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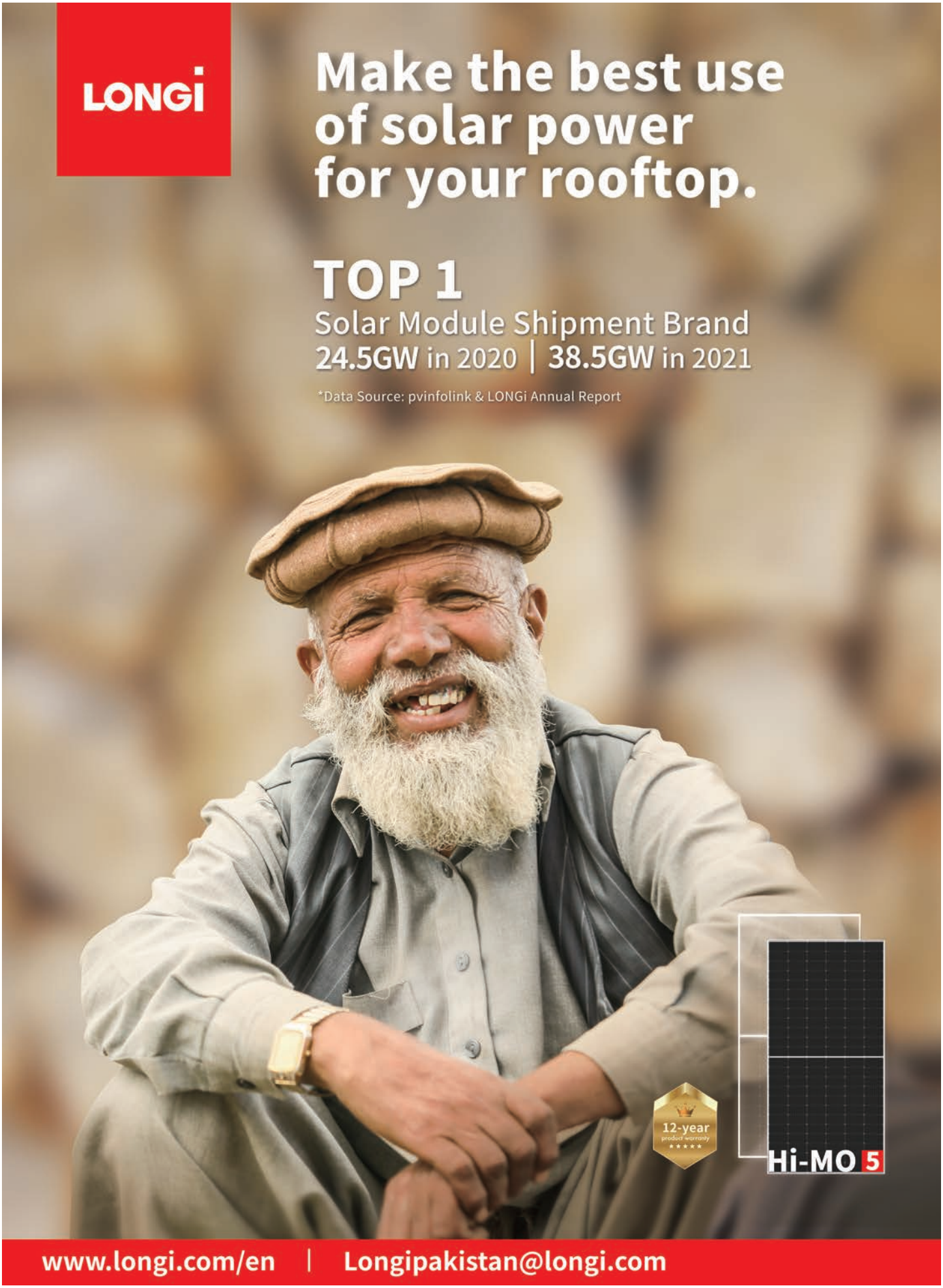
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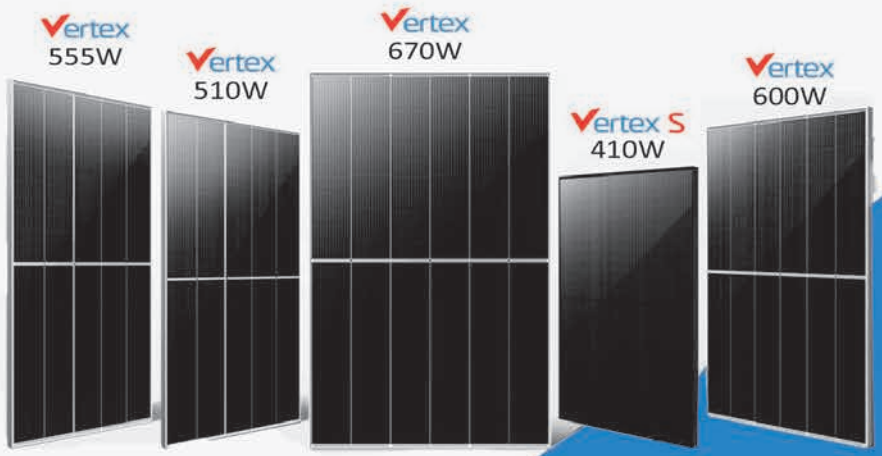

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SCAN ME

FROM THE EDITOR'S DESK...

Economic growth on public cost

The federal government has been improving the country's economy on the cost of people by collecting extra money through skyrocketing taxes and oil prices, which is injustice and human rights violation. It has now become clear that the present coalition government is doing all this to please the IMF to get its loans. Previously, the PTI government, led by Imran Khan, did the same with masses to get international donar's loans.

All segments of the society, including the business community, have lashed out at the incumbent federal government for collecting money from people through hefty taxes and skyrocketing oil prices that have caused an alarming hike in the prices of all commodities, making the life of people miserable. Fact is that it is not the way to improve the economy as such forced actions are tantamount to plundering people with both hands.

Recently, former President Asif Ali Zardari and PML-N Vice President Maryam Nawaz also opposed recent oil price hike announcement of Federal Minister Miftah Ismail and termed it unjustified, while PTI leader Sheikh Rashid has also flayed Mr Miftah and labeled him as a 'spokesperson of IMF'. These reactions show that there is something wrong in jacking oil prices.

There are several factors that can spur the perfect amount of economic growth needed for the country. For example, economic growth is achieved by raising exports, reducing imports, cutting government expenses significantly, providing a lucrative investment atmosphere with facilities and security to foreign companies, reducing cost of doing business with lower ratio of taxes amid stable oil prices.

But unfortunately, in our country, such things are contradictory to those factors which are favourable for economic growth. Last week's report by the State Bank of Pakistan said that Pakistan's imports witnessed a sharp 67 percent increase on a year on year basis, reaching US$40.8 billion in HI-FY22. This factor is not helpful for economic growth of the country in present circumstances.

Similarly, energy imports rose to US$10.2 billion in the same period, reaching 114 percent higher from US$4.8 billion in the same period of the last year. Furthermore, inflammatory pressures continued to hit the country the whole year with no reduction in the sight. Economists have widely debated on how to achieve real economic growth and have also provided guidelines to Pakistani politicians to boost the economy in a real way acceptable to all. But our rulers are bent upon deviating from those guidelines.

The government claims rising trend in economic growth in view of its 'so-called' efforts, but fact is that this growth is on the cost of people's money taken through hefty taxes and skyrocketing oil price hike, as recent Sensitive Price Indicator's year on year trend pertaining to inflation has showed an increase in diesel price by 42.31%, petrol (94.53%), cooking oil 5 litres (72.96%), vegetable ghee 1kg (68.56%), and electricity for Q1 (63.03%).

Such price hikes have broken the backbone of Pakistani people who are now struggling for their survival as poor people are hardly managing two times' meal. Hence, the government needs to come forward with concrete measures to boost the economy in the real way of economic rules instead of affecting the public economy.

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Local but complicated

Imported coal increases three times

Billions of dollars can be saved by using Thar coal

Syed Akhtar Ali

International fuel prices have been increasing consistently for the last few months. The prices of imp Pakistan has three coal-based power plants which run on imported coal – the Sahiwal, Hubco and Port Qasim plants, each having the capacity to produce 1320MW. The combined coal import bill at present is more than $3 billion. If we convert these plants to Thar coal, we can save billions of dollars that are otherwise being spent to cover cost and foreign exchange expenses.

If coal prices in the international market remain high, it will not be possible to run the existing power plants for long. It is quite strange how these plants are currently managing their operations amid price hikes; their production, however, is going down. Thar coal's variable/fuel cost is only Rs3.9/kWh while the cost of imported coal-based power plants, Sahiwal and China Power Hub, is around Rs30/kWh; the additional cost of Rs10 per kWh is added to this under the fixed cost head, leading the total to Rs40/kWh.

Although in Pakistan the price of Thar coal is around $50-60 per ton which is twice the typical per-ton price of $25-30 partly due to low utilization, we will not touch this controversy at this time. Despite all the pricing and costing issues, imported fuel cost is seven times higher than that of Thar coal. In normal circumstances, Thar coal-based electricity and imported coal-based electricity might have cost the same. This is probably why our decision-makers initially decided to go for three imported coal-based power plants.

Despite these facts, lignite was once used in Europe for almost half a century; it has also been used in India as well. It is a separate matter that the world is now moving away from all kinds of coal for power generation.

There are a number of proposals to deal with the issue. Initially, we can start with a 10-20 per cent mix of Thar coal and imported coal. This may be done in six months although there will be some logistics issues. The other proposal is the almost-total conversion to Thar coal, which may require significant technical changes, costing time and money.

There have been some technological developments which have let the lignite coal pulverized and dried in one package. If sub-bituminous coal is to be substituted by Thar coal, processes involving coal handling, storage and pulverization will require adjustments. The coal's pre-drying process can be done through solar energy as Thar is full of sunshine. It can be dried at both mines and power plants. Exhaust steam is generally used in a reverse cycle for extra drying. This has already been done in Germany. Lucky Power reportedly uses almost the same approach in burning imported lignite and plans to use the local lignite eventually.

There are several logistics issues. Coal is transported through rails, but unfortunately there is no rail link connecting the Thar coal site to the Pakistan Railways network.

The technical changes of the existing power plants have many risks; there may be loss in efficiency and increase in costs – both variable and capex; there may be mistakes and accidents – Thar coal is prone to spontaneous combustion; the shutdown of power plants will be required, which may result in a loss of revenue for the operator and owner companies; all of these costs are not provided in the agreement and have to be absorbed by the government.

These plants consume five million tons of coal each per year. If Thar coal substitution saves $175 per ton, $875 million per plant will be saved annually. If one assumes the project additional capex for the conversion to the tune of $250 million, the payback period would be around 3.42 months. And the total savings for the three imported coal-based power plants would be $2,625 million per year. This saving can also absorb the funding requirements of the rail tracks of a capex of $200 million. There is unutilized mine capacity for which capacity cost is being paid that would be extra saving.

The issues are more financial than technical. Our Chinese partners have great technical prowess in the field of coal-based power plants. Rising coal prices in the international market and foreign exchange issues are great motivators for Pakistan to go with this shift. Assistance from China's government under CPEC may be helpful in this regard. We should be more proactive and flexible in developing a financial solution. ■

The writer is a former member of the Energy Planning Commission.

