Limited CEO Ahsan Zafar Syed discussed the tremendous potential of this project and said: “In the first phase of the project Engro plans to provide up to 400MW of electricity by early 2024 with the potential to increase this generation to IGW by end of 2029. The 1.2 billion units of renewable electricity, generated in this strategic-facility during the first phase will enable import-substitution worth PKR 13 billion per annum. It will also make major contributions towards environmental sustainability, by reducing the CO2 emissions by around 400+ Kilo Tons per annum, which is equivalent to planting 20 million trees.” He appreciated the efforts of STDC CEO Muhammad Saleem Shaikh and his team for their continuous cooperation to move the project on fast track. ■



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Energy Sector heading towards disaster

Govt usurps \$300 million given by USA for energy sector reforms?

— Sajid Aziz —

Pakistan will not be able to implement the reforms needed to resolve its energy crisis unless Pakistanis elect leaders this spring who genuinely desire to serve the interests of their country. The foreign experts have sounded the alarm bell on the indifferent attitude by the present government led by Imran Khan who has nothing to do with the dying national economy and the public woes. Most of the energy and economic experts have raised their eyebrows over the unwillingness of the present regime to address any of the economic issues and energy sector that is dangerously heading towards disaster.

"Pakistan's acute energy crisis is posing a serious predicament for its feeble economy and volatile national security environment. The country's energy problems are deep and complex, being rooted more in shortages of governance and political will than of pure supply. This stems from the absence of a comprehensive and integrated energy strategy, resulting in interagency turf wars and a lack of coordination, insufficient revenue to support energy generation and infrastructure, owing to low liquidity in Pakistan's struggling economy and high rates of tax default, and the leadership's unwillingness to implement politically

unpopular changes to address the situation", said Micheal Kugleman, an energy expert in Washington DC.

Resolving Pakistan's energy crisis will thus require political will, additional funding, and new power-generation sources. As the country lacks significant internal sources of revenue, opportunities exist for international donors to finance its energy recovery.

It's mysterious that despite extending a huge amount of \$300 million (Rs51,000 million), by the US government as an energy sector assistance to the PTI government, the country's energy sector is going into a deep crisis with ever inflating circular debts.

"The United States already provides a considerable amount of energy assistance to Pakistan, with Congress having released nearly \$300 million in new energy aid last summer alone. However, indigenous energy solutions should not simply be discarded, and the Pakistani government should explore the Thar coalfields and alternative energy sources, among other options. Pakistan should consolidate its many energy-related institutions into a single ministry. This will bring some urgently needed order and efficiency to its dysfunctional energy sector," But is irony that despite SOS by many foreign and local advisors besides a number of governments abroad to earnestly implement such advice, the PTI government remained unmoved but what happened to the

huge foreign aids?

Not only the above advice, the government did not bother to renegotiate with the IMF to rehabilitate its energy sector, Imran Khan has never given a damn to get something in the national cause form the so-called donor agencies.

The request to renegotiate with the IMF could have extended immediate relief.

Tax reform is imperative and should be designed to provide Islamabad with more revenue to address the energy crisis. The government can initially better diversify its energy mix by importing clean coal, which is often cheaper than imported oil and gas, however the present regime has not been attracted to any reform to address the economy that has already gone into the oxygen tent but the artificial ways could never put a new life into our economy.

The only way to save the national economy from total collapse is to get rid of the PTI regime and inept prime minister as soon as possible.

Pakistan's Energy Crisis: From Conundrum to Catastrophe?

Pakistan is mired in an acute energy crisis—one with immense implications for both the nation's floundering economy and its volatile security situation. According to some estimates, energy shortages have cost the country



up to 4% of GDP over the past few years. They have also forced the closure of hundreds of factories (including more than five hundred alone in the industrial hub city of Faisalabad), paralyzing production and exacerbating unemployment. Additionally, they imperil much-needed investments in development and infrastructure. Meanwhile, the nation has been convulsed by energy riots. Protestors, angered by unscheduled outages, have often resorted to violence. They have blocked roads and attacked the homes and offices of members of both the ruling Pakistan Peoples Party and the Pakistan Muslim League, the chief opposition party. Significantly, in February 2013 Pakistan's minister for water and power warned that the energy crisis has become a national security issue. For all these reasons, energy poses one of Pakistan's most critical challenges.

Resolving this crisis will require far more than power-generation expansion and other supply-side quick fixes, the de facto policy of the country's political leadership. Pakistan's energy problems are deep and complex, and are rooted more in shortages of governance and political will than of pure supply. If the nation is to overcome this crisis, it will need to begin with whole-scale institutional energy sector reform—a politically unwelcome, yet utterly essential, prerequisite for energy relief. Necessary reforms can then follow. The success of such efforts, however, will hinge on the existence of leaders willing to prioritize long-term national development and well-being over short-term political considerations.

Origins and Nature of the Current Crisis

The origins of Pakistan's energy crisis can be traced back to the 1990s. A major energy crisis was actually averted in the 1970s, when the government launched the massive Mangla and Tarbela dams, leading to a short-lived period of robust hydro-driven energy generation that ably responded to demand. However, after a period of strong economic growth in the 1980s, energy demand soared, and supply and infrastructure could not keep up. The government sought to ramp up generation but was unable to satisfy demand. As Pakistan's population has risen, and as urbanization has spawned the rise of new industries and other corporate energy customers, the situation has continued to worsen to the present day. Electricity shortfalls reached a peak of 8,500 megawatts (MW) in June 2012—more than 40% of national demand.

With this in mind, it is important to emphasize that Pakistan's current energy quandary is rooted in paucities that go well beyond those of power supply. In fact, Pakistan is blessed with ample indigenous energy resources; it is especially rich in natural gas, hydroelectricity, and coal. However, in the case of the two most utilized sources of energy—oil and gas—consumption levels are so high that

these domestic resources are being rapidly depleted. Pakistan's national oil and gas company, Oil and Gas Development Company Limited (OGDCL), predicts indigenous oil reserves will be exhausted by 2025, and that Pakistan will run out of domestic sources of natural gas by 2030. Meanwhile, hydroelectricity supply is imperiled by climate change, with less rainfall reducing river flows.

At the same time, governance shortfalls (and not just of the corruption variety) are a key challenge for the power sector. Pakistan's energy policies come under the purview of several government ministries and agencies, but coordination is lacking, clear lines of authority are absent, and interagency turf wars are legion. The sector also suffers from gross inefficiencies (including 30% transmission and distribution losses), and electricity theft is rife; Pakistanis can regularly be seen hooking onto power lines.

Yet one of the most critical deficiencies plaguing the energy sector is money. With Pakistan's economy struggling, liquidity is dangerously low. In effect, energy consumers, private producers, the national transmission agency, distribution companies, and even the government itself cannot pay their power bills. Of note, according to figures provided by Pakistan's water and power ministry, "influential defaulters" owe about \$1 billion in overdue energy bills. As a result, the energy sector is deprived of desperately needed revenue to pay for generation, transmission, and distribution, as well as operating and administrative costs. This gap between revenue and expenses—often referred to as "circular debt"—has approached a whopping \$4.5 billion and is worsened by the fact that, thanks to generous government-funded subsidies, energy end-costs for consumers are always lower than the actual cost of production. Consequently, the country cannot afford to provide a regular supply of power.

A Lack of Strategy and Political Will

A subset of the energy financing problem is an inability or unwillingness to muster the necessary political will to address the money shortage. More broadly, Pakistan has never developed a comprehensive, integrated energy strategy, and Islamabad's haphazard policies have failed to address the crisis's deep roots. The problem lies not with civil servants, bureaucrats, and technical experts who focus on developing energy policies (many of them reasonable and actionable), but rather with the non-expert, high-level political appointees spread across the energy sector and beyond who are charged with implementing them.

Pakistan announced a national energy plan in 2010, though it was dominated by much-mocked—and likely ignored—conservation measures, such as bans on all-night wedding parties and neon billboards, along with the required early closures of street mar-

kets. (A more realistic demand-management strategy, announced last year by the Asian Development Bank, calls for the distribution of twenty million low-energy light bulbs.) Other well-intentioned initiatives have likewise not produced results. Pakistan has established the National Electric Power Regulatory Authority (NEPRA), charged with ensuring fair energy competition and consumer protection, but political interference undermines its autonomy and effectiveness. Tariff decisions must be approved by Islamabad, and NEPRA's four members are all selected by the government. Furthermore, government officials have been known to outright ignore the body's decisions.

Recent recommendations put forth by Pakistan's Planning Commission, however, offer some hope. In 2011, the commission released what it described as a "new framework" for economic growth, which calls for more focus on the private sector, cities, and youth. If implemented, the impact would be immense, as the plan would represent a paradigm shift in Pakistan's development philosophy.

In the context of energy, the document proposes some of the most far-reaching and comprehensive policy measures ever introduced in Pakistan—from full-scale sectoral deregulation to governance reform and the phasing out of many subsidies. Unfortunately, there are several problems. One is that while the Planning Commission is part of the government, it lacks implementation power, and no government entity has stepped up to embrace the commission's ideas and take on the mantle of implementation. (In fact, government agencies often spar with the Planning Commission.) Another dilemma is that the Planning Commission insists that such measures are only implementable after the country has established an integrated energy policy, which has still not happened. Moreover, Islamabad likely has little desire to authorize the Planning Commission's measures anyway, given that some of them (such as phasing out subsidies) are fraught with political risk—especially with national elections scheduled for spring 2013. On the subsidy question, in particular, while many experts accurately note that Islamabad's policies distort pricing, these measures are unlikely to change for political (and not systemic) reasons. This is because subsidies provide temporary relief to an impoverished mass population that often harbors antigovernment sentiment. It also bears mentioning that reducing subsidies could have an unintended effect: increasing the number of Pakistanis who do not pay their taxes (given that if the poor are asked to pay more for energy, they may not have enough money to pay their taxes).

Yet herein lies a major dilemma, because Pakistan's government would significantly increase its revenue—and hence its ability to pay its energy bills—if more of the country paid its taxes. Former U.S. secretary of state Hillary Clinton has claimed that only 2 million

of Pakistan's population of 180 million pay income taxes, while Pakistan's Federal Board of Revenue estimates that 700,000 wealthy Pakistanis are not paying their returns. The latter figure, in particular, suggests that revenue gains from increasing the number of citizens paying taxes could be tremendous. However, the government refuses to pressure its most affluent citizens, because many of them are politically connected or politicians themselves. And admittedly, there is no guarantee that Islamabad would actually use this added tax revenue to cover its energy debt; it could well spend the revenue on the repayment of other debts, administrative costs, or even defense.

Scenarios for the Future

Given that Pakistan lacks the revenue to finance an energy recovery, future opportunities abound for international donors, including the United States. Washington, in fact, already provides a considerable amount of energy assistance to Pakistan. The Obama administration identifies energy as a priority area in its civilian assistance program to the country, and Congress released nearly \$300 million in new energy aid last summer alone. The U.S. private sector also contributes to Pakistan's energy sector, including in overtly political ways. Last summer, ConocoPhillips mediated talks between Pakistan and Qatar on a potential natural gas deal in an effort to discourage Islamabad from pursuing a pipeline project with Iran that is opposed by Washington.

Given the extent of Pakistan's energy woes, and especially its circular debt—which, at its highest point of nearly \$4.5 billion, far exceeded the value of Washington's \$1.5 billion in total annual civil assistance—it is folly to expect U.S. energy aid to make a major dent in the crisis. Conversely, if U.S. civilian assistance to Pakistan were to be cut, the reduction of energy-intensive aid would be a significant loss for the country. This assistance includes a USAID infrastructure project, expected to be completed by this year, which adds nearly 1,000 MW to the national power grid—a fifth of Pakistan's energy shortfall.

This is not to say that indigenous solutions should simply be discarded. Consider the vast Thar coalfields in Sindh Province, where 200 billion tons of reserves have lay dormant since their discovery more than twenty years ago (Thar constitutes the world's sixth-largest coal deposit). Last year, Islamabad designated Thar as a special economic zone, hoping to lure investors with tax breaks and other incentives. Some, however, believe that the government must be more aggressive. Thar has been a common theme on the campaign trail for this year's elections, with opposition parties hailing Thar as an elixir for Pakistan's energy supply crunch and underscoring the urgency of tapping into its riches.

However, what both the government

and political opposition fail to articulate is how Pakistan will overcome the formidable challenge of developing the technological and labor capacity to exploit this potential bonanza. Another problem is purely political. Ever since the Thar coal was discovered, the central government has been locked in a disagreement with the Sindh provincial government about how to divvy up the spoils. Islamabad has proposed an 80/20 split, while Sindh has insisted that it retain full control of the coalfields. This 22-year-old disagreement has effectively put on hold the exploitation of Thar's resource treasures and crystallizes how Pakistan's energy woes are as much (if not more) a governance and political issue as one of supply and demand.

Encouragingly, Pakistan is also starting to explore other alternative energy sources. Officials have said several small-scale wind projects are under construction. The government has also announced that by 2030 it plans to have a minimum of 5.0% of total commercial energy supply provided by wind, solar, and biowaste, and that 2.5% of Pakistan's overall energy generation will come from renewables. Islamabad claims that by 2030 about 5,500 MW of Pakistan's projected 160,000-MW daily energy requirement will come from alternative and renewable sources. These are admittedly ambitious goals, given the miniscule role renewables play in the current energy mix.

Ultimately, it is the issue of implementation that prolongs Pakistan's energy crisis, making many experts pessimistic that the crisis can be resolved anytime soon. There is no shortage of research, conferences, and proposals offering policy solutions. However, these measures are not executed, because there is no political will to do so. This has long been the case at both federal and provincial levels, as well as with different political parties. While the ruling Pakistan Peoples Party has been the political face of the energy crisis since 2008, the previous government (led by Pervez Musharraf and the Pakistan Muslim League Quaid-e-Azam, or PML-Q) largely restricted its energy policies to supply-generation measures—the same politically safe bets made today. Then, as now, few efforts were made to strengthen energy governance or reform the energy pricing system. Tellingly, even in the rare cases when the government enacts politically risky measures to strengthen the energy sector and overall economy, it often reverses course. In 2011, for example, Islamabad repealed an increase in fuel prices—instituted to raise desperately needed revenue—after a key coalition partner had withdrawn from the government to protest this price hike.

The Clock Is Ticking

With no end in sight, the implications of Pakistan's energy crisis are stark and go well beyond threats to the country's economic

well-being and stability. Pakistan is currently in the midst of two major societal shifts that could worsen the effects of its energy problems in the years ahead. One is urbanization. While today the majority of Pakistan's population is rural, estimates suggest that at least 50% could be concentrated in urban areas by the 2020s. Demand for electricity is particularly high in cities, because urban-area industries and homes tend to be more dependent than those in the hinterland on grid-connected energy sources. With droves of Pakistanis entering cities and becoming dependent on grids, pressures on supply will deepen exponentially.

Pakistan's other notable societal shift that could worsen the energy crisis is the devolution of governance from the federal level to the provincial and local levels. Thanks to the 18th constitutional amendment, which President Asif Ali Zardari signed in 2010, federal ministerial responsibilities and resources are being passed down to local authorities and agencies. This means that many new energy-related functions and duties are being foisted upon provincial and district governments, which suffer from even more capacity constraints, inefficiencies, and financial troubles than their federal counterpart. Local governments will likely inherit the ineffective policies of the federal government as well. Given the central government's inability to address the country's energy crisis, there is even less reason to expect that short-handed local-level authorities are up to the task.

How long can Pakistan ride out this storm? Today, many Pakistanis are getting by through their own resourcefulness, as they do on so many occasions when their government fails to provide basic services. This winter, some residents have coped with the nation's worst gas shortage on record by fashioning home-made pumps from old refrigerators and sucking gas out of distribution systems. Others have done their cooking only when gas stations are closed—the only time they receive any pressure.

Time is running out, however. Pakistan faces rapidly dwindling foreign reserves and a plunging currency that late last year fell to a record low, and double-digit inflation is projected to hit this year. There is the very real fear that Pakistan could soon find itself unable to afford to address its energy crisis—meaning that even stopgap, short-term measures to expand power generation could be eliminated. Such a scenario would presumably increase the frequency and violence of public protests and threaten the state's ability to maintain order. The consequences could be catastrophic for the country's economy and stability.

Recommendations and Conclusions

There are some short-term steps that Pakistan can and should take. One is to formally request a new loan from the International Monetary Fund (IMF) to bring both immediate relief

to the economy and badly needed liquidity to finance solutions to the energy crisis. However, given that the IMF would probably impose politically delicate conditions—including the phasing out of some energy subsidies—Islamabad is unlikely to make such a request until after this year's election. Even if the next government follows through, another loan would simply be another short-term fix.

Above all, Pakistan must bring some urgently needed order and efficiency to its chaotic and dysfunctional energy sector. A better coordinated and integrated energy sector can best be attained through the consolidation of the country's many energy-related institutions into a single ministry. A tighter institutional set-up would allow Pakistan's energy sector to enjoy better coordination of planning, decision-making, and above all implementation. This would in turn enable it to do away with the reactive, haphazard, and ad-hoc policy environment that has characterized the energy sector for years. Although such a transformation will certainly be difficult to achieve, the seeds have already been planted. Back in the early 1980s, Pakistan experimented with establishing a more coordinated system, but those efforts petered out due to capacity constraints. Today, some influential players in the energy scene—including policymakers—have indicated their support for revisiting the idea. After a new institutional arrangement is in place, Pakistan could move on to policy reform. This should include new pricing measures that remove not all, but many, energy subsidies. Tax reform is another imperative—and should be designed to provide Islamabad with more revenue not just to address the energy crisis but also to assist poor Pakistanis harmed by the phase-out of subsidies.

Pakistan should also make improvements on the energy-demand side—such as by aiming to reduce by half the 30% in losses arising from distribution and transmission (a goal that will entail crackdowns on energy theft). Both federal and provincial authorities should be more vigilant about keeping up with necessary maintenance and repairs at all generation, distribution, and transmission facilities in order to minimize leakage and other losses. Any efforts to improve energy governance will need to occur in tandem with measures to curb wasteful water consump-

tion. Decades of water-intensive agricultural practices—including widespread and subsidized flood irrigation—have helped deplete surface water tables and prompted farmers to expend excessive electricity on tubewells to extract groundwater.

Finally, Pakistan should better diversify its energy mix. This can be done initially by importing clean coal, which is often cheaper than imported oil and gas. With time, if the political spats over Thar's reserves can be worked out, then the nation would ideally begin to focus on developing indigenous supplies—though a variety of challenges, such as transporting the coal across the nation and overcoming possible resistance to environmental costs, would remain. Pakistan is already making an effort to diversify by pursuing separate pipeline projects with Iran and with Turkmenistan, Afghanistan, and India. However, a variety of factors (international sanctions-based with the former, and security-oriented with the latter) suggest that these projects are far from being consummated. In the meantime, Pakistan should take advantage of its enhanced commercial relationship with India to import energy from that country. Already, the two nations have concluded a deal to export electricity to Pakistan, and they have created a joint working group on petroleum to explore further possibilities for energy trade. Hypothetically, Pakistan-India energy trade could be expanded to feature more region-wide energy commerce, with organizations such as the South Asia Association for Regional Cooperation (SAARC) providing an institutional platform. However, the fractious political relations between South Asia's states make this prospect unlikely in the near term.

Ultimately, there is just one obstacle to the implementation of these measures, and that is leadership. For years, Pakistani officials have had promising policies at their disposal; yet they have been unwilling or unable to move forward. This spring, if Pakistanis elect leaders with a genuine desire to serve the interests of their country, then the end of its long energy struggles could conceivably be in sight. Yet if the election produces another governing dispensation concerned only about its own interests and political survival, then Pakistan's energy conundrum could well become an energy catastrophe ■

GAS PROJECT



Pakistan-Russia gas pipeline project progressing as per schedule

The Ministry of Energy (Petroleum Division), in response to a news item that appeared in the local media, has clarified that the Pak Stream Gas Pipeline Project (PSGP), which had been stalled for over five years, is progressing ahead to the satisfaction of both the Russian and Pakistani sides.

The ministry said in a statement that the report appearing in a section of the press was misleading and was aimed at creating confusion between both sides. It said that the technical teams of both sides were constantly engaged with each other and working on the legal draft of the Shareholders Agreement (SHA). The ministry said that it needed to be clarified that in such negotiations, there always remained the need to consult each other on complicated issues while remaining within the commercial and legal framework so as to achieve a consensus. In addition to the SHA, both sides are coordinating on other instruments/agreements that need to be finalized. The progress on the project was as per the schedule and both the governments of the Russian Federation and the Republic of Pakistan were jointly working to ensure its implementation at the earliest, the ministry concluded. ■

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- SMEC is operating in Pakistan since 1971, and established a permanent office in Lahore in 1997.
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- In 2009 SMEC acquired CEIS, an oil and gas consultancy, now known as SMEC Oil & Gas.
- SMEC's first project in Pakistan was the Karachi Power Expansion and Transmission Project. Since then, SMEC has worked on a number of projects in Pakistan including: Lahore-Islamabad Motorway, Latif Gas Processing Facility, Khanki Barrage Project; Reko Diq, Sukkur-Multan Motorway and the Mari Deep Central Processing.

Major Hydropower Projects:

- | | |
|--|--|
| ★ 800MW Mohmand Dam Hydropower, Pakistan | ★ Bakun Hydroelectric Power Plant, Malaysia |
| ★ 720MW Karot Hydropower, Pakistan | ★ Thwake Dam, Kenya |
| ★ 1100MW Kohala Hydropower, Pakistan | ★ Baime Hydropower, Papua New Guinea |
| ★ M&E for Tarbela 4th Extension, Pakistan | ★ Kundah Pumped Storage Hydroelectric, India |
| ★ Shrinagar Hydroelectric Project, India | ★ Nenggiri Hydropower, Malaysia |
| ★ Mingachevir Hpp Upgrade Review, Azerbaijan | ★ Rucalhue Hydroelectric Scheme, Chile |

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Looming energy crisis and possible corrective measures

— Azeem Bilwani —

With the onset of Covid-19 in Pakistan in February 2020 and subsequent lockdowns, the Pakistan government together with the State Bank of Pakistan (SBP) offered many incentives to various industries to spur business activity in the shape of subsidized loans for new machinery, decreased interest rates and finances to help with payroll.

Fast forward to mid-2021, with higher than expected large scale manufacturing numbers and other positive economic indicators, it seemed as though Pakistan economy was on

the cusp of growth. In June 2021, a pro-growth budget for FY22 was rolled out which was hailed by all and sundry. The vibes coming from Islamabad were positive and GoP was confident of turning the economic tide.