Pakistan should go for bigger wind energy projects: Lis Rosenholm

Denmark Ambassador says Danish companies willing to install wind power projects in the country

M. Naeem Qureshi &
Engr. Nadeem Ashraf

Pakistan should go for bigger wind energy projects of 250 MW to 500 MW generation capacity instead of installing 50 MW projects to follow the good international practices in the clean energy sector.

This was stated by Ambassador of Denmark to Pakistan, Lis Rosenholm, in an exclusive interview with the Energy Update, in which she talked mainly about Danish assistance for the green energy transition in our country. Following are the important excerpts from her interview for our readers:

Energy Update: Tell us about the sustainability platform you have recently launched in Pakistan.
Lis Rosenholm: We have built here a sustainability platform. It has been launched keeping in mind the global climate crisis. We are far behind in achieving the sustainable development goals (SDGs). It is very much important to bring on board the private sector to achieve this cause. The platform has three main objectives: how to reduce the negative impact on the environment, how to reduce the carbon footprint, and how to ensure that sustainability is the guiding principle for whatever you do in your life.

The platform has also been established to create an inclusive working environment. In Pakistan, gender equality is a huge challenge from a sustainability perspective. Less than 20 per cent or around 20 per cent of Pakistani women participate in the workforce. The private sector companies have a very vital role to play in this regard as change agents. It is not an exclusive platform, but it is meant to be an open and inclusive platform for having meaningful conversations about such challenges. The SDGs couldn't be achieved without addressing the issue of climate change. The problem is not the lack of money at the global level but the issue is how and who spends this capital, making sure that it is spent for the greater good of society and not for a few individuals.

EU: What were the circumstances, which compelled Denmark to quickly adopt a green transition in the energy sector?
Ms Rosenholm: Denmark is a very small country with 5.8 million population. Back in the 1970s, it was highly dependent upon imported fossil fuels. We had to face difficulties in maintaining our balance of payments. The government was left with no option except to place restrictions on the fuel-consuming activities in the country. That created a huge push towards the green transition. Denmark today is a global leader. Our exports are mainly driven by green solutions.

Denmark is an open economy. We thrive on the basis of our exports. We are a high-tech society. Up to 30 per cent of Denmark's electricity comes from renewable sources. On

windy days, as we have many windy days in Denmark, more than 100 per cent of electricity in Denmark comes from renewable sources as the surplus electricity is exported to the neighbouring countries. We as a society have started becoming richer and richer day by day. We have gained a lot of experience in how to grow with a reduced carbon footprint.

EU: Has Denmark started providing assistance to Pakistan for achieving the same green transition?
Ms Rosenholm: The Danish Energy Agency is the leading agency in the process of Danish green transition. They have come to Pakistan a few times last year. The Danish and Pakistani governments have the intention and agreement to work very closely to achieve the goal of the green transition. Under this collaboration, the Pakistani officials will go to Denmark to learn about this process. We want that every Pakistani should get access to energy and we have an interest rather than self-interest that this energy should become green as otherwise, the issue of global warming would become more adverse.

EU: What lesson Pakistan could learn from the example of the Danish green transition?
Ms Rosenholm: Pakistan could learn from the Danish example that you can also grow in a green way as growing green creates jobs. It creates an industry on the supply side. Going green is also generally good for the people.

EU: What is your advice for the Pakistani energy sector?
Ms Rosenholm: The first feasibility study for exploiting the Jhimpir wind corridor in Sindh was carried out by a Danish technological university. The feasibility study highlighted that there is a vast potential for clean energy generation available in the corridor. For achieving the cause of green transition in Pakistan, our advice to the Pakistani government is that the share of renewable sources in the national energy mix should be increased as fast as possible while the cost of fossil fuels should be increased.

Pakistan has the tendency of installing wind energy projects, generally each of 50 MW capacity. The country needs to build wind power projects of a much bigger capacity of 250 MW to 500 MW as per the good international practices in the field of renewable energy also followed by the global companies. Danish renewable energy companies are willing to install wind power projects if the Pakistani government decides to conduct auctions for the same.

We need a timeline as to how much time is required for building new renewable energy projects as once this timeline is announced, the government should stick to it. We need some sort of commitment from the Pakistani government that the regime, rules, regulations, and policies adopted to promote renewable electricity should remain unchanged. The prospective companies want predictability and adherence to the timelines, on the part of the government, for the expansion of the renewable sector.

EU: What is the nature of Danish-Pakistan collaboration in the energy sector?
Ms Rosenholm: This is not traditional development assistance. It is a government-to-government collaboration. We don't collaborate with every government, we don't share our experience with every country. We do provide such assistance in the cases where we see high ambitions and there is a willingness on the part of the important stakeholders and where we believe we can make a difference.

We believe we can make a meaningful difference in the case of Pakistan. The challenges Pakistan has been facing in the energy sector are how to get a balanced energy mix to the national grid; how to shift from one source of energy to another, energy planning, policymaking, and development of infrastructure; how to make your market work for the energy targets; how to do auctions; how to do procurement; and how to achieve efficiency and transparency in the energy systems.

Then there is also the issue of energy efficiency in the industry. This is an important component as we should keep in mind that many people in Pakistan don't have access to energy. Globally, the industries, especially the cement industry, have started using the option of waste-to-energy. ■

Why don't solar panels work in heatwaves?

Victoria Masterson

Heatwaves have seen countries, including Germany, generating record amounts of solar energy. But too much heat can be bad for solar panels as it reduces their efficiency by 10%-25%, says a US solar supplier.

Renewable energy could supply four-fifths of the world's electricity by 2050, according to the International Renewable Energy Agency. Solar energy companies are already developing technologies to make solar panels more resilient in extreme weather conditions.

Heatwaves are also good for generating solar energy. Recent hot weather has generated record amounts of solar power. Germany broke a new record for solar power generation and, in the United Kingdom, solar power met up to a quarter of the nation's power needs, according to news site Energy Live News.

But too much heat can actually be bad for solar panels. Heat can "severely reduce" the ability of solar panels to produce power, according to CED Greentech, a solar equipment supplier in the United States. Depending on where they're installed, hot temperatures can reduce the output efficiency of solar panels by 10%-25%, the company says.

According to the American renewable energy website EnergySage, solar panels are tested at 25°C (77°F) and generally have a temperature range of between 15°C and 35°C. Solar cells, the electronic devices that convert sunlight into electricity, are connected together to build solar panels to produce solar power most efficiently within this range.

But solar panels can get as hot as 65°C (149°F), EnergySage says. This can affect the efficiency of solar cells. The electricity generated by solar panels comes from a flow of particles called electrons inside the electrical circuit, explains news site Euronews. When temperatures soar, these electrons can bounce around too much – and this reduces voltage, or the amount of electricity generated. Too much heat also reduces the efficiency of the solar panel by 0.5 percentage points for every degree Celsius rise in temperature.

Ways to reduce the impact of hot weather include mounting solar panels a few inches above the roof, explains CED Greentech. This allows airflow to cool the panels. Using solar panels that are built with light-coloured, reflective material can also reduce the amount of heat they absorb. ■

PPDB to develop 66 sites to set up hydropower plants: Saniya

Says Process has been started to shift from conventional electricity to solar energy

Halima Khan

The Punjab Power Development Board (PPDB) aims to develop 66 potential sites along 26,000 kilometrer-long irrigation canal network of the province in collaboration with the private sector for setting up mini and micro hydropower stations for generating clean electricity for small-scale industries to be established in rural Punjab.

This was disclosed by Saniya Awais, PPDB Managing Director, in an exclusive interview with the Energy Update in which she informed in detail about the achievements received so far and future planning of her organisation to develop Punjab's energy sector in the best interest of the power consumers. Following are the important excerpts from her interview to let our readers know the activities of this important arm of the Punjab government in the energy sector:

Energy Update: What activities are carried out by PPDB?
Saniya Awais: We do three kinds of activities in the power sector of Punjab. The first is the facilitation of private investment, which is done through us. So in this case, we are the counterparts of the AEDB and PPIB in Punjab. Then secondly, we are investors ourselves as unlike any other province we also set up energy projects with public equity. Examples of this activity are the first grid-connected solar power project in the country i.e. Quaid-e-Azam Solar Park, two RLNG-based power plants,

and four small hydropower projects in Punjab. So in all these cases, we ourselves became the investor with Punjab government's equity and financing raised through the financial institutions. And thirdly, we carry out developmental activities in the power sector of Punjab.

EU: As we say, RE is the future, what according to PPDB is the status of development of RE projects and are they sufficient to fulfil energy generation demand?

Ms Awais: The work so far done by the Punjab in this regard has been huge as compared to that of the other provinces. The process has been started to shift from conventional electricity to solar energy to energize public sector power connections in Punjab. There are a total of 98,000 power connections in Punjab's public sector as out of them 15,000 connections have already been shifted to solar power. Through this intervention, we make sure maximum consumption of cheaper clean electricity in the public sector of the province. Around 12,000 government-run primary and middle schools in Punjab have been converted to solar power. The process will also soon complete to solarize all the basic health units in Punjab. The solar power will also be used for energizing around 70 public sector universities in the province. Then, the process is also on for installing solar systems at all jails and police stations in the province. In this way, Punjab is going to become the first solar province in the country. All these activities are being carried out as part of the Punjab government's Annual Development Programme.

EU: According to the Pakistan Economic survey 2021-22, the installed electricity generation will be around 41,557 MW in 2022 but we are facing a power shortage of 7,000 MW, what is the possible solution to overcome these power crises? Tell our readers about the resource mapping work of the PPDB.

Ms Awais: We also carry out the identification of the energy resource available in the province. Resource identification is an essential component of the process of investment facilitation. Once the resource is duly identified, you are in the position to offer the power sector projects in a ready state to the private sector.

In this regard, we carried out the re-authentication of Punjab's hydropower resource in collaboration with the World Bank. We identified the potential of building 40 power projects with a total capacity of around 400 MW through hydro resource mapping. The private sector has been awarded execution of 18 of these projects. Then we also did wind resource mapping in Punjab.

A potential of 1,000 MW clean electricity to be produced through wind power has been identified in the South of Punjab. Then, we

did a mapping of the waste-to-energy resource in the province. We have received assurance of setting up of waste-to-energy plants of cumulative 150 MW generation capacity. We have already prepared the policy for utilization of the waste-to-energy resource of Punjab as the provincial cabinet would approve the policy.

Then we also joined hands with the World Bank to identify that Punjab is capable of producing 7,000 to 8,000 MW solar power. So one of our key works is to jointly work with our local and international partners for energy resource mapping and identification, and then prepare projects to utilize these resources. We got an overwhelming response from the market every time as we offer a power generation project. This shows that the investment market fully trusts the facilitation role of Punjab in the energy sector. We help out the energy projects throughout their lifecycle.

EU: After the Marala and Azad Pattan Hydropower projects, is PPDB planning to add more development of hydropower projects in its power generation capacity? Also share the PPDB's work to identify the resource of captive hydropower in Punjab.

Ms Awais: We have also developed the Punjab captive hydropower guidelines. This relates to the extensive irrigation canal network of Punjab having a total length of 26,000 kilometres. The World Bank has identified 200 sites along this canal network for establishing mini and micro hydropower projects. This is a sub-optimally utilized resource. We have introduced our own policy guidelines for utilizing 66 of such sites each for two MW hydropower generation in partnership with the private sector. Each of such sites will have a neighbouring SME for the utilization of clean hydro resources for economic activity. So the execution of this project will mean economic activity in rural Punjab with the optimal utilization of the hydroelectricity resource.

The execution of these projects would generate job opportunities for people in rural Punjab, generate revenue for the provincial revenue and energy departments, and ensure the growth of the national economy. We have received a very good response from the market after offering the first such project.

EU: What are the achievements of PPDB in the CSR aspect of Punjab's energy sector?

Ms Awais: In this regard, the Sahiwal coal power plant has become an unmatched success story for the entire country. For the first time in Pakistan, a company in the power sector has agreed to reserve two per cent of its net profits for investing in the welfare of the local population. So a trust fund was established along with the Sahiwal coal power project.

The fund was created for setting up Hepatitis clinics and conducting educational activities at the plant's site. They have established a technical training school as prospective students from the local area are given preference for enrollment. It is a state-of-the-art vocational training school. The students get the chance of having hands-on experience work in a power generation plant as after graduation, they are easily absorbed in the job market. ■

Hydrogen becoming fuel for carbon free energy

The world is moving towards installing giga projects to produce Hydrogen by water electrolysis to reach a point of zero carbon emission by burning 100% Hydrogen in Combined Cycle Power Plant to control the drastic climate change in future scenario through power generation.

Studies show that we have reached the average CO2 concentration in ambient air to a level of 420 PPM. There was a very rapid increase in CO2 concentration from a level of 280 PPM to 420 PPM within the short period of human history of industrialization period.

If the situation will go alike without any control, world can reach to a level of 450 PPM CO2 which is a tripping point where almost complete melting of glaciers may take place.

We need to control the world average temperature rise below a level of 1.5 to 2 0C up to the end of this century. There are many measures in power industry in line to upgrade or to decelerate the pollution emission to control this climatic change such as:

Burning of enriched hydrogen with natural gas in gas turbines. Siemens carried out test to burn 50 % enriched hydrogen at its Duke Lincoln Country facility of advance HL GT of 400 MW. These machines in combined cycle mode will reduce CO2 emission below 150 gram/KWh.

It is pertinent to highlight that cost of production of hydrogen through renewable energy is expected to reduce in the future due to the reduction of renewable energy cost and mass scale production of electrolyzes (economies of scale). Currently, estimated cost of production of hydrogen is relatively high in the range of 4 to 6 USD/kg.

If the cost of hydrogen reduces to USD 1 /kg, it will be able to compete with the price of imported LNG in Asian and MENA region. It looks extremely difficult to bring the LCOH (Levelized Cost Of Hydrogen) below 2 to 3 USD per KG. For refence many giga projects of green hydrogen production have following LCOH per Kg unofficially.

Electricity cost is the major cost to produce hydrogen. From following calculation, we can see that around 55 KWh electrical energy is required to produce 1 kg of hydrogen. If we use the green hydrogen and integrate it to produce power through CCGT technology, it will help to substantially decrease CO2 emissions in power generation, however, it will remain a negative energy balanced method.

If we have space and connect DC power generated by renewable PV and connect the same DC power by DC/DC convertor, then we can reduce the energy loss in converting DC power generated by renewable PV into AC through invertor and then convert into DC by full wave rectification using Rectifiers. This concept of DC/DC connector to electrolyzes will save the equipment cost in addition to the energy loss in conversion.

Electrolyser's Cost

Electrolysers yet to scale up in to giga projects. Scaling up of electrolysers will reduce the cost and associated auxiliaries. Electrolysers of 20 MW are under construction in Tyson Krupp Germany and other facilities. Current cost of electrolysers are in the range of 1600 to 2000 USD/KW.

Capacity Factory of Power generation

The Sites where good solar and wind resources are available in the world, the capacity factor of PV solar is within 20% to 30% and wind 35% to 45%. Wind and solar PV in a hybrid mode backed by battery storage can achieve availability up to 50% .

If we will be able to control above three factors and bring the hydrogen cost to a level of USD 1 /Kg then the project can compete with the international price of LNG especially in MENA and Asian region.

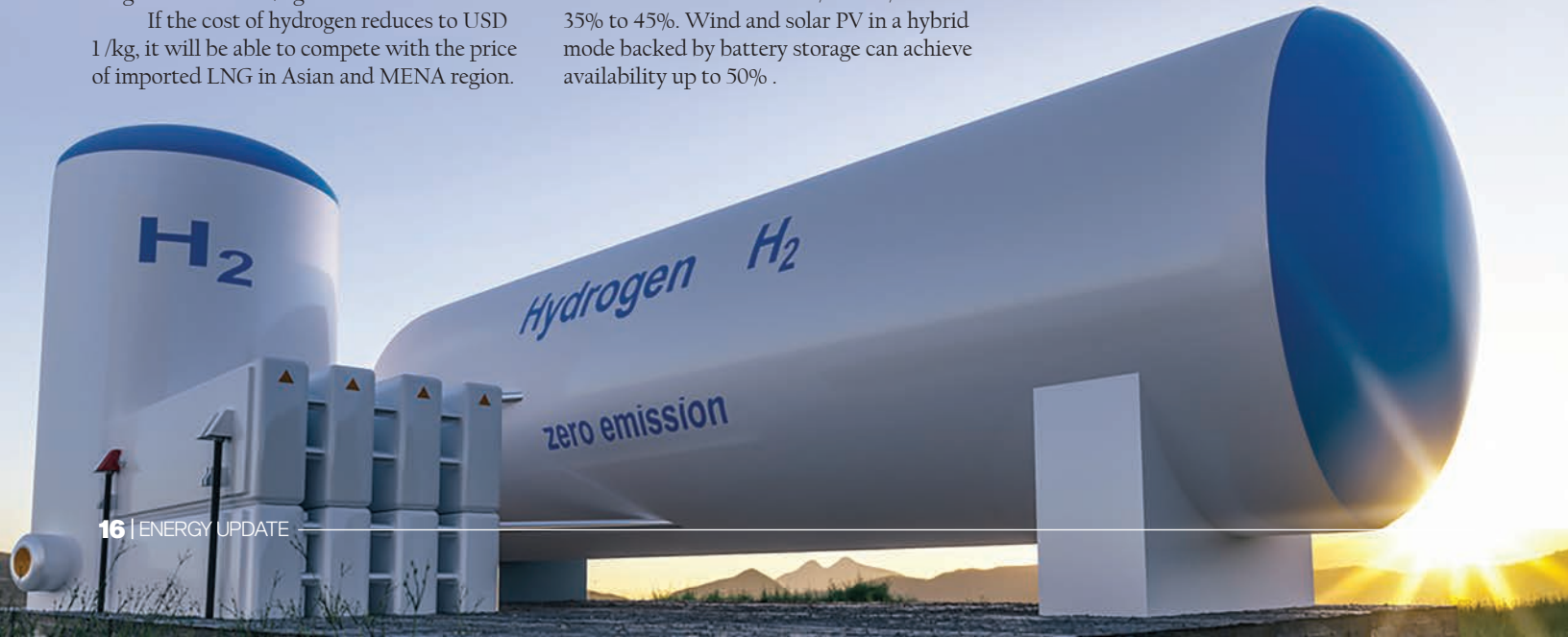
Hydrogen is becoming a fuel source for a carbon free energy through CCGT plants. Currently production of Hydrogen is at an initial stage, and we expect the cost of Hydrogen to fall within the "affordable price" range as the economies of scale kick in.

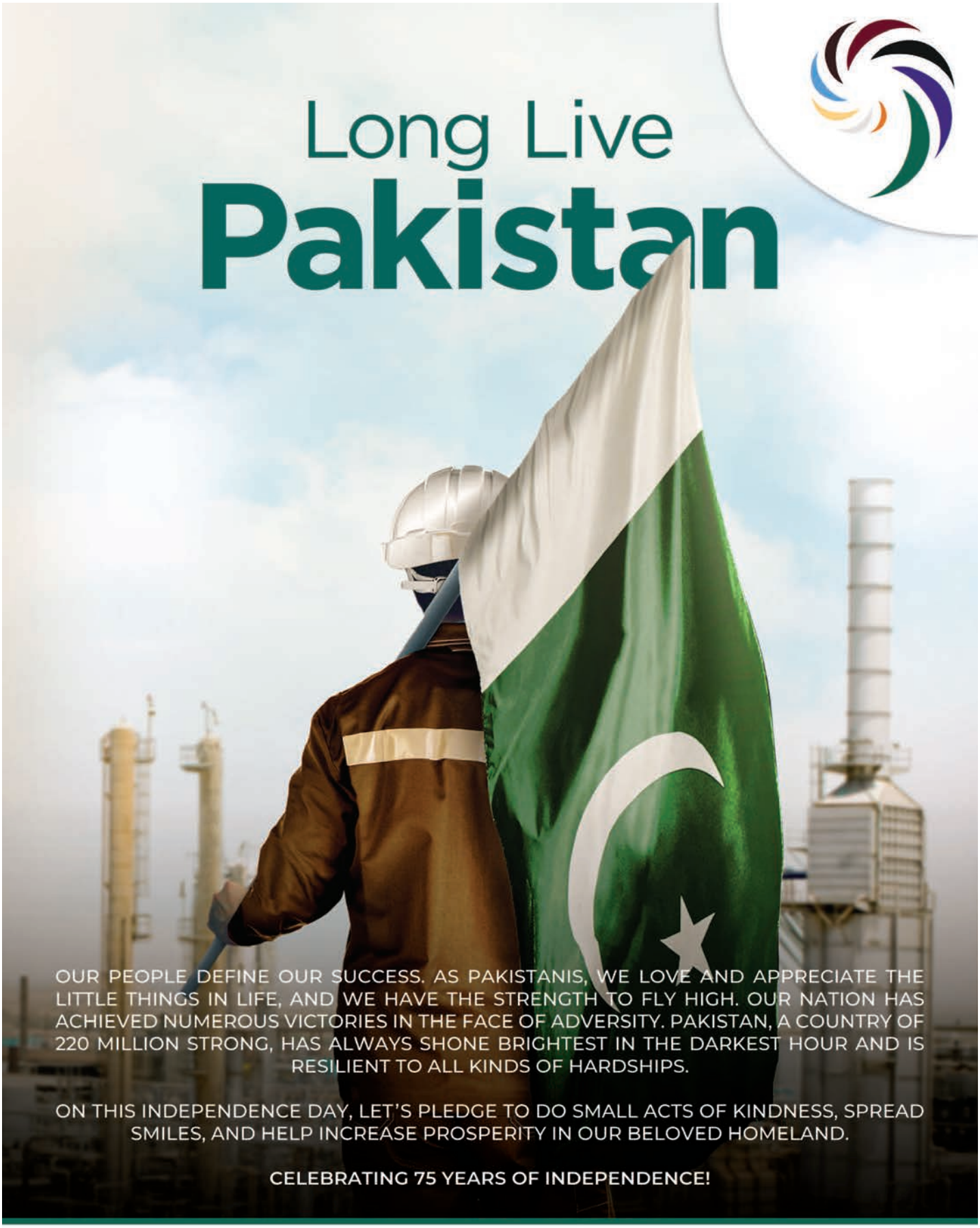
The world is working towards a target of 1-1-1 which means to deliver 1kg of Hydrogen at $1 with in 1 decade ending 2030. In anticipation of such developments, we propose to enable our project with the capability to blend up to 20% Hydrogen with Natural gas. 1 Kg of Hydrogen at $1 equals $7.4/ MMBTU in Energy terms, which justifies the introduction of Hydrogen as a potential optional fuel for our upcoming projects. The project thus delivers the lowest carbon footprint. This will result to help to achieve the world target to limit global temperature rise to 1.5 to 2 0C at the end of this century.