The year 2021 has been a roller coaster ride as far as the prices of energy commodities are concerned. What started off as a slow year for those involved with the energy sector, with frequent lockdowns, restrained travel and subdued economic activity, is now turning out to be like a dream which is too good to be true.

Energy commodity prices have increased manifold, be it Regasified Natural Gas (RLNG), crude oil or coal. With the global vaccination drive picking up pace and countries returning to Pre-Covid routines, there has been a surge in energy demand resulting in supply chain disruptions which has been continuously pushing the commodity prices up.

Pakistan's Energy Woes

For a developing country like Pakistan, already going through a tumultuous economic period since the past couple of years and barely getting up on the path of growth off late, the surge in global commodity prices has serious ramifications.

One of the reasons why we are prone to international price fluctuations is because of our high dependence on imported fuels. The gush in global energy prices has left the economic managers in quandary.

Energy sector has always been the Achilles' heel for the government with a multitude of variables sometimes with issues of overcapacity and other times with too little RLNG to fire power plants.

With exports showing some growth momentum over the past few months and with

new machinery coming online, an energy crisis is the last thing we need.

Pakistan's indigenous gas production is on a declining trend for the past many years which has in turn increased its dependence on imported RLNG. With Pakistan LNG Limited's (PLL) failed bids for 8 RLNG spot cargoes for winters due to a very tight international RLNG market last week, one can expect a very tricky few months as far as the energy supply chain of the country is concerned.

Less gas to fire power plants would obviously increase dependence on Furnace Oil (FO) to make up for the energy shortfall, bulk of which would have to be imported through Port Qasim. Additionally, FO imports could even cause congestion at the port.

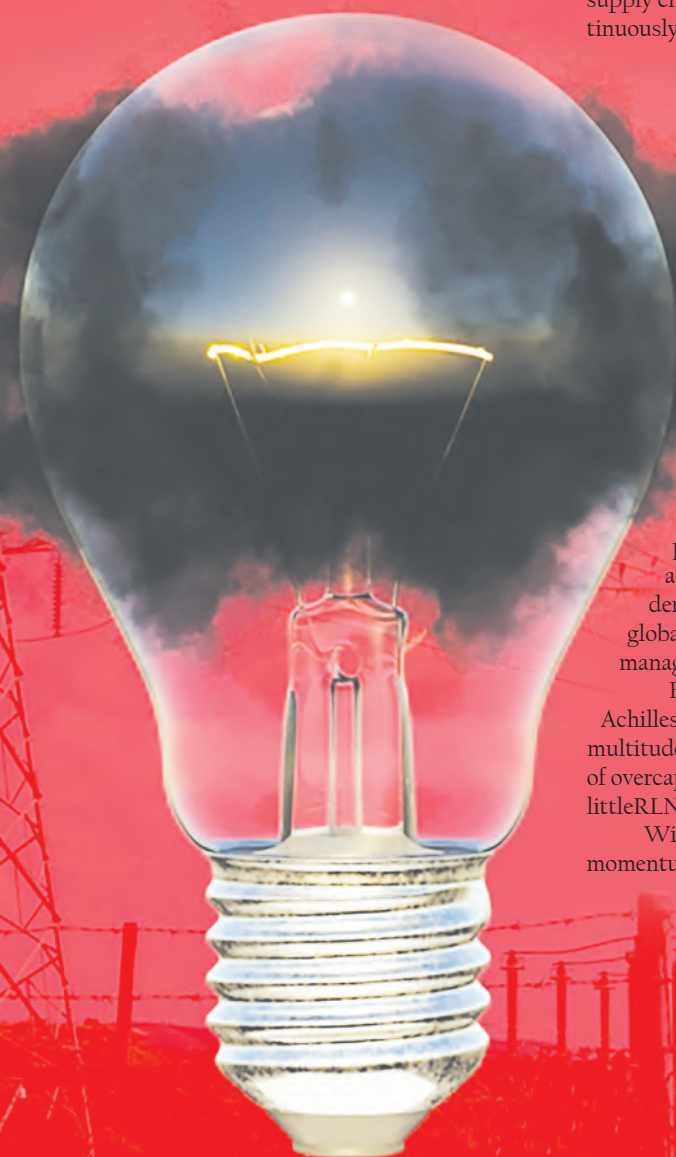
Possible corrective measures

Pakistan's external account is already facing the heat due to increased import bill (last 3-month import average of \$ 6 billion) and pressure on Pak Rupee (depreciation of around 12% in the past 5 months).

With falling real disposable incomes due to a high inflation number, people of Pakistan should brace themselves for further headwinds in the near future as electricity and everything associated with it gets more expensive.

However, timely actions from the government could bring in some respite. The government, in my opinion, should take the following steps: • Maximise coal based power generation (to keep the fuel cost component in check). • Ensure indigenous gas to domestic users and divert it to more efficient uses i.e. power plants and industry. • Promote Liquefied Petroleum Gas (LPG) for urban, affording domestic consumers and market it as a fuel of choice to reduce burden on local gas. • Manage electric load to domestic users during daytime through load-shedding. • Waive duties and taxes on electric heaters and geysers thereby making them affordable.

All these measures could maybe bring in some relief for the already burdened energy consumer but time is of the essence and the time to act is now! ■



Pakistan makes voluntary commitment to halve projected emissions by 2030

—◆ Shakeel Ahmad Ramay —◆

Pakistan has just completed work on Nationally Determined Contribution (NDC) and submitted it to the United Nations Framework Convention on Climate Change (UNFCCC).

The document has seemingly done an excellent job to highlight the efforts of Pakistan aimed at tackling climate change.

However, the analysis of NDC shows that mitigation is the priority sector for action. Pakistan has made a voluntary commitment to halve the projected emissions by 2030. The country has planned to voluntarily reduce 15% emission while the remaining 35% will be met through assistance from the world. Pakistan has also offered to shift 30% of its transportation to electric modes.

NDC also emphasised that till 2030, 60% energy should be generated from renewable sources including hydropower, solar, wind and biogas to meet the target of 50% reduction in greenhouse gas emissions.

The nation will need \$101 billion till 2030 and an additional \$65 billion till 2040 to achieve the committed targets and goals. This amount is needed to achieve the energy targets and it does not include the cost of reduction of greenhouse gas (GHG) emissions from agriculture and other sectors.

The voluntary commitments made by Pakistan in NDC has raised many questions and it is hoped that the government has the answers.

Firstly, there is a need to know how Pakistan will generate the required resources. By looking at the economic health of the nation, it does not seem

possible for it to generate huge amounts of financial resources. If we follow the formula of voluntary and conditional GHG emissions, Pakistan has to raise at least \$15 billion till 2030 to meet its commitments.

In addition to that, the nation will also require financial resources for adaptation. A needs study suggested that by 2030, Islamabad would need \$11.2 billion on an annual basis for the adaptation.

The second query is what Pakistan would do with the existing capacity of electricity production. It is an open secret that Pakistan has agreements with independent power producers (IPPs), and these deals bind the country to buy power from them. In addition, the nation has to purchase power according to their capacity and they are not concerned with whether Pakistan uses it or not. Pakistan is already facing a daunting problem of circular debt due to these binding deals.

Now, a question arises regarding how Pakistan will negotiate and convince IPPs. If the country continues to fulfill commitments without negotiating with the power producers, it will create a two faceted problem. On one hand, it will accelerate the circular debt while on the other, the country will be left with surplus energy. By looking at the facts, it can be assumed that it will be difficult for Pakistan to go for such a random shift.

The third question is will the ground realities allow Pakistan to reduce 50% or even 15% of emissions.

The government claims that it had calculated GHG emissions on the basis of a growth rate of 9% or above. However, the data analysis depicts that it would be extremely difficult, if not impossible, to achieve the target of GHG emissions. The country is experiencing tough times and the government needs

to revive the economy and put it on the track of rapid growth and development.

Islamabad needs to invest in production, which is direly needed to tackle the economic crisis. Besides, the China-Pakistan Economic Corridor (CPEC) has entered its second phase which focuses on industrialisation and agricultural cooperation. Pakistan and China are working to uplift and boost investment in the industrial sector.

The work on establishment of Special Economic Zones has been expedited to achieve the goal of industrialisation. Agriculture cooperation will enhance crop production and expand cultivation to meet future demands.

Three solutions

In this context, industrial and agricultural growth will increase GHG emissions. So, there is a need to ask how Pakistan would meet its commitments under the NDC. Now, there are three options. First, Pakistan should only allow green and climate compatible industrial and agricultural investment. Secondly, the country must bring down its goals of industrial and agricultural growth. Thirdly, it should make efforts to create balance by rethinking its commitments for GHG emissions and growth in the long run.

Adaptation is another area, which is part of the NDC. Government claimed that it would prepare its first national adaptation plan by 2023. It is a matter of grave concern that a country which is highly vulnerable to climate change does not have an adaptation plan.

Although adaptation must be the prime focus of the country, it stands without a plan leave alone comprehensive actions. We can only find sporadic efforts, here and there. Agriculture sector is suffering the most and it requires urgent assistance to cope with the challenges posed by climate change. A program for climate smart agriculture, which was announced in 2019, is still in its planning phase. Pakistan also needs urgent schemes to check seawater intrusion. Although, government is working on mangroves but there is need to do more.

On the basis of the above discussion, it can be suggested that Pakistan should rationalise its commitments. They must be in line with the development status and needs of the country and should not be made to please the donors or the international community. Thus, Pakistan should relook at the policy and strategy to opt for GHG reduction commitment. Pakistan can adopt a different strategy or policy.

The country can avoid an absolute number such as 50% and commit in terms of efficiency and intensity of carbon emission. It can pledge to reduce GHG emission on per capita GDP basis during the due course of time. For example, China vowed to lower carbon intensity by 18% in its 14th Five Year Development Plan. The energy intensity will also be brought down by 13.5% by 2025.

In conclusion, Pakistan must focus more on adaptation. The nation needs to secure funding from all sources, domestic and international. Failure to prioritise adaptation will have grave implications for Pakistan because agriculture and food security will bear the brunt. Food insecurity is already high and according to different studies, 58.8% of the population is food insecure. Climate change will further complicate the situation if Pakistan fails to prioritise the adaptation. ■

LESS UTILIZING RE

Pakistan still relying less on solar and wind



—◆ Darakhshan Anjum —◆

Pakistan has shifted its focus towards its Indicative Generation Capacity Expansion Plan 2021-2030 from targeting 30 percent renewable energy capacity through wind and solar sources to reaching 60 percent 'renewable' energy generation by that date after the reclassification of hydropower as a renewable source. It is now focusing more on generating electricity through hydropower instead of wind and solar power.

Under the new plan, the wind and solar capacity targets have been reduced by 17,000 MW than in the previous version of its Indicative Generation Capacity Expansion Plan (IGCEP). The recently released State of the Industry Report 2021 by the National Electric Power Regulatory Authority (NEPRA) disclosed that Pakistan had not commissioned wind and solar power in the last 12 months.

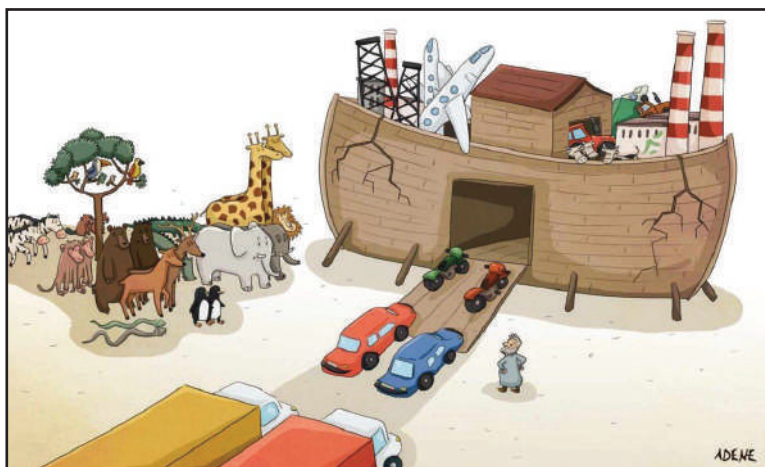
Meanwhile, the prices of LNG

and coal continue to surge worldwide, and Pakistan's dependence on LNG imports has become a concern. Its focus on hydropower is also an issue because of the cost and implementation risks.

Pakistan's target to reach 60 percent renewable energy generation by 2030 relies on the Diamer-Bhasha Dam with an estimated cost of \$14 billion that is expected to increase due to huge cost overruns.

Wind and solar-based energy projects are better for Pakistan as they can be constructed faster than both hydro and coal-fired power projects. They also have better energy security outcomes than dependence on large dam projects that may or may never be completed on time.

The International Energy Agency published its key World Energy Outlook 2021 report in October that highlights the importance of solar and wind energy, and, ultimately, it is crucial for Pakistan to also shift its focus towards wind and solar installations and grid improvements that can reduce its reliance on fossil fuels in an efficient manner. ■



Solar-wind hybrid projects

—♦— Syed Akhtar Ali —♦—

By 2030, Pakistan will have around 60 percent market share of renewable energy sources about half of which will come out of solar and wind. This would bring a good change to the country's overall energy scene, helping in solving the existing environment and climate issues and reducing energy imports.

However, there will be some problems as well. Almost all renewable sources, especially solar and wind, are intermittent – available either on a variable-hour basis or in higher frequency. Previously, during fossil fuel-dependent days, the persistent issue was demand variation while supply used to be mostly maintained at a constant level. Now with such a large share of varying renewable energy sources, maintaining grid stability would be a difficult job.

Transmission and an even distribution system will have to be improved. On the supply side, storage and hybridisation will have to be undertaken. Solar and wind energy resources can be installed on the same plot of land, increasing final output and utilising common ancillary and transmission facilities. Solar-wind is a highly localised combination and may have varying output and capacity factors. A solar hybrid plant may be almost like a thermal power source but with some consistency and much less variability.

It would be the best of both worlds. Even solar and hydro can be combined; one form of which is floating hydro power plants on dams which reduces water loss through evaporation. There are examples of solar power plants floating on canals as well. Solar energy is available in abundance throughout Pakistan. However, wind energy is mostly limited in Sindh and Balochistan. While there are other renewable energy sources in Sindh, Balochistan has limited options and merits the installation of solar and hybrid power plants.

An important and probably most important finding of the World Bank (WB) study is that there are seven sites with solar-wind hybrid characteristics and which are interconnection ready zones. In total, these solar and wind hybrid sites can have a capacity of 1500 MW. These sites are at Qila Saifullah, Panjgur, Khuzdar, Much and Muslimbagh, all falling within the domain of the Quetta Electric Supply Company (Qesco). Only one solar-wind hybrid is in the Multan Electric Power Company (Mepco) region, in Rojhan.

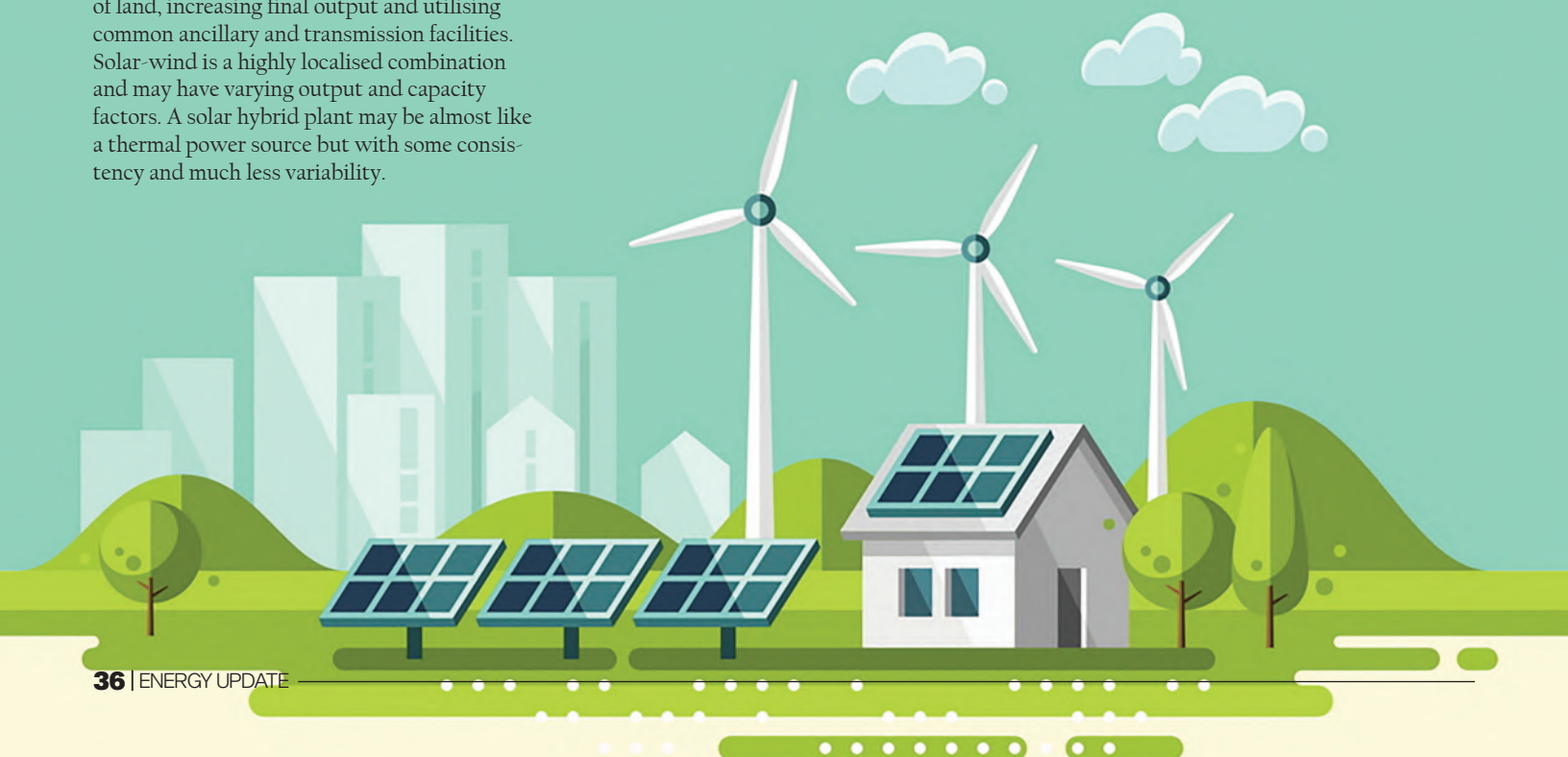
From both demand and supply sides, Sindh is the most opportune province for installing solar-wind hybrid capacity. In Khyber

Pakhtunkhwa (KP), only solar and hydro hybridisation is possible. In KP, wind resources have not been identified except in Chitral and D I Khan. In Chitral, solar, wind and hydro can be hybridised – a two- or three-source system.

The Asian Development Bank (ADB) has funded and set up a solar-wind hybrid plant in Khushab, Punjab, which is operating successfully. The plant derives 30 kW from solar and the remaining 20 kW from two wind turbines of 10 kW each. The hybrid plant provides around 50 kW to over 500 people in 80 households. This was the first and only plant installed in 2017.

Some recent reports suggest that a 400-MW solar-wind hybrid plant will be set up in Spain, by 2025. In one of the projects, a 40.9 MW of solar plant will be added to the 49.5 MW wind farm; another 14.5 MW wind farm will see the addition of 13.2 MW solar.

As reported recently, Engro has announced an MoU with the Sindh government for the installation of a 400-MW solar-wind hybrid power plant in Jhimpir to power industries located in the area of Dhabeji and Port Qasim industrial zones; expected commissioning is in 2024. Earlier, the company had decid-



ed to install a similar project in Balochistan. However, there hasn't been any update in this regard.

The wind power capacity factor is 35-40 percent, and for solar, it is 20 percent. Their total sum, however, may be less than 55-60 percent for a variety of reasons. Storage may be able to add another 20 percent capacity factor. Recently, in India, a solar-hybrid tariff has been approved at INR 3.86 per kWh with a capacity factor of 80-85 percent. It is a two-part tariff providing separate rates for peak and off-peak power. Normal solar-hybrid power plants implemented in India have a capacity factor of 40-50 percent. One would not be sure if wind power capacity factor numbers are lower in India.

The lowest solar-wind hybrid tariff offered in a recent auction (September 2021) in India has been INR2.34 per unit for project capacities of up to 150-450 MW. Earlier, hybrid tariff auctions were reported at INR2.41-2.69 per unit. By comparison, the lowest solar power tariff in December 2020 was INR1.99 per unit. Thus, it appears that hybrid may not be cheap despite purported advantages of savings in physical facilities. But are market and technology risks or is a loss of capacity utilisation in hybridisation the main reason for this high cost? We have noted above that even higher storage tariffs of INR3.85 – 5.21 US cents – per unit are higher.

It is strange that solar-wind hybrid plants have not been picked up much, not only in Pakistan, but elsewhere too. With the development of battery storage technologies, the potential has improved – perhaps only recently. In Pakistan, a policy vacuum has also contributed to a lack of progress in this regard. One may counter that even the capacity of individual solar- and wind-powered plants remained underdeveloped. However, the National Electronic Power Regulatory Authority (Nepra) has, in its report, emphasised the need of launching hybrid projects.

This leads to an important question: do we need a separate hybrid policy, or will policy provisions be enough? If competitive bidding is implemented, perhaps no other criterion other than the minimum producer tariff would be required. If it is not, it might be necessary to define some parameters and loose issues. Issues such as capacity factor, location and co-location, relative shares of solar and wind may require definition and clarification.

A lack of clarification may later introduce complications and cause delays in project approvals. Is the existing wind power plant eligible for hybridisation as it may perhaps be the easiest and cheapest way of expansion? Or is a new site eligible for a new hybrid project? Can we use the same plot for additional projects, or do we need separate plots that are at some distance? Location priorities are often specified in plans like the Indicative Generation Capacity Expansion Plan (IGCEP). However, the latter has not specified any such thing.

There may be special legal and financial issues in the existing projects requiring expansion. So, without concrete policies or additional provisions, the resultant confusion will delay projects, increase risks or perceptions, and affect the overall economics. The need of the hour is to have a coherent policy which is drafted in a way that it doesn't delay the policymaking process. But who should make this policy is another complicated issue; should it be Nepra or the power division?