USA, China, and India are producing very high carbon dioxide in the environment, although Europe already burnt enough coal and now going green.

China has the target to become zero carbon dioxide emitter up to 2060. All other countries are striving hard to reduce carbon dioxide emission in the environment to slow down global warming.

Muhammad Aijaz Umer
VP, ACWA Power International
Kingdom of Saudi Arabia





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30 YEARS OF STABILITY IN SOLAR

Fronius SOLAR ENERGY successfully established in Pakistan:

Mariella Doppelbauer

Area Sales Manager Pakistan

Mustafa Tahir

Austrian solar inverter manufacturing company Fronius Solar Energy is entering its 30th year in the solar industry. On this occasion, Energy Update has interviewed Mariella Doppelbauer, Fronius Solar Energy's Area Sales Manager for Pakistan, to share her views about the company and vision on the industry.

Energy Update: What are the distinguished features of Fronius' products that give a competitive advantage over other manufacturers?

Ms Doppelbauer: This year we are celebrating our 30th anniversary at Fronius Solar Energy. This means over 30 years of experience in the industry, and many of our first products are still in operation today. In addition, our development and manufacturing is still done exclusively in Europe. Therefore, we are confident to say that we produce the most reliable inverters on the market.

When it comes to specific features, the active cooling function is certainly something that sets us apart as well in Pakistan's hot climate even more so than in Europe. A central asset is also the quick installation and easy repairability. While other brands only allow replacement of the whole device, Fronius inverters are repairable at the individual component level. This not only saves time and cost, but it's also the right thing to do for the environment.

Energy Update: How much share your company's solar products possess in the renewable energy market of Pakistan?

Ms Doppelbauer: We are an Austrian company, so naturally our first steps in solar were made in our home markets in Europe. In Pakistan, we are glad that we have been successfully established for almost 10 years now, therefore, Fronius inverters are already well known. As we have started to put more focus on the Pakistani market just recently, we still expect quite a growth.

Energy Update:What are your plans to increase your share in the clean energy market of the country?

Ms Doppelbauer: In Pakistan and elsewhere, we stand for premium quality and a premium customer experience. Trainings and education play a great role here. Just recently, we started to enlarge our team in Pakistan so we can be as close to the clients as possible and assist them in getting the best experience with their solar systems. This approach has proven well suit all over the globe, and we are sure it will strengthen our position in Pakistan as well.

Energy Update: What are your sales target for the upcoming financial year?

Ms Doppelbauer: Pakistan is one of the most promising markets in the region, therefore, we definitely have ambitious plans. This year, we already received great feedback for our commercial inverter Fronius Tauro Eco in 50kW and 100kW. Our GEN24 Plus hybrid inverter is also a great fit to the Pakistani demand, so we also want to further work on this segment. With our Fronius EV charger, we're also among the first in the e-mobility transition.

Energy Update: Which general regulatory reforms would you like to see in the energy sector to help the process of marketing solar products?

Ms Doppelbauer: I believe that globally, we need to focus on PV self-consumption. Energy should be consumed where it is produced in order to stabilize the grid in the long run and also reduce losses. European regulators have already made this shift, and we do expect Pakistani authorities to head into this direction as well. From charging cars with PV surplus energy to intelligent water heating, the options are many and we are happy that we can deliver these solutions already today. ■

Nuclear power costly than solar energy

N-power is significant source of greenhouse gas emissions

Kim Friedman

We must think holistically about what constitutes "clean energy" when we consider climate change investments and our energy future. President Biden's recent announcement of his $6 billion effort to save "distressed" nuclear (fission) power plants is misguided and short-sighted.

Although reducing carbon emissions is critical to slowing the pace of climate change, it must not be our only litmus test for moving toward a "clean" energy future, similarly to how our overall health cannot be measured solely by our blood pressure or weight.

In the case of nuclear power, we must consider its high cost compared to renewable energy sources, such as wind and solar. According to Climate Nexus, the minimum cost per megawatt hour to build a new nuclear plant is almost 3 times higher than utility-scale solar ($112 vs. $46, respectively) and almost 4 times higher than wind power ($122 vs. $30, respectively). That's like paying $70,000 for a car when you could purchase an equivalent car, in terms of its overall value, for one-third or one-quarter of the cost.

There are also numerous environmental and community-based reasons to wean ourselves off of nuclear power. Intercontinental Cry, a non-profit newsroom that produces public-interest journalism centered on Indigenous Peoples, states that 75 percent of uranium mining worldwide occurs on Indigenous land, including in the United States. Furthermore, unlike solar and wind power, uranium reserves are not a renewable resource; eventually, we will run out of uranium.

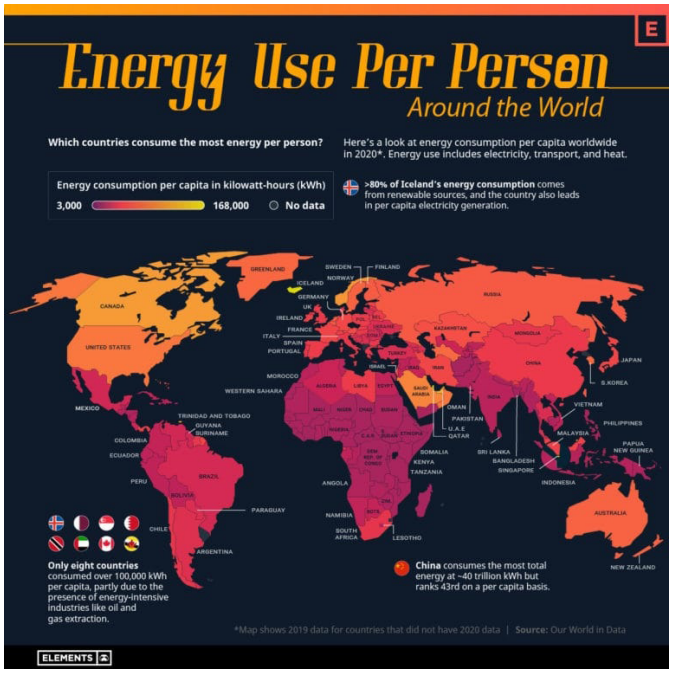
We have spent over half a century trying to find a suitable storage option for spent fuel rods and have failed miserably. Consequently, these rods, which remain radioactive for as long as 10,000 years, are generally stored on site at active or shuttered plants all over this country. They are sitting ducks for domestic or international terrorists, and they pose a serious potential threat to surrounding communities' drinking water supplies if radioactive water leaks and makes its way into the ground.

Contrary to public perception, nuclear power is a significant source of greenhouse gas emissions when considering the amount of fossil fuels required for mining, uranium enrichment, building and decommissioning of power plants, and processing and storing radioactive waste. In fact, nuclear power emits twice as much carbon as solar photovoltaics and six times as much as onshore wind power, according to the nonprofit organization Beyond Nuclear.

If the potentially catastrophic risks to nuclear power plants posed by political instability and military conflict were not apparent prior to Russia's recent invasion of Ukraine, they are abundantly clear now.

On February 25, Russian forces seized control of the Chornobyl nuclear power plant and took its employees hostage, according to the Ukrainian spokesperson for the State Agency of Ukraine on Exclusion Zone Management. The plant was forced to rely on its backup generators to keep the spent fuel rods from overheating, which can cause a meltdown similar to the catastrophe that occurred at the Chornobyl plant in 1986. According to multiple sources, those generators can only provide back-up power for 48 hours. The plant relied on that back-up source of electricity for 24 of those 48 hours. ■

Courtesy: Counterpunch.org



Pakistan suffering huge losses but minimum gains

CLIMATE CHANGE

EU Report

Sandwiched between India and China, Pakistan is among top 10 countries prone to climate change, losing over a billion rupees per day but with minimum gains from the Green Climate Fund facility.

Since climate change is a global phenomenon with cross boundary effects none of the countries on earth is secure from its disastrous consequences. Therefore, the international community opts for measures off and on to mitigate its impact and had approved US$7.2 billion Green Climate Fund for year 2020 to promote adaptation and mitigation mechanisms.

But despite climate change motivated natural disasters, Pakistan has managed to get only US$122 million through intermediary funding provided by United Nations Development Program (UNDP), Asian Development Bank (ADB) and the Food and Agriculture Organization (FAO) for three projects.

According to an official document of the Ministry of Climate Change (MoCC), the country has so far availed funding for one project from Adaptation Fund, three from GCF and completed 15 projects from Global Environment Fund (GEF). However, it has not yet accessed Climate Investment Funds (CIFs), major bilateral climate funds, or facilities except for one project from Nationally Appropriate Mitigation Actions (NAMA).

"Pakistan's recent and new World Bank commitments had the highest 17 contributions of climate co-benefits (CCBs) that reached 44% in Fiscal Year 2021 (up from 34% in Fiscal Year 2020), and is the highest in South Asia's World Bank portfolio and among the highest in the world," the document reported.

The total GEF and GCF financing cumulatively is US$158.82 million that contains US$113.2 million grants. The GCF-funded projects under implementation include scaling up of Glacial Lake Outburst Flood (GLOF) Risk Reduction in Northern Pakistan through the United Nations Development Program (UNDP).

This is a five-year project intended to enhance the country's adaptation of rapidly increasing glacial melt in one of the world's highly glaciated region. The project cost is US$37.5 million and the GCF has provided a grant of US$36.69 million alongside a co-financing of US$0.5 million.

The Green BRT Karachi is another project assisted through GCF with US$538.5 million chipped in by the ADB which aimed at improving climate mitigation through eco-friendly transport in the biggest metropolis of Pakistan. The GCF senior loans for the project comprised US$ 37.2 million, $11.8 million grants, co-financing (senior loans) of $442 million and grants (co-financing) of $92.5 million.

Another project Transformation of Indus Basin with Climate Resilient Agriculture and Water Management is being executed with the assistance of FAO to develop the country's capacity to use information it needs to adapt to impacts of climate change on agriculture and water management by using modern technology.

The six years duration project will be completed at a cost of $47.69 million out of which $34.99 million will be GCF grant and $12.7 million co-financing amount. The Pakistan Distributed Solar Project will be completed in 10 years at a cost of US$54 million out of which GCF provided US$ one million grant, $nine million GCF guarantee and $44 million will be co-financing in the shape of senior loans.

The GCF has also approved readiness of grant of US$ three million total financing to build capacity for Advance National Adaptation Process to be executed through the United Nations Environment Program (UNEP).

Pakistan clinched a funding of over US$25 million through GEF including US$4.6 million for Pakistan Snow Leopard Ecosystem Protection Program that will primarily focus on biodiversity and land degradation in the northern areas to be implemented though the UNDP.

Another project of Reversing Deforestation and Degradation in High Conservation Value Chilghoza Pine Forests that will help the country's pine nut producing industry to shift to modern lines for enhanced and quality production. The project cost is US$3.9million secured through GEF, being implemented through FAO. Under the project' various pine nut processing plants have been installed in GB, and Balochistan districts producing pine nuts.

The initiative of transforming leather processing industry to low emissions and climate resilient development paths in Pakistan got US$ two million to ward off environmental damages and introduce recycling and safe practices to ensure termination of open dumping of carcinogenic materials into water courses.

UNIDO is implementing this project besides another US$ two million project on Integrated and Sustainable Waste Management for GHG Emissions Reduction from Municipal and Industrial Solid Waste.

The other projects include US$2.5 million project for combating land degradation through integrated and sustainable range and livestock management to promote resilient livelihoods in Northern Punjab; US$3.9 million project to combat climate change through promotion of sustainable biomass energy technologies; and US$2.67 million project to strengthen community-managed protected areas for conserving biodiversity and improving local livelihood.

The nationally determined contributions (NDCs) submitted by the country at the 26th Conference of Parties (COP-26) 2021 claims that Pakistan needs annually US$47-54 billion to adapt and mitigate the climate crisis. Pakistan will need US$40 billion per annum for mitigation while its adaptation cost ranges between US$7-14 billion per annum for climate action.

Pakistan has also pledged to shift 60% of its country's energy mix to renewable that will alone require US$101 billion by 2030 along with an additional $65 billion by 2040. The World Bank study claims that the country will need US$13 billion to replace the coal fired power projects with solar

beacon energy

Beacon Energy solutions declared highly affordable

Beacon Energy Limited (BEL) is one of the latest ventures of The Beaconhouse Group, Pakistan's premier educational services organization. Like our schools, BEL has been set up with a focus on quality above all else. Inheriting more than 40 years of service expertise, the BEL team focuses first and foremost on ensuring that each customer gets a solution that meets their individual needs.

One of our key aspirations for diversifying into renewable energy was to be a catalyst for positive change in the world. The 21st century has brought a renewed realization of the adverse impact that humans have had on the planet. Many of our great cities have become so polluted that living there has become hazardous. Unless we start focusing on more sustainable energy sources, there is a very real danger that the planet may become uninhabitable in the near future. Along with being environmentally friendly because solar energy is inexpensive and doesn't require expensive distribution networks, it can be used to provide energy to the most disadvantaged people in the world.

Our clean energy solutions are designed to be highly affordable and give our clients access to energy no matter their location or distribution constraints. By doing so, we hope to play a role in bringing forward a cleaner and more equal future.

Why Choose us?

BEL has experience in designing, building, and engineering solar plants that are customized to each customer's unique needs and requests. We pride ourselves in offering the most technically suitable solar panels, inverters, and packages to ensure they are efficient and have measurable outcomes.

On-Grid Solar Solution

Beacon Energy offers On-Grid and Hybrid systems for businesses and homeowners alike. Our On-Grid systems provide our customers with the best possible return on investment (ROI) and a drastic reduction in their energy bill. How much is saved will depend upon the site load and size of the solar power system. On grid systems export surplus energy to the grid, in essence using it as a battery for excess production. These systems are a preferred choice for businesses and homeowners looking to reduce their energy bill with the lowest possible upfront cost.

Hyrbid Solar Solution

Hybrid solar systems generate power in the same way as an On-Grid solar systems but supplement this with battery storage. This allows the customer not only to reduce their energy bill but also get backup during load shedding and offset some of their peak tariff consumption. BEL INTRIX is a unique Intelligent Energy Storage System designed to integrate energy from solar, grid and battery to provide uninterrupted power supply round the clock.

AI based power management drives smart decisions to optimize consumption, grid feed in, peak hours saving, and battery charging to maximize customer's ROI and battery backup. BEL INTRIX is an ideal solution for customers who want uninterrupted power without having to bear the cost of buying and running a generator (or alternative backup power source).

More Power More Savings

The global weighted average cost of electricity from all commercially available renewable power generation technologies as compared to fossil fuels is projected to decline further in the near future, bringing new prospects for the widespread penetration of renewables and extensive power-sector decarbonization. In Pakistan, the constantly increasing cost of energy combined with low interest rate loans for solar means an exception payback period for solar investments. The payback period for your solar PV system represents the amount of time it takes for your initial investment to be recovered from the savings it yields. The higher your monthly savings on power bills from solar is, the quicker your initial investment would be repaid and the higher your ROI would be. Typically, commercial and industrial consumers should expect payback in 3-4 years and residential consumers should expect payback in 4-5 years. Once the initial cost of your system is paid back, the energy generated by it for the next 20 years is almost free of cost.

Dear Pakistanis,

On behalf of the Beacon Energy Limited team, I would like to wish you a happy Independence Day. As we celebrate the 75th anniversary of our nation's independence, let us remember those who sacrificed their lives so that we could live in freedom. Let us also remember that we, as citizens, have a responsibility to play our part in making Pakistan a cleaner and greener place for generations to come.

At Beacon Energy Limited, we are helping to make Pakistan a more sustainable nation by offering smart solar solutions and alternatives for all industrial, commercial and residential sectors.

One of our key aspirations for diversifying into renewable energy was to be a catalyst for positive change in the world. The 21st century has brought a renewed realization of the adverse impact that humans have had on the planet. Many of our great cities have become so polluted that living there has become hazardous. Unless we start focusing on more sustainable energy sources, there is a very real danger that the planet may become uninhabitable in the near future. Along with being environmentally friendly, because Solar Energy is inexpensive and doesn't require expensive distribution networks, it can be used to provide energy to the most disadvantaged people in the world.

Nassir Kasuri *(CEO)*
Beacon Energy Ltd.

I invite you to join us on this journey because together, we can make Pakistan cleaner than ever!

GOODWE
Smart Energy Innovator

Need stressed to enhance renewable energy usage

In order to highlight the importance of renewable electricity, particularly solar power, for overcoming the energy crisis in Pakistan, Goodwe organized a series of seminars in three main cities of the country - Islamabad, Lahore and Karachi.

Managing Director, National Energy Efficiency and Conservation Authority (NEECA), Dr Sardar Mohazzam, was the chief guest at the Goodwe's energy storage seminar in Islamabad.

While speaking to the audience, Dr Mohazzam underlined the importance of Renewable Energy (RE) and said the government had set a target to generate 60 per cent of total energy in the country through RE by 2030. He says that RE being a clean and green energy is the future and currently, this is aligned with the government and global agendas of sustainable development. First part of which is related to access to energy and second with RE and efficiency. But it needs a lot of effort in terms of technology and developing markets in this regard, he adds.

Terming the RE as the future, NEECA MD said there were great opportunities in solar and wind as due to sharp surge in energy prices at global level, both the domestic and industrial consumers were looking for its substitute and viable solution. Solar is the best substitute for the grid, he said.

Dr Mohazzam said the government was also going for solarization of all public buildings which would further boost demand and requirement of RE technology in the country. However, he said there was also a big challenge whether the people could afford it and whether they had easy access to RE technology. Dr Mohazzam appreciated the efforts of Goodwe for bringing such innovation to the Pakistani market.

Speaking on the occasion, Goodwe Country Manager Syed Salman Mohiddin said power tariff of K-Electric and DISCOs had gradually been increasing due to surge in fuel prices in the international market. He said in such a scenario, solarization was the only viable and alternative solution to curtail the skyrocketing fuel prices.

SECOND SEMINAR

Prof Dr Nasim Akhtar Khan, former vice-chancellor of Hamdard University, was the keynote speaker at the seminar organised by Goodwe Pakistan in collaboration with the Energy Update at a hotel in Karachi.

Speaking on the occasion, the former Hamdard University VC said the government should treat wind and solar as the main sources of power generation as hydrocarbons are actually the alternative means of power production in the country. Dr Khan, who is a pioneering figure in introducing the concept of clean electricity in Pakistan, said that a pressure group comprising concerned quarters in the society should be formed to lobby for maximum utilisation of renewable resources of electricity generation.

He lamented the situation that a highly non-conducive tariff available for wind and solar power projects had led to the sharp decline in the usage of renewable sources for power generation in the country.

"The main issue is that nobody takes ownership of the solar and wind energy projects in the country, whereas the government fully owns the power plants that generate electricity through conventional means," he said. Dr Khan, whose efforts led to the identification of Pakistan's first wind corridor from Jhimpir to Gharo in Sindh some 21 years back, said the conducive tariff should be available to the clean electricity projects being established in the country.

He said the most conducive environment and policies would enhance the exploitation of wind and solar energy to the level of hydrocarbon resources that were mostly relied upon for meeting electricity demand in the country. Dr Khan, who is now a senior official at a leading consultant company, said that Pakistan should



start indigenous production of solar cells, wind turbines, and inverters to increase the usage of clean resources for power generation.

He said that many industries in Pakistan were willing to switch to alternative resources to energize their industrial units as power utilities and distribution companies were no more a reliable and affordable option to get the power supply for industrial consumption.

Muhammad Naeem Qureshi of Energy Update said that their platform was available to organise more such seminars to spread mass awareness about the benefits of using the clean resources of electricity in the country. He said that both wind and solar power had emerged as reliable means to energize off-grid rural areas and residential and industrial sectors in the cities due to constant increase in electricity rates in the country.

Syed Salman Mohiuddin, Goodwe Pakistan Country Manager, said the Goodwe with installation of 25GW solar power projects in over 100 countries had fully resolved to help out the government's efforts to increase the share of clean electricity in the national energy mix.

He said that Goodwe having maximum focus on research and development activities could provide the most smart, reliable, and cost-effective solutions to increase utilisation of solar energy for power generation in Pakistan.

THIRD SEMINAR

A technical seminar was organised by Goodwe in Lahore, in which former Punjab Environment Minister Bao Muhammad Rizwan while speaking as the chief guest, has said that solar energy would be instrumental in slowing down the process of global warming.

The former minister quoted a study that suggested, "If just one degree temperature increases due to global warming, it will melt all glaciers to make the environment unlivable for mankind." "We all have to breathe in this air; therefore, it is everyone's responsibility to reduce carbon emissions to a minimum," he said, adding that vehicular emissions contribute 43 per cent, among all factors, to overall pollution, turning to be a major component of global warming.

He informed that former Prime Minister Imran Khan had launched the policy of introducing electric cars and announced special incentives to the consumers with a view to reduce vehicular emissions to improve the environment. The former minister advocated conversion of household energy and industrial equipment to solar energy, adding that the experts must come forward to clear people's concepts about green energy in a simple language rather than using complex terminologies.

Director Technical (Power), Punjab Energy Department, Muhammad Yasin, said that former Chief Minister Usman Buzdar had declared Punjab as solar province. In this regard, he said that 11,000 schools in Punjab had been converted to solar energy.

He further informed the audience that net-metering was available for 3-Phase meters so far, adding that the Punjab government was going to make an agreement with National Electric Power Regulatory Authority (NEPRA) to allow distribution companies to offer net-metering to consumers on single-phase meters as well.

Syed Salman Mohiuddin, Country Manager Goodwe, said that renewable energy was the future, adding that the biggest source of renewable energy in Pakistan was solar energy. He informed that solar energy was a major component of reduction in greenhouse gases and carbon emissions. "The solar energy is the most cost-effective, sustainable and environment-friendly option available in Pakistan," he said, adding that the Pakistan government could also take credit of carbon control under Kyoto Protocol owing to the increase in the usage of solar energy.

He informed that the solar system for utility, commercial & industrial and residential ranges was sustainable up to 25 years, while it guaranteed cost return within three to four years. "We offer solar inverters from 0.7KW to 250KW in both on-grid and hybrid categories," he said, adding that Goodwe would soon launch off-grid solar inverters as well.

He informed that energy demand was growing rapidly, adding that the dependence on traditional sources of gas and electricity would not be a viable option in near future. "The government of Pakistan has launched financing for solar energy as the State Bank of Pakistan (SBP) has directed banks to offer soft loans for five to 10 years to encourage use of solar energy in the country," he added.