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

NEWS ITEM

GO & PAPCO Ink White Oil Pipeline Multigrade Project Throughput Agreement

Go celebrates 900 retail outlets across Pakistan

Pakistan's fastest growing oil marketing company Gas & Oil Pakistan Ltd. (GO) has signed a White Oil Pipeline Multigrade Project Throughput Agreement with Pak Arab Pipeline Company (PAPCO). GO is also celebrating 900 retail outlets, the largest network in the private sector, and continues to forge ahead with its ambitious plan.

The agreement signing ceremony was attended by GO CEO Mr. Khalid Riaz, PAPCO CEO Mr. Amr Ahmed, GO COO Mr. Zeeshan Tayyeb, GO Operations GM Mr. Ali Akber Khaleel, PAPCO Operations GM (Pipeline) Mr. Adil Aziz Khan and other senior members of the management of both organisations.

GO's announcement is part of their ambitious business growth strategy that will enable them to cater to their customers round-the-clock, in all seasons and in every situation. It is one of the leading OMCs to incorporate state-of-the-art tools and high-tech resources; making full use of technology to hone their supply chain management functions and spearheading efforts to

curtail fuel shortages in the future and to stabilize the petroleum sector in its entirety.

About the company's strong commitment to the people, Mr. Riaz and Mr. Tayyeb explained that the project would enable transport of petrol in addition to diesel through the White Oil Pipeline. Once fully implemented, all upcountry movement of petrol and diesel will be through the pipeline which will not only reduce transportation costs and improve road safety for the general public but will also have a positive impact on the environment by reducing pollution, traffic and carbon footprint.

According to them, GO, with its core foundation built on serving the needs of customers in every corner of Pakistan, continues to hold on to its position as Pakistan's fastest growing OMC. The speed of the company's retail network expansion is a testament to its commitment to Pakistan.

The CEO and COO revealed that GO is also investing in new products that include EV chargers to have a sustainable business and reduce the carbon footprint of company's operations by rapidly deploying solar energy solutions.



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SOME OF AGES PROJECTS

Balakot Hydropower Project 300 MW	Turen More - Kari Hydropower 350 MW
Kari Mashkur Hydropower Project 495 MW	Jabori Hydropower Project 10.2 MW
Gabral Kalam Hydropower Project 88 MW	Barandoo Hydropower Project 3.75 MW
Gabral Utror Hydropower Project 79 MW	Bilkanai Hydropower Project 7.75 MW
Ban Khawar Hydropower Project 36 MW	Chapri Charkhel Hydropower Project 10 MW
Ranolia Hydropower Project 17 MW	Mohmand Dam Hydropower Project 800 MW
Jamshill-Turen More Hydropower 260 MW	Six Hydropower projects in AJK
Kurram Tangi Dam & Hydropower Project 81 MW	Diamer Basha Dam & Hydropower Project 4350 MW
Baran Dam Raising Project	Municipal Services Project Peshawar
Darfur Dams Project, Sudan	Red Sea & Gadaraf States Dams, Sudan
20 Small Dams Project Baluchistan	Pehur High Level Canal Extension Project
Peshawar Karachi Motorway Abdul Hakeem Section (230Km)	Peshawar-Torkham & Kalat-Quetta-Chaman National Highway Projects



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Nation pays tribute to **late Dr A.Q. Khan** for making Pakistan's defence insurmountable

The Pakistani nation genuinely lost its benefactor and saviour when Dr Abdul Qadeer Khan passed away on October 10. Outpouring of grief from across Pakistan and also from overseas Pakistanis showed how much his personality and services were revered by our nation. The state funeral accorded to him showed he was truly regarded as a national hero. All Pakistanis give high regard to his life-long untiring services to make defence of Pakistan impregnable. Once Pakistan formally achieved the nuclear capability on the basis of his efforts, Dr A Q Khan dedicated his life to perform welfare and philanthropic activities especially in the education and health sectors to serve the less privileged communities. Till his last breath, he was very much concerned about the future of the young generation which was why even hours before his death he had decided to file a petition against errors in MDCAT (medical and dental colleges' admission test) that affected many meritorious students seeking to become doctors and dentists. The Pakistani nation is well aware of his heroic struggle, mostly done secretly to avoid adverse reaction from the Western countries, to help Pakistan achieve the nuclear deterrence in the shortest possible time. If Dr A Q Khan had desired so, he could have easily chosen to lead a comfortable life, with much higher perks and privileges, in any of the Western countries as their R&D and scientific organisations would have easily hired him.

But he didn't consider at all such temptations and chose to serve his motherland to make its defence strong against a much larger and aggressive enemy having clear expansionist designs. Fairly, a very large number of Pakistanis were highly displeased when he was linked with an international nuclear smuggling network. People from all walks of life were highly upset when a national hero had to undergo an agonising ordeal during the last years of his life. He faced immense difficulties as he couldn't move freely to meet his friends, relatives, admirers, and also to render welfare services for the needy people. The State and Government of Pakistan are under solemn obligation to do more to formally recognise, honour, and highlight his services for the defence of Pakistan. May Allah bless his

soul and grant us strength to continue with his mission to build our nation.

Here we are reproducing an important excerpt from the book "Eating Grass: The Making of the Pakistani Bomb" by Feroz Hassan Khan to pay a befitting tribute to late Dr A Q Khan:

'A man called A Q Khan'

Two letters have changed the course of history. Albert Einstein's famous first letter to President Franklin Roosevelt dated August 2, 1939 and Dr A Q Khan's second letter in 1974 to Prime Minister Zulfikar Ali Bhutto who remarked that 'the man makes sense'.

In the state of Bhopal, India, the headmaster of a local school, Abdul Ghafoor, chose to retire in 1935. The following year, in April, he and wife, Zulekha, had their youngest son — they named him Abdul Qadeer Khan, famously known as A Q Khan. A decade later, during the traumatic years that surrounded partition, Bhopal was the scene of intense Hindu-Muslim riots. The family was profoundly affected by the prejudices of the Hindus and decided to immigrate to Pakistan in August 1952, and settled in Karachi.

After earning a B.S. from Karachi University, A Q Khan stayed in the city for three years to serve as an inspector of weights and measures, and then left for West Berlin. He travelled across

Europe, earning degrees along the way— an M.S. from the Technological University of Delft, Holland, and a Ph.D. in copper metallurgy... from Catholic University of Leuven, Belgium, under the supervision of Professor Martin Brabers. As he pursued a higher education, Pakistan underwent the tragic events of 1971. The Fall of Dhaka not only changed the map of the region but also influenced A Q Khan in particular, who recalled personal humiliation and forced migration to Pakistan. When India conducted its first nuclear test in 1974, he was well settled in Holland with his wife, Hendrina (Henny) Khan, and two daughters— Ayesha and Dina. The Indian nuclear test transformed both the security landscape in the region and the "man from Pakistan".

A Q Khan's dissertation on exotic metals and their ability to withstand high rates of deformation made him a prime candidate for metallurgy-related jobs. He accepted a job offer at Fysisch Dynamisch Onderzoek (FDO), a subsidiary of Vernidge Machine Fabrieken (VMF), which worked closely with Ultra-Centrifuge Nederland (UCN), a member of the Uranium Enrichment Consortium (URENCO). As an employee at the URENCO plant in Almelo, Netherlands, he gained crucial knowledge of centrifuge-based enrichment operations. Fluent in German, French and English, he was often asked by his managers to translate German reports on centrifuge technologies. Following India's nuclear test, in August 1974, he wrote a letter to Prime Minister Bhutto, volunteering his expertise in gas centrifuge technologies to the country. The letter went seemingly unnoticed and probably was treated as another "nut case." A Q Khan persisted, however, and sent another letter on September 17, 1974; this time through the Pakistani ambassador in Holland, explaining the significance of highly enriched uranium as an alternative to the plutonium path to the bomb. Finally, the letter caught the attention of the prime minister, who remarked that the "man makes sense".

Within Pakistani circles, Khan's letter to Bhutto is considered analogous to Albert Einstein's famous first letter to President Franklin Roosevelt dated August 2, 1939. Dr A Q Khan and his team's effort in the next two decades paid dividends and Pakistan became a nuclear power in 1998.

May Allah bless him with highest ranks in Jannah. ■



Gas crisis round the corner

—◆— Khalid Mustafa —◆—

In a shocking development, two LNG trading companies, GUNVOR and ENI, have willfully defaulted on their commitment for the current month of November, 2021 to provide Pakistan two LNG cargoes for mammoth monetary gains up to 200 percent profit in the international spot market. Under the term agreements with Pakistan LNG Limited (PLL), Italy-based ENI was to deliver the LNG cargo on November 26-27 and Singapore-GUNVOR on November 19-20. Both the companies have backed out from providing the LNG cargoes, putting the top authorities of Energy Ministry in the lurch. The situation may expose the PTI government to a severe political backlash from masses in the current month of November.

ENI is in 15-year term agreement with Pakistan LNG Limited (PLL) under which it is bound to provide an LNG cargo every month at 11.95% of the Brent and GUNVOR is also in five-year term agreement and bound to provide a cargo at 11.6247pc of the Brent. Under the contract, in case of default, PLL can impose a penalty of 30 percent of the contractual price of one cargo to each LNG company and both the companies are ready to pay the penalty as profit in the spot market is huge, prompting them to sell Pakistan's term cargo to the international market. PLL has inked the term agreements with both the companies to avoid purchase of LNG cargoes at higher prices, but both the companies have backed out and defaulted on the agreements at a time when the spot LNG prices are hovering at \$30-35 per MMBTU.

Top sources in both the gas distribution companies said that a high-level meeting is to be held today (Monday) in the Petroleum Division to look into the new situation. It may decide to contact the Italian government on a war footing, asking to influence the ENI to show respect to the 15-year term agreement inked with PLL.

When contacted, Secretary Petroleum Dr Arshad Mehmood confirmed the development, saying that the minister will be chairing a meeting today (Monday) morning to gauge the situation and to strategise a way forward in consultation with the Petroleum and Power Division officials.

The managing director of Pakistan LNG Limited (PLL) could not be contacted for confirmation of the default by two LNG trading companies. Sources insisted that the gas crisis, which was to start haunting the masses in December, January and February, will now appear in a big way because of the default of two LNG trading companies in later part of the ongoing month of November -- a lean month in terms of cold.

The Italy based ENI on Saturday (October 30) informed Pakistan LNG Limited (PLL) that it will not deliver the term cargo on November 26-27. Interestingly, ENI has committed the default three times, including the latest one. ENI first defaulted in January 2021 by providing half of term cargo and then it

did not provide a full term cargo in August and now it has backed out of its term cargo, which was due in later part of November.

ENI has apparently communicated to the Pakistan LNG Limited (PLL) that its supplier has cancelled the cargo in the wake of commercial considerations and logistic issues, so it is not possible for it to deliver the term cargo in November. The top sources said that ENI has emerged as a habitual defaulter for monetary gains by repeatedly selling the term cargoes of Pakistan in spot market wherein LNG prices have jacked up to 200 percent (\$30-35 per MMBTU).

The Singapore-based GUNVOR first time committed the default of its term cargo, pleading that at the loading port, system breakdown occurred, which is why it may not deliver the term LNG cargo on November 19-20.

It is pertinent to mention that the PLL has already received no bids for eight spot cargoes, four each for December and January because of the highest-ever LNG prices. The absence of eight spot cargoes in December and January will increase the gas deficit up to 600mmcf, triggering massive gas loadshedding in the country. ■

Courtesy The News





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NFEH holds seminar on breast cancer awareness

'Every district headquarters hospital in Sindh should have breast cancer screening, treatment facility'



As Pakistan has the highest breast cancer incidence rate among the Asian countries, health experts believe more government and foreign funding is required to beef up the country's capability to address the issue.