Renewable energy expert Engr Faiz Muhammad Bhutta and Manager Technical Services Goodwe Ahmad Rafay Asad also spoke on the occasion. ■



Asia hosts one-fourth of world's nuclear power units

Nuclear power contributed 8.4pc to Pakistan between 2020 and 2021

Ali Asad Sabir

Asia now hosts about one-fourth of the world's operational nuclear power units. As of June 2021, six Asian markets and regions (Japan, South Korea, mainland China, Taiwan, India, and Pakistan) were running 113 reactors producing 97.4GW energy. Over half of these reactors were built before 2011.

According to the World Nuclear Association, around two-thirds of reactors currently under construction are based in Asia. As energy prices rise and energy security concerns threaten the balance of power in the region, Asian economies are building new nuclear power plants and restarting halted reactors. Pakistan and India are among the countries that are doing this. Nuclear power contributed 8.4 per cent to the total electricity generation of Pakistan between 2020 and 2021.

Countries in Asia have shown a commitment to limit their dependency on coal power plants, prioritizing renewable energy to meet climate targets. However, progress is painfully slow, and some countries have backtracked on their goals. Rosy public statements about success in this endeavor have proven premature, and many countries, including Vietnam, have reversed plans to replace coal with renewables due to concerns about future power supplies. Energy crises, arguably caused by an overreliance on coal, are being addressed in a predictable manner, either promoting more nuclear energy or coal.

In the fiscal year 2019-2020, four coal-fired CPEC power plants generated 19 percent of Pakistan's electricity. The 4.62G coal-fired generation funded by CPEC includes1,320 MW Huaneng Shandong Ruyi-Sahiwal Coal Power Plant, 1,320MW Port Qasim Coal Fired Power Plant, 1,320MW HubCo Coal Fired Power Plant, and 660 MW Engro Thar Coal Power Plant, all of which began supplying electricity to the national grid between 2017 and 2019. Construction on the Thal Nova, Thar Energy (HubCo), and Shanghai Electric (SSRL Thar Coal Block I) power plants to increase 1,980MW capacity is currently underway.

Measure of energy balance

According to World Data's Pakistan profile, total consumption of 92.33 billion kWh of electric energy per year is the most important measure in Pakistan's energy balance. This equates to an average of 410kWh per person. According to this, Pakistan can completely rely on self-generated energy. The total output of all electric energy producing facilities is 110 billion kWh, accounting for 119 percent of total requirements. The remainder of self-produced energy is either exported or goes unused.

During the last two decades, Pakistan's energy usage (which also include bioenergy) quadrupled at a 4.4 percent annual growth rate. From 2000 to 2010, oil consumption remained almost constant while natural gas consumption increased significantly, according to IAEA.

From 2009 to 2019, indigenous oil production remained between 65,000 and 95,000 barrels per day which is equivalent to about 16-21 percent of the country's oil consumption, while natural gas production was 3,936 million cubic feet per day in fiscal year 2018-19.

Coal consumption increased at a rapid rate in 2018-19, owing to increased use of cement and other enterprises. Local coal production was 5.5 million tons between 2018 and 2019, while imports totaled 15.7 million tons. During this time-period, the residential sector consumed nearly half of total electricity usage, while hydroelectric power supplied 21.3 percent of Pakistan's power generated.

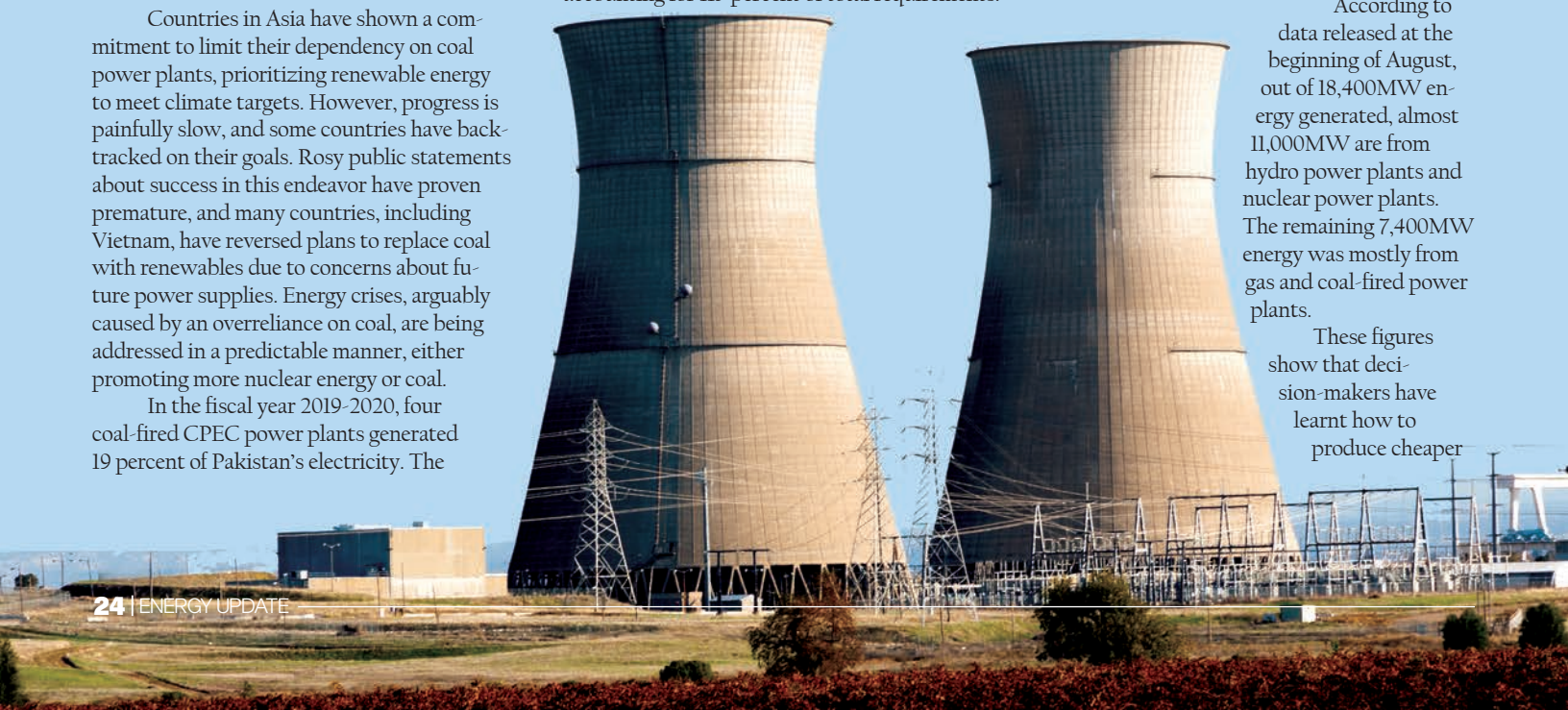
Options for energy production

Nuclear power contributed to 8.4 percent of Pakistan's total power generation between 2020 and 2021, while it accounted for 6.3 percent of total installed capacity. On a leveled cost of electricity, nuclear energy is the cheapest source of energy.

The electricity produced by operating Nuclear Power Plants (NPPs) of PAEC is delivered to its clients - K-Electric in Karachi and Central Power Purchasing Agency (CPPA) in the rest of the country. PAEC has increased its efforts to meet the government's energy security plan target of 8,800MW nuclear electricity generation by 2030. The completion of the K-2/K-3 project will be a significant step toward achieving the PAEC 2,200 MW target. PAEC intends to develop more sites across the country to house additional nuclear power plants in the future.

According to data released at the beginning of August, out of 18,400MW energy generated, almost 11,000MW are from hydro power plants and nuclear power plants. The remaining 7,400MW energy was mostly from gas and coal-fired power plants.

These figures show that decision-makers have learnt how to produce cheaper



energy. At least 1.000MW energy is produced by wind. In 2020, the US Energy Information Administration predicted that by 2025, coal would cost slightly more than $90 per megawatt-hour, compared to $63 for onshore wind and $48 for solar. Still, Pakistan and most of the Asian countries rely heavily on nuclear, hydro and coal power options.

To address the shortage of electricity, the government recently issued a tender for the purchase of ten LNG cargos on the spot market. But as expected, none of the companies submitted bids due to high demand and higher prices in Europe. Given the current scenario, expensive LNG and coal-based power plants are proving difficult options, suggesting Pakistan should have focused more on nuclear power facilities.

Imported fuel for local plants

Developments in the construction of coal-fired power plants have come under scrutiny as countries pledged to limit warming to 1.5° Celsius as part of the Paris Accord. China's policies and actions in financing coal-fired power plants abroad have gotten a lot of attention in recent years, especially since major international financial institutions have begun to prohibit investment in coal-based generation.

Pakistan has an estimated 1,450 million tons of oil equivalent coal available. The government subsidized the development of new coal-fired power plants using locally sourced coal. Coal-fired power plants that use locally sourced coal have a higher rate of return on equity than plants that use imported coal. The volatility of the Pakistani rupee against the US dollar also pushed Pakistan to use locally available resources.

Nuclear energy dynamics

It is rumored that to cut the fuel transportation costs for CHASNUPP power plants, the Chinese government is setting up a local fuel generation facility nearby. Similarly, the Karachi Nuclear Power Plant may be designed by going forward to keep transportation costs in mind. The newly constructed Matiari-Lahore HDVC transmission line can be best utilized as Punjab is the country's largest province and biggest consumer of electricity. However, plants set up in Punjab make less sense if their fuel needs to be transported from Karachi's port. ■

Ali Asad Sabir is a freelance writer. All information and facts provided are the sole responsibility of the writer

SOLAR POWER

Solar panels on every roof need of hour

Demand-supply imbalance causes steep rise in cost of energy inputs

Farrukh Mahmood Mian

The international energy demand and supply imbalance has resulted in a steep rise in the cost of energy inputs. Pakistan cannot control the international geopolitics behind the crisis, but taking emergency countermeasures to fix our energy situation is certainly possible.

In this article, I will argue why we need to launch a major programme of solar rooftops to handle the current crisis and for the long-term sustainability of the power sector. I propose that Pakistan adds six gigawatts (GW) of new roof-top solar plant capacity within the next three years by putting the right measures in place.

Making 1GW capacity addition in 2022-23, 2GW in 2023-24 and 3GW in 2024-2025 may seem like an ambitious target given our slow track record of solar installations, but if the distribution companies (Discos) and the banking sector join hands it is fully achievable. A substantial portion of our installed power generating capacity is based on imported fuels, mainly Liquefied natural gas (LNG) and coal. Several recent attempts to buy LNG from the international market have failed as international suppliers prefer to supply to other customers, especially in Europe.

The National Transmission & Despatch Company's new power expansion plan envisages utility-scale solar power plant additions in multiples of 50MW in the coming years through independent power producers. The roof-top-based solar systems have greater potential than utility-scale plants and can be installed far more quickly under a PPP (public-private partnership) scheme.

No capacity payments are involved nor is there a need to arrange sovereign loans. Unlike utility-scale plants, roof-top solar produces energy where it is needed, ie in urban areas, thus offsetting the need for building long-distance transmission lines.

A comprehensive investment programme may be launched under an empowered team drawn from the Alternate Energy Development Board (AEDB), Discos and the banking sector. The banks, in particular, must take on an active role unlike in the past whereby the concessional funds made available to them by the State Bank of Pakistan (SBP) have mostly remained unutilised. Each bank must be given a target of financing a certain number of megawatts of roof-top-based systems both of the net-metering and stand-alone types.

Roof-top solar offers an avenue for directing individuals' savings towards a productive investment that brings financial returns in the form of a reduction in the energy bill of the participating consumers. Those, like myself, who have already installed net-metering systems have a reason to feel delighted every month when they see the financial savings accrued to them in the electricity bills.

Thus far, the Discos have been acting as an approving body rather than seeking out active partnerships with consumers to promote solar projects due to some well-known concerns that need to be addressed. A new nexus between commercial banks and Discos must evolve so that together they can offer financial products to the "prosumers" — a term for consumers that are also producers of electricity.

A three-way contractual arrangement between the Disco, the bank and the prosumer will give comfort to the lending bank concerning the repayment of its loans through the monthly bills sent by the Disco.

The AEDB is expected to put together a fool-proof arrangement which has the buy-in and active involvement of all stakeholders. The quality of products and services given by the approved vendors will need major improvements as there is a common complaint that the registered vendors outsource the supply and installation of the project to those contractors who have substandard qualifications.

According to the International Energy Association May 2022 report, the world added a record 295GW solar capacity in 2021 while 2022 will see another new record of 300GW of solar capacity addition. Pakistan is lagging behind in the race as its present solar power capacity is dismally low.

If the last three decades were the decades of information technology (IT) it can be safely forecasted that the next three decades belong to clean energy developments and innovations. Pakistan has to decide whether it wants to embark on the green energy revolution while it is still at an early stage or be a late-comer to the game just as it was in developing its IT software capabilities. ■

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THAR COAL BLOCK-II PROJECT

Thar Crying for Leadership

SHAMSUDDIN A. SHAIKH

Thari youngsters need to take charge of their future

Naeem Qureshi

"Despite my insistence, the Sindh Government did not make the area residents shareholders in Thar Coal Block-II Project so as to make them owners of the venture. They have started doling out some cash which is inadequate and does not give Tharis ownership rights".

Above was disclosed by Shamsuddin A. Shaikh (Shams), the former CEO of Sindh Engro Coal Mining Company (SECMC), in an exclusive interview with the Energy Update (EU). Following are the important excerpts from his interview for our readers:

EU: Is there anything, which should have been done by the Government for the promotion of Thar coal?
Shams: Thar coal has two aspects. One is the technical part and the other is the social part. I think Government and private sector have failed in both as they were not able to capitalize on the good work done on the first project at Thar implemented by SECMC.

After 2019, when Engro 660MW plant reached its completion, all the new plants which were to become operational in 2020 and 2021 have been delayed. Reasons can be attributed to both, private sector as well as Government. This delay has costed us dearly. Today when the coal rates are at historical high, only 660 MW are running on Thar coal (@ $65/ton) whereas as per plan 3,300 MW should have been on Thar coal (@ $30/ton). This would have made a huge difference.

Secondly, The Thar Coal Block-II social work was supposed to become the example for the entire country, but unfortunately, it failed to do so even for other blocks at Thar. In my times, at Thar Foundation, we insisted that framework of social work at Block-II should be set as a minimum requirement for other blocks as well. However, it was not done and hence no social development seen in other blocks. Social work is never easy. More than resources, it requires passion. Unfortunately, it is in short supply. Humbly, I can state, as son of the soil, I worked hard and passionately to serve people of Thar. I considered it my national duty to give back to the society. I was of the firm opinion that if I as a Sindhi-speaking person is unable to do anything for local Sindhi people, then in future, anybody else coming to the area would definitely not think about social work for the natives of Thar. Alhamdolillah, we were able to do a lot of good work in Thar and we asked the Government several times to declare Block-II social work as a model for other such mining or national projects. However, for some unknown reasons, Government has still not done it.

EU: So what should be done technically at Thar? How to progress?
Shams: Government together with local private sector should seriously take up on the Thar challenge and work to achieve the following:

(i) Reconstituting the role of Regulatory body: Thar Coal Energy Board (TCEB) should be amply empowered and activated. Board should be reconstituted with knowledgeable people. Board meeting should be held regularly. Chairmanship should be with a person who devotes time and energy. Inactive TCEB is one of the prime reasons of Thar not progressing at a pace acceptable to this global hyper-growth era. Tariffs are not announced and no policy documented on Coal-to-Urea and other derivatives. Once the Board is reconstituted, with adequate representation from Federal, Provincial and private sector, it can work effectively to achieve the set goals.

(ii) Policy: Clear policies on power and derivatives especially fertilizer and gasification

must be coordinated. Without such policies further progress on Thar is far-fetched.

(iii) Power sector: Firstly, work on plants under construction should be rigorously monitored and expedited. Secondly, a low hanging project is conversion of imported power plants to blended Thar-imported fuel (20-30%). Thirdly, it should be studied in detail on how to fully convert the imported plants to Thar coal. This is possible and seems commercially viable. Lastly, all future base load power plants should be designed and operated on Thar coal.

(iv) Fertilizer Sector: Indigenous gas is depleting at an unimaginable rate. Thar coal is an adequate replacement of indigenous gas for production of urea at an internationally competitive prices. Dedicated efforts should be made to study production of ~1mn ton per year of urea at Thar. As a part of the above study, conversion of existing fertilizer plans should also be studied. These studies should be expedited else we will see a huge shortfall of urea in the next few years leading to food crisis.

(v) Thar Coal Gasification: Thar coal could be converted in Synthetic Natural Gas (SNG), an alternative of natural gas, at a price equivalent to long term LNG import price. Through Coal-to-SNG, Pakistan will be able to reduce LNG imports leading to foreign-exchange savings and long term energy security.

EU: Tell us about your association with the Thar Coal Mining Project?

Shams: I was lucky to be given this assignment in 2012. My years at Thar from 2012 to 2018 were the best part of my career at Engro. I had full support from the company as well as the Government of Sindh. It is only because of their support that the project was delivered well before time and within budget. A model public-private partnership project in every aspect, be it technical, social, safety or transparency. Even after more than three years of my leaving the executive position, it is still in good hands and being operated professionally.

EU: What is your main achievement at Thar?

Shams: I think main achievement was bringing all stakeholders to believe in this project. Many people in Islamabad, as well as within the company, were not ready to accept that Thar could become a viable project. People in Sindh were of the view that there were merely unfounded claims about Thar coal as practically this project could never see the light of the day. It was a do-or-die-like situation for us because if a professional local company in Pakistan also winds up this venture without any success, then Thar Coal Project will permanently be considered impractical. My team changed these views. Soon everybody realized and Thar became the most important project for the company.

The other achievement was social development. First project being run by a son of the soil which was unheard of in Sindh. We were conscious of this fact and a team was formed to ensure that Tharis get full benefit from the project. Today, I take pride in claiming that more locals work at Block-II both in management and non-management cadres as compared to any other project in Sindh or possibly entire Pakistan. It has unparalleled social programs in education, health, drinking water and sustainability. As of today, twenty-four school units are working with 4,000 students including 1,300 females. Seventeen drinking water plants are operational supplying water to ~30,000 residents. Three health centers, one mobile clinic and one major hospital are also operational which provides- free healthcare. Female led entrepreneurships were promoted through grants. A number of other initiatives were also undertaken including but not limited to technical education (local engineers training in China and employment on their return), Thar Trainee Engineer Program, women dump truck drivers program and embroidery shop (local artisans showcasing their talent and selling their art) etc. All above initiatives were fully supported by Engro.

EU: How is project progressing after you left the company? Any advice?

Shams: Unlike other companies, projects done by Engro do not depend on a certain person but are based on systems and procedures. I left Thar Coal Mining project three years back but I know very well that with the robust systems in place, no pilferage of not a single penny could take place.

I have no doubt that Thar can only progress if Engro decides to take leadership – once again. Thar happened because of Engro and it will further progress because of Engro. No other company has understanding or willingness to take Thar to its potential.

EU: What would your advice for people of Thar

Shams: I found Thari to be a bright merit oriented society. Youngsters are eager to learn and move forward. Block II gave them jobs and opportunities. Now they need to take leadership and move forward. They need to fight for their rights. Not as a charity but on merit.

EU: Did Government of Sindh support you in this project? Any pilferages?

Shams: I got extraordinary help from all the relevant people in the Sindh Government. The former Sindh Chief Minister Syed Qaim Ali Shah and current one Syed Murad Ali Shah both extended exceptional help. The Government officials were extraordinarily supportive. Overall a teamwork made Thar a success story for all. Since a transparent system was devised no pilferages were possible from Government as well as the company.

Government has its challenges and hence they should make space for private sector under public-private mode to develop Sindh. Also they should let Thar Foundation lead the social development of the area. Goverenment interference in business or even social work is not conducive.

EU: Why your request to make area villagers shareholders in the Thar coal project was not implemented?

Shams: I urged the then Chief Minister that 3% from Sindh Government's 54% shares in Thar Coal Block-II Mining Project should be given to the area residents. This was going to be the first instance in which area residents would have become owners of the project to ensure long-term benefit to the residents of the area who had for long lived in hardship.

I always used to argue that the local villagers should be made owners of the project instead of giving them alms. They did not make the area residents the shareholders in the project as they thought, it would set a precedent for other projects to follow the same framework for locals shareholding.

EU: What was your general advice to the Government regarding the promotion of Thar coal?

Shams: We wrote both to the Federal and Sindh governments to adopt an effective policy. We requested them not to commence works on the second coal block in Thar till the time the first mine reached its full capacity as the cost of mining is gradually reduced with the expansion of the mine due to economies of scale. I used to insist that tariffs of the Thar coal project should be reduced, especially for Phase-II. A long-term policy should have been adopted for the purpose. We adhered to the restriction imposed by the concerned bankers in this regard and installed such power generation plants, which are capable of consuming both indigenous and imported coal. This was done to cover the risk that Thar coal after its extraction might prove to be incapable of power generation due to its poor quality.

Similarly, we asked the Government to spend some marginal cost to make ensure that the new coal-based power plants being built across the county are capable of consuming both local Thar and imported coal. But the Government did not foresee the long term benefits of implementing our suggestion as these power plants were built in haste.

EU: What is your general advice for the advancement of Pakistan's indigenous resources?

Shams: There are three sectors with massive potential for revenue generation in Pakistan. The first one is our agricultural sector especially in Balochistan, the second is Thar coal and its derivatives, and the last one is the mineral mining potential in Balochistan. All these three sectors are largely untapped and we should actively work to explore, consume, and add value to these resources to churn long term benefits for the country. ■

FFC ENERGY LIMITED: Our Journey to Independence

Syed Imran Shah

Energy is undoubtedly one of the key drivers of growth and economy of any country. Electricity is a major portion of energy needs of today's economies and its share is expected to increase with time, as nations are moving towards Industry. Due to fast urbanization, globalization and digitization, smart residential, transportation and industrial sectors are transforming to become increasingly dependent on electricity.

Countries having the plan to meet their energy, and more precisely, electricity demand through indigenous resources shall enjoy the benefits and independence of their energy security. This fact cannot be overstated in the wake of the ongoing European energy crisis, affecting the whole world, due to the Ukraine War and the default of Sri Lanka with many others in the line.