Speakers at a seminar on breast cancer awareness, organised by the National Forum for Environment & Health (NFEH) in collaboration with the Arts Council, Karachi, demanded every district headquarters hospital in Sindh should have the facility to diagnose and treat breast cancer. Karachi despite being the largest city has only two public sector hospitals having capability to treat patients with breast cancer, they said.

The health experts highlighted the need for more breast cancer screening and treatment facilities, particularly when one of every eight women in Pakistan was prone to the fatal disease. They urged the government to provide financial assistance to working women who were tax filers for breast cancer treatment.

Prof Dr Rufina Soomro, head of the General Surgery Department of Liaquat National Hospital, said breast cancer situation in the country had become alarming with most cases being diagnosed in the age bracket of 40 to 50 years. She said that breast cancer on average was being diagnosed at 10 years younger among Pakistani women as compared to those in the US.

She said only 10 per cent breast cancer cases were diagnosed at stage one in Pakistan, whereas in the Western countries up to 50 per cent of cases were diagnosed at the earliest stage of the ailment. She urged every adult woman to get breast cancer diagnosis after every two years.

Omer Aftab, founder and CEO of Pink Ribbon Pakistan, lamented the situation that there was no substantial increase in breast cancer diagnostic and treatment facilities in Pakistan in

the last decade. He said the government should readily take action against cancer-causing food and edible items, which had already been banned by the European Union and the US. He said the country lacked the properly registered medicines, which were required to treat cancer patients. He demanded a waiver of customs duty on the import of chemotherapy equipment.

Dr Shaista Khan, senior breast surgeon associated with Aga Khan University Hospital, said breast cancer survival rate had increased to 90 per cent in the West due to timely medical interventions while it was 30 per cent in Pakistan. She lamented that five mobile units had been imported for breast cancer screening in the provinces but only two provincial governments agreed to run them.

Member of Sindh Assembly Rabia Azfar Nizami praised the First Lady of Pakistan, Samina Arif Alvi, for leading nationwide efforts to make women aware of the serious health issue. She the government was expanding breast cancer treatment facilities in the country.

Afia Salam, a senior journalist and breast cancer survivor, suggested that gynaecologists and midwives could be trained to make women aware of the issue of breast cancer.

Muhammad Ahmed Shah, Arts Council President, said the Arts Council Karachi was always present to host activities that were meant to safeguard the health of less privileged women.

NFEH Secretary-General Ruqiyah Naeem said her organisation after doing extensive tree plantation work in Karachi had decided to play its due role in the field of breast cancer for the protection of women's health against the cancerous disease.

NFEH President M. Naeem Qureshi, Vice President Engr Nadeem Ashraf, Dr Saima Erum Ejaz, Samreen Junaid, Dr Asim Kidwai & Dr Hina Ambreen also spoke. ■

Govt appoints Bajwa MD ISGSL

New chief will oversee mega gas pipeline projects in his three-year tenure

—♦ Zafar Bhutta ♦—

The federal government has appointed Nadeem Javed Bajwa as managing director of Inter State Gas Systems (Private) Limited (ISGSL), which deals with mega gas pipeline projects like Turkmenistan-Afghanistan-Pakistan-India (TAPI), Iran-Pakistan and North South projects.

ISGSL was established in 1996 as a private limited company and was incorporated under the Companies Ordinance 1984 (now Companies Act 2017). It is mandated to oversee the impact of big gas pipeline schemes in the country and improve the strategic oil and gas infrastructure. The company is a subsidiary of Government Holding Private Limited (GHPL) and is working under the aegis of the Ministry of Energy (Petroleum Division).

As per Rule 5(2) of the Public Sector Companies (Corporate Governance) Rules 2013, as amended up to 2017, the ISGSL board had evaluated candidates based on fit-and-proper criteria and guidelines specified by the Securities and Exchange Commission of Pakistan (SECP) for the appointment of managing director/chief executive and recommended at least three candidates to the federal government for its concurrence.

The post of ISGSL managing director fell vacant on May 12, 2020 following the resignation of the then MD/CEO. An advertisement for the post of ISGSL MD/CEO was finalized by a head-hunting firm, in consultation with the company's board of directors, and was published in newspapers. The consultant received 120 applications and after screening and interviews, recommended 13 aspirants for the board's consideration. The board interviewed 12 available candidates in its 142nd meeting held on June 16, 2021, reviewed the merit order provided by the consultant and recommended five candidates for the consideration of the division.

The candidates included Waqar Ahmad Khan, Nadeem Javed Bajwa, Tauseef Salma, Gulzar Khoja and Atif Ghafoor Mirza. Khoja later withdrew application. ■

CPEC Power Projects: Debt burden or a much-awaited breather

Of late there has been a lot of hue and cry on China-Pakistan Economic Corridor (CPEC) power projects as multiple lobbies working against CPEC term them a debt burden on Pakistan. But before jumping to conclusions, let's figure out whether the projects added to country's debt or came as a much-awaited breather for a tarnished energy generation mix.

To have a clear picture of what has been the impact of the power projects on the power sector of Pakistan let's go back to the year 2014 when Nepra's state of industry report pointed out "chronic electricity shortage due to demand growth and no addition in generation capacity" and mentioned the country's peak hours demand was 20,576MW in FY 2013-2014 against the generation capability of 16,170MW. Overall Pakistan was facing the multi-pronged challenge of around 4,500MW shortage, instability and a massive decline of foreign direct investment.

As a key incentive to attract investment in power generation and a major initiative to improve the energy mix of the country that predominantly depended on depleting gas reserves, high speed diesel and residue fuel oil,



the government approved on June 26, 2014 an upfront tariff regime for different fuel types including coal. Ten months later Chinese President Xi Jinping visited Pakistan and formally announced the launch of a US\$62 billion package under CPEC to transform Pakistan's economy by modernizing its communication and energy sectors.

In the energy sector, 10,400MW power generation projects, called early harvest projects, were included in the first phase

of CPEC. They were mainly related to local and imported coal, wind, solar and hydel energy. Of these projects 4,000MW power production based on imported coal, 660MW on local coal, 300MW solar and 250MW of wind energy projects are already completed and the remaining are at an advanced stage of construction. Almost all these projects adopted the upfront tariff offered by the Government of Pakistan to anyone who intends to invest in the country's power sector. ■

Axens selected for Byco's refinery upgrade project

Axens has been selected to support Byco's refinery upgrade project Phases I, II, III by providing advanced technical solutions in order to achieve Euro V gasoline and diesel specifications in Pakistan.

The solution consists of a unique integration of three existing units into a cracked naphtha desulfurisation unit using Prime-G+® licensed technology. This technology plays a major role in meeting Euro V specifications with excellent octane retention along its selective hydrodesulphurisation process.

Axens will also provide Virgin Mix Distillate Hydrotreater (DHT-2), Mixed Distillate Hydrotreater (DHT-3) and sulfur recovery unit (SRU) catalysts and adsorbents combined with Proprietary DHT-3 Reactor Internals. Reactors will be loaded with Axens catalysts and adsorbents in order to meet stringent Euro-V specifications in the refineries.

The scope of Axens work includes the supply of process design package for integration of three existing units into FCC gasoline hydro-treating configuration using licensed Prime-G+ technology, catalysts and adsorbents for SRU, and respective hydrotreaters, internals for the DHT reactor, training and long-term technical services. The start-up date of the complete Phases I, II and III is expected in the second quarter of 2024.

Stephane Wermester, Sales Director Asia, Process Licensing Busi-



ness Unit at Axens stated: "Axens is delighted to be part of this key project and to support Byco refineries Pakistan's sustainability strategy. Byco will benefit from Axens' capabilities of the latest generation of advanced catalysts and proprietary equipment solutions."

This award reinforces the intense cooperation between Axens and Byco Petroleum Pakistan Ltd, which started in 2019 when Byco awarded Axens with an adaptive study consisting of evaluating the configuration of units to be fitted into their existing refineries. ■

PPL AGM approves 20% cash dividend

At the 70th Annual General Meeting of Pakistan Petroleum Limited (PPL) held online on October 25, members approved financial statements for the fiscal year ended June 30, 2021, together with the auditor's report.

PPL registered a profit-after-tax of Rs52.4 billion, the second highest for the company and a final cash dividend of 20 per cent on ordinary and 15 per cent on convertible preference shares was also approved.

In his opening remarks, PPL Board of Directors Chairman Shahab Rizvi highlighted that despite the global recession due to Covid pandemic, PPL delivered a robust performance during 2020-21. He thanked all stakeholders along with company's staff for their perseverance and commitment to deliver in these challenging times.

For his part, PPL MD and CEO Moin Raza Khan said the company showed remarkable resilience by managing to not only deliver uninterrupted energy to the national grid but also achieving a historic milestone of winning an exploration block in Abu Dhabi Bid Round. "PPL led a consortium of 'big four' national E&P companies to secure the country's first-ever concession in Abu Dhabi, United Arab Emirates," he added. "Alhamdulillah, PPL has earned the 2nd highest profit-after-tax in its history. We have also managed to improve collections from our customers, amid aggravating circular debt in the country, through highest-level engagement with them", Khan noted. PPL's daily production share stood around 852 MMscf gas equivalent during 2020-21, a decrease from the previous year due to significantly lower offtake by GENCO II from Kandhkot. Nonetheless, the company achieved a reserves replacement ratio of 108

per cent with effective field development activities.

Production commenced from Benari X-1, Shah Bandar Block and Hadaf X-1 as well as commissioning of GPF- IV Phase II, Gambat South that collectively added 35 MMscfd gas to the supply network. Besides, PPL drilled seven development wells — three in operated and four in partner-operated fields. The Company is geared to enhance its production share through commissioning of Dhok Sultan Oil Handling and Zafir Processing facilities in the near future together with optimizing production from mature fields. The company's exploration efforts remained focused on reserve replenishment through exploratory drilling in conventional and frontier areas. Six exploratory wells — three each in operated and partner-operated areas — were drilled.

Besides Balochistan, the company is targeting a new frontier play in Sindh at Khipro East X-1, Khipro East Block. With this, a discovery Mamikhel South-1, was made in partner-operated Tal Block. Talking about PPL's diversification strategy — aimed at de-risking revenue streams against the backdrop of escalating circular debt — Khan shared that Baryte, Lead and Zinc project has made considerable headway and slated to be executed soon through PPL's mining arm, Bolan Mining Enterprises, a joint venture between PPL and Government of Balochistan.

Mr Khan shared that PPL made the largest-ever annual CSR contribution of over Rs2 billion during 2020-21 to drive need-based, long term development projects for deserving communities in operational and urban areas. ■



OGDCL Appoints Khalid Siraj Subhani As Acting CEO

Syed Khalid Siraj Subhani has been given the acting charge of Managing Director (MD) and Chief Executive Officer (CEO) of the Oil and Gas Development Company Limited (OGDCL), following the resignation of Shahid Salim Khan who served the organization for over 21 months.

Syed Subhani, the new acting MD, and CEO, was Director at OGDCL. He is a Chemical Engineer with an Executive Management Program from Haas School of Business, University of California, Berkeley, and Leadership program from MIT, Boston.

Prior to retirement from Engro, Subhani worked as President and CEO of Engro Corporation Limited, Engro Fertilisers Limited, and Engro Polymer and Chemicals Limited.

He also served as Chairman of Board Technical Committees & Board Human Resource Committees at Hub Power Company and Laraib Energy Limited.

Subhani also remained Vice President Overseas Chamber of Commerce & Industry (OICCI), Director Vinyl Chloride Safety Association of North America, Baton Rouge, USA, Member of Business Advisory Council at the Society for Human Resource Management (SHRM), Member of Academic Council and Faculty Selection Board at the Institute of Business Administration Sukkur, Sindh, Member of the Standing Committee on Environment, Pakistan Chamber of Commerce and Industry, and Pakistan Japan Business Forum (PJBF).

Qatar plans to invest in LNG import, regasification terminal

Bloomberg has reported that Qatar is planning to invest in Pakistan's next LNG import and regasification terminal.

Pakistan currently operates two LNG terminals, both at Port Qasim near Karachi.

Qasim Terminal Holding Co., a subsidiary of state-owned QatarEnergy, has applied for clearance with Pakistan's government to take a stake in Energas Terminal Private, people familiar with the matter told Bloomberg.

Energas Terminal has a pact with ExxonMobil for LNG supply and is developing an import terminal at Port Qasim.

Energas, Energas Terminal's sister firm, was granted a licence to market natural gas and regasified LNG in Pakistan in January this year.

Another firm, Tabeer Energy, owned by Japan's Mitsubishi, is also looking to develop an LNG terminal at Port Qasim.

Engro Corp's profit falls 26.7% to Rs11.4b

Jump in other expenses, finance cost drives decline in earnings

Engro Corporation's profit contracted 26.7% to Rs11.4 billion during the quarter ended September 30, 2021 owing to a spike in other expenses and finance cost.

According to a notice sent by the company to the Pakistan Stock Exchange (PSX), it had posted a profit of Rs15.5 billion in the same quarter of previous year. Earnings per share of the enterprise dropped from Rs16.12 during July-September 2020 to Rs10.62 in the same quarter of current year.

Alongside the result, the company announced a cash dividend of Rs5 per share, which took the total dividend for nine months (January-September) of calendar year 2021 to Rs24 per share. Net sales of the company jumped from Rs75.3 billion in the third quarter of 2020 to Rs84.3 billion in the corresponding quarter of ongoing year, an increase of 12%. During the quarter under review, selling and distribution expenses of the firm contracted 16.2% to Rs1.97 billion. It had recorded an outflow of Rs2.35 billion under the same head in the corresponding period of previous year.

Similarly, administrative expenses dropped 15% from Rs1.7 billion during July-September last year to Rs1.5 billion in July-September 2021.



The company registered a 15% increase in other income as it amounted to Rs2.2 billion during the three months under review against Rs1.9 billion in the corresponding quarter of previous year. Other operating expenses soared 931% to Rs2.4 billion in the July-September 2021 quarter. The company had spent Rs232.2 million under the same head in the same period of previous year.

Finance cost rose from Rs2.7 billion during July-September 2020 to Rs3.6 billion in July-September 2021, a jump of 34%. "On the fertiliser business front, Engro Fertilisers' profit came in at Rs4.4 billion, down by 37% year-on-year, during 3QCY21 given the fall in urea and DAP offtake by 9% and 46% respectively," stated a report of Arif Habib Limited. ■



Waqar Siddiqui to lead Shell business in Pakistan

Waqar Siddiqui has been appointed as the Chief Executive & Managing Director of Shell Pakistan Limited (SPL). Waqar joined SPL in 2001 and has since held several roles locally and internationally at senior leadership positions. In his 24 years of oil downstream experience, he has successfully guided Shell companies through organizational change, strategy development, mergers/acquisitions and achieving consistent performance delivery. His last role before returning to Pakistan was Managing Director of Shell Downstream Retail in PT Shell Indonesia. Waqar has been a Director on the Board of SPL since 2019. Waqar holds a BS degree in Chemical Engineering and MBA in Marketing. In addition, he holds academic and professional accreditations from Harvard Business School and University of British Columbia. ■

Shell Pakistan & PAPCO to develop advanced multi-grade gasoline pipeline

Shell Pakistan Limited (SPL) has entered into a 10-year agreement with Pak-Arab Pipeline Company Limited (PAPCO) to upgrade transportation of fuel through a multi-grade pipeline. Currently, the pipeline system only transports diesel from Karachi to upcountry locations. The enhancement of the system will enable pipeline movement of motor gasoline, which is currently moved through trucks, across major routes in the country.

This collaboration aims to transport fuel efficiently and safely. It will result in lower fuel transportation cost passing on as relief to the consumer; significantly reduced number of trucks carrying fuel on roads, lower road safety risks and a decrease in carbon emissions for the country.

The CEO and Managing Director of Shell Pakistan, Haroon Rashid, said: "It is a proud moment for Shell Pakistan, as we collaborate with PAPCO, to achieve a milestone in the evolution of Pakistan's energy infrastructure. Over the decade, Shell Pakistan along with other Oil Marketing Companies, has invested in the construction of the 817km long pipeline. We are thankful to the Government of Pakistan for taking significant progressive measures, such as implementation of Euro-V specifications for diesel and motor gasoline imported into the country.



These global standards will optimize our country's energy landscape and ensure environmental sustainability for a healthy future."

With a legacy of 120 years in the region developing and distributing energy by land, air and sea, Shell has endeavored to support the country's developmental priorities.

PAPCO operates a state-of-the-art pipeline system to efficiently transport fuels from the seaports in Karachi to the major oil refineries and cities throughout Pakistan.

Transforming energy future

Reon unveils Reflex Energy Storage



Reon Energy in transition to a decarbonized, decentralized, and digitized power system has unveiled Reflex Energy Storage at a launching ceremony that included notable industry leaders. The event not only re-emphasized the brand's leadership in the renewable energy industry but also marked the company's entry into the energy storage market. The Reflex Energy Storage will pave the way for a renewable power future for the region and enable energy decentralization and decarbonization in its truest form.

The event was attended by various dignitaries including Shahid Hamid Pracha, Chairperson Reon Energy, Inam ur Rahman, CEO Dh Co, Rizwan Diwan, Director Novatex and Engro Corp, Taufiq Bilwani, Director Gatron Industries, Hassan Reza ur Rahim, Chairperson Cyan, Kamran Kamal, CEO Hubco, and Kashif Habib, CEO Power Cement.

While renewable energy resources such as wind and solar play a key role owing to their availability, scalability, and affordability, they can contribute to a mere 6-8% in the industry's energy mix because of their variable nature. The Reflex Energy Storage not only allows

renewable energy maximization in the energy mix but also offers gas capacity substitution, peak shaving, and generation contingency management leading to a resilient power network.

Reflex is powered by SPARK, a digital intelligence application, that enables optimization of storage and multiple other power sources including grid, genset, and renewable energy to improve the Levelized Cost of Energy (LCOE).

The launching event also witnessed the signing of 2.86 MWh Reflex for Gatron Industries at its Hub facility. The storage application will help the company shed critical load, prevent blackouts, and optimize their spinning reserve, further improving their cost of energy. The company had previously installed a roughly 1 MW solar power plant at the Hub factory.

Reon in less than a decade has proven to be a collective force behind the country's clean energy transformation and has recently become the first local energy company to venture into the region. Reon is committed to a sustainable energy future to enable economic growth and greater wellbeing. ■

JS Bank and SkyElectric to finance affordable solar financing

— EU Report —

JS Bank and SkyElectric have expanded on their existing partnership to provide state-of-the-art sustainable energy solutions which support residential and commercial clients in reducing their dependence on the national energy grid and save on their electricity bills.

Through this partnership, customers can avail financing for complete solar solutions with advanced lithium-ion batteries, adopt renewable energy and save big. The agreement was signed by Atif Salim Malik, Chief Product & Marketing Officer - JS Bank, and Muneer Farooqui, Chief Customer Officer - SkyElectric. Also present on location were Sohail Zafar, GM Central 1 - JS Bank and SkyElectric's Musa Khan Durrani - Head Strategic Alliances, Sohaib Sipra - Regional Director Sales and Musa Saeed - FCU Lead (Central Region). Commenting on the occasion, Atif Salim Malik said, "This partnership with SkyElectric will serve as an end-to-end solution to customers seeking state-of-the-art solar solutions with convenient financing options. This agreement reflects our increased focus on financing alternate and renewable energy sources which will also have a trickledown effect on the environment and improve the sustainability of country's energy source mix." Muneer Farooqui said, "JS Bank has been leading the market in solar financing, and SkyElectric is Pakistan's largest and fastest growing solar rooftop company. We are certain that this partnership, between two market leaders, will help customers get World-class Smart Solar Solutions financed swiftly and efficiently". ■

Solar power project launched at Civil Hospital

Sindh Energy Minister Imtiaz Ahmed Shaikh has inaugurated a solar power project at the Dr Ruth KM Pfau Civil Hospital Karachi.

Speaking on the occasion, he said the provincial government fully adhered to the global conventions signed to reduce environmental pollution. Shaikh said the provincial government had been expeditiously working to build energy projects capable of generating renewable electricity through environment-friendly sources. He said the Sindh Solar Energy Project had been introduced to install solar power systems at 37 public health facilities of the province including seven hospitals in the city.

The provincial energy minister said that the same project had also been initiated to use solar power to energise the far-flung rural areas of the province where electricity supply through regular means was not possible. He added that the project would benefit a large number of residents of the underprivileged areas that were off-grid.

Shaikh lauded the efforts of the World Bank officials and the



Sindh Energy Department for installing the solar power system at the Civil Hospital Karachi. He said the project would fulfill up to one-third of the energy needs of the health facility and also prevent the production of 1,851 tonnes of carbon dioxide per annum. ■



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K-Electric issues 1st quarter report, earns huge profits

— EU Report —

Continuing the momentum of FY21, K-Electric has demonstrated sustained improvement in key operational indicators in the first quarter of FY22 ended September 30, 2021, resulting in a net profit of Rs2.9 billion. These interim financial results were approved by KE's Board of Directors on Thursday. These results have been achieved on the back of PKR 10.6 billion investments across the power value chain coupled with reduction of 3.1% points in Transmission and Distribution Losses.

The power utility has been making concerted efforts to support the development of its geographies through targeted interventions to curb transmission and distribution losses. As of Q1 FY22, over 11,500 Pole Mounted Transformers (PMTs) have been converted to Aerial Bundled Cables (ABC). Within this quarter, the company has also issued around 38,000 Low Cost New Connections as part of its commitment to transition consumers from illegal means of acquiring electricity to regularized connections ensuring consistent, reliable, and safe power supply. These investments are improving the company's decision-making ability through increased visibility on the patterns of electricity consumption across its diverse consumer base.

Furthermore, multiple facilitation schemes have been introduced for customers to nurture a culture of timely bill payments including tailor-made Area Specific Rebate Schemes for locations in Karachi faced with chronic law and order problems. At the same time, KE is also digitizing

its bill payment platforms through strategic partnerships with financial institutions to support the same through debit and credit cards.

KE is also investing today to secure Karachi's energy future. Construction work on the 900 MW RLNG-fired project (BQPS-III) is progressing swiftly despite the prevailing pandemic situation. Testing and commissioning works on the associated grids planned with the power plant are also in progress. In August, KE signed an RLNG Supply Agreement (GSA) with Pakistan LNG Limited (PLL) securing the supply of 150 mmcf of gas for the complex. Regular maintenance and optimization activities are also carried out across KE's entire generation fleet to maintain the efficiency of generation for Karachi's growing demand. Further, KE has enhanced its net transmission capacity by 110 MVAs for a total of 6646 MVA. These additions are complementing the construction of a 220 kV interconnection at Dhabeji and the planned construction of a 500 KV KKI Grid, which will enable KE to draw additional power from the National Grid up to 2050 MW in future.

The power utility is also driving the agenda on the United Nations Sustainable Development Goals. The first phase of KE's Roshni Baji Neighborhood Women Ambassador Programme ended in July 2021, which inducted 40 women from across Karachi to conduct doorstep visits educating households on safe practices for electricity usage. Since their induction in February, these women have reached around 108,000 homes and undergone approximately 8000 man-hours of training to graduate as the first cohort of trained and certified female electricians capable of completing the internal wiring of a premises on a single-phase supply. ■

OGDC profit soars to Rs33 billion

— EU Report —

Oil and Gas Development Company re-reported a 44% increase in profit to Rs33.6 billion for the quarter ended September 30, 2021 due to a jump in its sales and other income.

According to a notice sent to the Pakistan Stock Exchange on Friday, the oil exploration firm had reported a profit of Rs23.3 billion in the same period of last year. Earnings per share of the firm jumped from Rs5.43 in July-September 2020 to Rs7.82 in July-September 2021.

Alongside the result, the company announced an interim cash dividend of Rs1.75 per share. During the quarter, net sales of the company rose 27% as they increased from Rs56.3 billion in July-September 2020 to Rs71.5 billion in the quarter under review.

"Topline increased on the back of a massive 70% year-on-year jump in oil prices and 4% growth in oil production," said Arif Habib Limited analyst Muhammad Iqbal Jawaid. "On the other hand, gas production plummeted by 10% year-on-year during the quarter."

Operating expenses of the company inched down 1.86% to Rs16.6 billion in the July-September 2021 quarter compared to spending of Rs16.9 billion under the same head in the corresponding three months of previous year.

Transportation charges soared from Rs229 million in July-September 2020 to Rs404.2 million in July-September 2021, a jump of 76.5%. Finance and other income rose to Rs10.9 billion in the quarter under review against Rs6 billion in the same quarter of previous year.

"Other income rose significantly by 83% amid exchange gains on foreign currency tagged with higher incomes from cash and cash balances," the analyst said.

Exploration and prospecting expenditure contracted 22% as it fell from Rs3 billion in the July-September quarter of 2020 to Rs2.3 billion in the quarter under review. The exploration cost declined as one dry well (Bago Phulphoto) was reported during the quarter compared to three dry wells (Jun-01, Umair North West and Jatoi-01) in the same period of last year. During the quarter, finance cost fell slightly by 0.22% to Rs563.1 million. The company had paid Rs564.3 million under the same head in the corresponding three months of previous year.

"The company booked effective taxation at 36% in IQFY22 vis-à-vis 31% in IQFY21," the analyst said. ■



A Delegation of 25 senior industrialists and members of Karachi Industrial forum visiting K-Electric's Bin Qasim Power Station 3 (BQPS-III). They were being apprised of the progress on the 650mn mega project which will add 900MW of electricity to Karachi's power supply and spur industrial prosperity as well as drive economic growth

Pepco revival: more to be done

—♦— Syed Akhtar Ali —♦—

There is a mixed reaction to Pakistan Electric Power Company's revival under a legal arrangement of being a "managing agent". The role of Pepco, briefly speaking, is to monitor and coordinate operations of distribution companies (Discos).

Pepco had been formed in the wake of Wapda's unbundling as part of the electricity reform process leading to commercialization and competition. This also led to the formation of several organizations such as Discos, generation companies (Gencos), and eventually private sector Independent Power Producers though Wapda continues to operate as an independent entity dealing with hydropower and water.

Pepco was, however, almost dissolved except in legal terms, mainly due to power politics between Disco management and Pepco, as the new idea of Discos autonomy under an independent board of directors (BoD) emerged. By now, the honeymoon period of BoDs has also ended. These boards could not attract professionals in a significant number to be effective. Having limited statutory role of oversight, the boards did not enjoy much power and control remained with the Ministry of Water and Power and now the power division.

But the power division remained unable to organize itself just as the petroleum division did by having separate directorates general for oil, gas, policy, concessions etc. Consequently, the rationale for Pepco's revival emerged and the ministry apparently backed it. Though a lot of power will still remain with the ministry, its involvement in operational matters is expected to go to Pepco.

Pepco should not be considered an unnecessary burden when even private groups have head office teams monitoring and coordinating with the constituent companies despite individual companies' boards of directors. There is a need for knowledge

and experience sharing; pooling of resources and what is called critical mass. In this journey towards commercialisation and the heavy involvement of international financial institutions (IFIs), what has suffered most is technological development and indigenization in the name of international competition. Even under CPEC, local companies and technology development has suffered as China seems to have changed from the times when it built HMC, Railway Carriage Factory and other enterprises. Part of the fault lies with our institutional decay.

As in developing countries, companies are too small to cater to the requirements of the national technological base, institutions or institutionalised companies ought to be there to achieve this. Even NASA had to be made and supported by the US to be able to compete in the domain of space, spacecraft and communications. But all local contracts here are going to foreign firms resulting in a drain of foreign exchange and loss of opportunities for development of local expertise. Over 10,000MW of generation capacity projects have been added without involvement of local companies except for petty contracting. The Heavy Electrical Complex (HEC) is bankrupt without orders. Pakistan has stagnated technically and technologically. This cannot continue without causing permanent damage to our sustainability and economic survival.

In this broader context, and less broad sectoral perspective, Pepco should do more by promoting and accumulating technology and indigenization in its specialized area. The Pepco leadership and the power division should study India's CEA (Central Electric Authority) model and strengthen its technical sections. One may also consider placing Gencos under Pepco's control. Similarly, induction of meritorious people to assist in developmental and operational aspects may result in savings. Let us be positive this time Pepco will be able to deliver much more than what has been charted for it by the mandarins.

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

In a first, NLC trucks carrying commercial cargo from Karachi reach Istanbul

Trial run revives ITI corridor, opens new avenues of trade

Covering a distance of 5,300 kilometres and crossing two borders in nine days, the first two National Logistics Company (NLC) trucks carrying goods from Karachi reached Istanbul on October 7.

This milestone in regional connectivity was celebrated at Istanbul's Murat Bey Customs Post where a dignified ceremony was organized to mark the arrival of the freight at Turkey from Pakistan via Iran under the Transports Internationaux Routiers (TIR) convention.

Senior officials of the Turkish Ministry of Transport and Infrastructure, Ministry of Trade, Chamber of Commerce and Commodity Exchanges of Turkey (TOBB), International Road Transport Union (IRU), ECO Secretariat, Transport Ministry of the Islamic Republic of Iran, NLC, members and representatives of the Turkish private sector related to transport and Pakistan ambassador to Turkey accompanied by Pakistan embassy representatives and consulate general participated in the ceremony. Secretary General of Geneva-based



IRU Mr. Umberto de Pretto also graced the occasion with his presence.

All participants hailed the development as a vital step in promoting connectivity and enhancing trade between Pakistan and Turkey.

Ambassador Muhammad Syrys Qazi in his remarks highlighted the Government of Pakistan's focus on geo-economics and how regional connectivity was crucial in this regard. He hailed the trial run of NLC trucks as a historic step that would strengthen road connectivity between the two countries and

would also help in promotion of bilateral trade.

The ambassador noted that operationalization of this road link will help reduce the cost and time for transportation.

Reviving the Islamabad-Tehran-Istanbul (ITI) road transport corridor will generate revenue, boost trade and increase economic cooperation among the ECO member states.

After this initial successful run, the NLC intends to increase and regularise transport of goods between Pakistan and Turkey, helping to bring the two countries further closer. ■

Chinese firm awaits official nod to complete Quaid-e-Azam Solar Park project

A Chinese state-run company has expressed concern over inordinate delay in the launch and completion of the remaining 600-megawatt portion of the 900MW solar power project under the China-Pakistan Economic Corridor (CPEC) due to issues allegedly on part of the National Electric Power Regulatory Authority (Nepra) and the National Transmission and Despatch Company (NTDC).

The firm, in its various communications to the CPEC Authority, Punjab government, power division and other authorities concerned, has sought immediate resolution of all issues enabling it to launch and complete the remaining part of the Quaid-e-Azam Solar Park in Bahawalpur. "For the last couple of years, the Chinese company, which completed and commissioned 300MW of the 900MW project

in 2016-17, has not worked further due to various official bottlenecks. The company has been running after government departments for this clean power generation project for the last couple of years, but to no avail," explains an official source. He claimed the remaining 600MW had not yet reached fruition because issues related to tariff and interconnection study reports were yet to be resolved by Nepra and NTDC. "Moreover, our re-affirmation of Grid Interconnection Study (GIS) and extension of IEE/NOC approvals and generation licences applications are pending with the NTDC (power planning wing), Nepra and Punjab Environment Protection Department," the official added citing contents of a recent letter the company wrote to the quarters concerned.

In the wake of a series of official meetings with the departments concerned, the



company hired consultants and initiated fresh feasibility studies that they submitted to the Punjab Power Development Board for approval, the official said. It also requested the NTDC for re-affirmation of the GIS report approvals that were approved and later withdrawn, submitted generation licence applications to Nepra and agreed to file cost-plus tariff applications afresh to the authority, but to no avail. He said the competitive bidding mechanism introduced under the Alternative and Renewable Energy Policy 2019 did not apply to the company's advanced stage project under the CPEC's priority schemes list. ■

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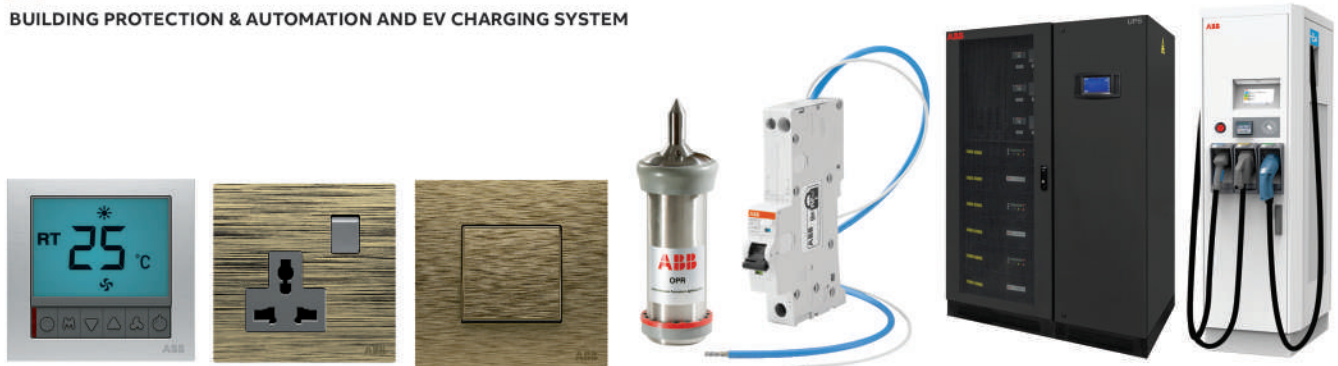
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