For Pakistan, this is more evident in the form of ever rising circular debt and current account deficit. Over dependence on foreign fuels, lending and services is one of the major root causes of this menace. In the recent past, Pakistan has faced an energy crisis multiple times with one issue at its core - the triple jeopardy of simultaneous increase in global fuel price, interest rates and the US dollar exchange rate.

The key to resolving this problem is independence through indigenization over the complete chain of energy/electricity production. In order to address this, Fauji Fertilizer Company Limited (FFC), Pakistan's largest fertilizer manufacturer and a prestigious investment firm, lays out a simple model. This is the formation of FFC Energy Limited (FFCEL), a subsidiary wholly owned by FFC, initiated to make pioneering efforts in developing the country's RE sector and paving the way for scores of others to follow, by demonstrating a bankable success story.

In the backdrop of Pakistan's Renewable Energy Policy 2006 and FFC's strategy for diversification in the power sector, FFCEL was established with a grandiose vision of opening up a whole new sector to realize the dream of harnessing green and clean energy for the nation through its indigenous resources.

The project was set up in the surroundings of Jhampir, a small town located 55 km north of Karachi and close to the famous Keenjhar Lake. Unknown to many, the strong winds of Jhampir Wind Corridor, bustling with the folklores of Noori Jam Tamachi and the Indus Valley Civilization, carry the energy to provide over 40,000 MW electricity to the country for eternity.

A small team of FFC engineers and finance officers started the initial development of Pakistan's first 50 MW Wind Power Project in the year 2006. The young and enthusiastic team at the Alternative Energy Development Board, pivotal in the development of the Policy Framework, guided FFC through the procedures. Support from international and local technical, legal & financial consultants and a consortium of EPC and O&M contractors paved the way for bankable project documents and a framework for the wind power industry in Pakistan in a relatively short span of six years, which resulted in the form of a fully functional signature wind power project of the country.

Right from the beginning, the team remained committed to utilizing the indigenous resources to the largest extent possible. It included project development works from wind masts, geological and topographic surveys, grid studies, civil works, Plant SCADA, etc. Even in the EPC phase, major parts of construction and installation services, including fabrication of tubular steel towers, were arranged locally.

One of the most important features of the project was 100% financing through local banks and 100% equity by FFC. The long-term benefit of this structuring is evident from the fact that all revenue generated from the project mainly serves local firms and in turn Pakistan's economy.

The hidden jewel of Jhampir and FFC's dream project became a reality in 2012, when the aerodynamic blades of 33 wind turbines at FFCEL Plant were synchronously rotated by the tempestuous winds of Jhampir, generating around 50 MW electricity for Pakistan.

FFC Energy, following the footsteps of its parent company FFC, remained committed to its core operational philosophy of utilizing local resources for carrying out operation and maintenance of its wind power plant.

A dedicated team of FFCEL officers and staff has been taking care of all O&M activities of the wind power plant since 2018 at par with international standards under certification by DNV-GL, Germany and Global Wind Organization. A purpose-built Technical Training Center serves to provide essential training to the O&M team and neighboring communities. These trainings are tailored to the specific requirements of wind power plants, benchmarked with international standards.

Over a period of almost 10 years of FFCEL Wind Power Plant Operations, the team has strived very hard to keep dependence on foreign parts and services to a minimum with no compromise on quality. This is evident from the availability factor of over 99% in recent years even with the minimum O&M cost per unit approved by NEPRA for wind power plants. However, to achieve this epic target, FFCEL's young O&M team got all the required certifications from OEM and other renowned training institutions the world over, only to become independent and self-reliant. At present, FFCEL not only operates and maintains its plant independently, but is also able to provide its expert services to other wind farms, which were previously dependent only on foreign companies and experts. These include end of warranty services, root cause analysis, borescopy, electrical equipment health assessment, and many such services required to keep wind power plant assets at optimum operating level.

The success story of FFCEL proves that if we direct our minds and efforts towards any challenge in the way to our real independence; be it energy crisis, import/export imbalance, etc, we can overcome it with our own resources. Happy Independence Day from a truly independent O&M Team of FFC Energy. ■

Water issues on the rise due to climate change

Pakistan is one of the largest users of water in world; Most of natural disasters are related to water resources: PCSR report

Special Report by Mansoor

Water is one of the most important components for the development of any country and Pakistan is no exemption. It is one of the largest users of water in the world. Presently, the country is facing a number of quantitative and qualitative issues in the water sector. These issues are increasing with time due to looming climate change and rising water demand of an ever-increasing population.

According to a recent report of Pakistan Council of Scientific and Industrial Research (PCSIR), SDG 6 and all of its targets are very much relevant to Pakistan. Agriculture sector uses over 93% of the country's fresh water resources which has created an imbalance of use among other sectors such as domestic, industry and environment.

It is essential to maintain quality of natural water resources thereby reducing the costs on water quality management andtreatment. This would help ensure safe drinking water, sanitation and hygiene for all. However, these goals are huge and cannot be achieved using the conventional approaches having no alignment with its human development index and economic growth. Firstly, it requires proper understanding of the goal, its targets and indicators as well as their enabling elements to support this goal.

Secondly, proper planning involving all the stakeholders - right from the policy makers to the end users. It also requires a holistic thinking and efforts from all sectors to first set aspirations and allocate resources accordingly. Earlier Pakistan along with many other developing countries failed to achieve the Millennium Development Goals (MDGs) mainly due to: (i) lack of understanding about the MDGs; (ii) lack of institutional capacity; and (iii) lack of political will and commitment.

Concentric efforts are also needed for setting appropriate baselines, setting realistic targets and allocating appropriate resources. Pakistan has secured a score of 56.17 under SDGs' global index, and was ranked 134 on the SDGs index of 157 nations. In this index, Bangladesh and India secured 109th and 117th positions, respectively. Meeting the SDGs in general and water goal in particular will require a considerable effort in terms of developing new infrastructure, rehabilitating old infrastructure, investing into new technological solutions and improving capacities and governance at different levels.

UN-Water laid seven building blocks for effective implementation of SDG 6. Systematic effort will be required in order to generate the means (economic, social, human and environmental resources) needed to support the implementation of the goal.

In Pakistan, most of the natural disasters are related to water resources management and planning. It is urgent and critical to anticipate, plan for and reduce disaster risk in order to more effectively protect persons, communities and countries, and thus strengthen their resilience.

It is also critical to protect investments in water-related infrastructure, ecosystems and developments. In terms of water-related policy, disaster risk reduction and resilience building may incorporate the protection of critical infrastructure; ensuring adequate budgets for risk assessments and resilience building priorities; and building the skills and knowledge of key staff in terms of disaster risk reduction and mitigation.

In order to reduce disaster risks, there is a need to address existing challenges, prepare for the future by focusing on assessing, understanding water-related disaster risks and sharing such understanding across governments.

Moreover, strengthening disaster risk governance and coordination across relevant institutions and sectors are important with the full and meaningful participation of relevant stakeholders at appropriate levels. The investment in the resilience of persons, communities, countries and the environment, as well as in technology and research is crucial. ■

Redefining disasters

Balochistan foretells unfolding climate story

Ali Tauqeer Sheikh

Balochistan foretells Pakistan's unfolding climate story. The unending torrential rains, flash floods, landslides and mudslides, following the hot weather and heatwaves, have wreaked havoc and caused deaths which could have been mostly prevented. It has robbed many areas in the province of precious topsoil and washed away standing crops as well as individual, community and state assets - houses, livestock, orchards, solar panels, roads, bridges, railway tracks, small dams and, possibly, a number of schools and hospitals.

The road links with Punjab and Sindh are disrupted, further isolating Balochistan. This has also halted local commerce, supplies from upcountry, and trade with Afghanistan through the Quetta-Qandahar Highway and with Iran on the Quetta-Taftan National Highway. The floods have undone many years of development.

While the scale of the floods has been overwhelming, the government response has been uncoordinated and inadequate; there is no coherent road map for building resilience to extreme weather events. Instead of offering long-term sustainability, the approach has been ad hoc and out of sync with ground realities and future needs. The present devastation cannot be considered a one-off event. It begs more systematic and long-term climate-smart responses.

The prime minister, during his visit to the affected areas, announced cash grants to families who had lost loved ones or whose homes had been destroyed or damaged. His approach has been driven more by the need to meet urgent requirements than building back better. He set up a committee to survey and report on the situation, but it is not clear who is on it. As per media reports, it has barely any provincial representation.

The natural disaster in Balochistan is a cry for climate-smart responses. Going forward, the following two recommendations are made for the committee.

Risk transfer: The prime minister's announced cash awards will perhaps be disbursed, sooner or later, but will not help the families stand on their own feet. The federal government has extremely limited fiscal space. The PSDP has now shrunk by almost half to Rs550 billion; there's a throw-forward of at least 1,260 unfinished public-sector development projects, with an estimated price tag of Rs6.2 trillion, largely indicating the unavailability of financial resources.

Instead of acting like a philanthropist, the prime minister should have offered the creation of a special purpose vehicle, a trust fund, focusing on climate resilience by offering insurance or risk transfer to farmers in five areas to protect their assets: i) standing crops, ii) livestock, iii) shelter or home, iv) life of bread-earners, and v) mini and micro enterprises. The creation of a trust fund through catastrophe bonds would be a legacy institution, like the Benazir Income Support Programme (BISP), offering 'trigger-based' disbursement rather than complex insurance mechanisms. Several countries from the Philippines to Turkey and the Caribbean are successfully pursuing this track.

BISP needs to refine its mandate. The previous government used it during the Covid-19 emergency, but did not succeed in institutionalising its Ehsaas programme, primarily because BISP was not designed to run charity meals.

Emergency response: The frequency and intensity of extreme events is constantly on the increase. The present floods have undone a significant percentage of the infrastructure developed over several decades.

The construction standards followed in Balochistan, as in the other provinces, are archaic. They are not fit to meet weather abnormalities that are becoming the 'new normal'.

We should clearly have a moratorium on new construction projects until climate-smart construction guidelines are developed, notified and adopted by the provincial governments.

Finally, the civil administrations are invariably the first victim of all disasters. Local governments are typically nonexistent and emergency stocks are rarely maintained, further diminishing their role and depleting their credibility and legitimacy.

The void is often filled by army relief and rescue operations. The National Disaster Management Authority is a focal agency for implementing the Sendai Framework for Disaster Risk Reduction. The NDMA and its provincial counterparts will fail again and again — unless district disaster management authorities are notified and empowered to support local governments in climate-resilient development. ■

The writer is an expert on climate change and development.

Cnergyico paradigm: Spreading positivity

Ramish Sultan

Since its inception, Pakistan has faced several crises - both man-made as well as natural disasters - and has shown remarkable resilience in countering them. From the refugee crises in 1947 and 1979 to super floods; from earthquakes to war against terror, and displacement of people; from the financial crises of 2008 to the onset of the COVID-19 pandemic last year. The nation has confronted more than its fair share of catastrophes that have left serious and protracted socio-economic and human development challenges in their wake. The Pakistani people have persevered against all odds and today look forward to continually developing their state on the 21st century model of peace through prosperity.

Cnergyico firmly believes that in times of difficulties, we must not lose sight of our achievements of the past. Everyone must play its part in making Pakistan prosperous by spreading joy during these dark times. The company is highlighting this message in its latest marketing campaign, called Azm-e-Pakistan.

Cnergyico runs Pakistan's largest oil refinery, located in Hub, Balochistan that can process up to 156,000 barrels of crude oil per day. The company distributes fuel through its network of more than 450 petrol pumps situated in all of the major cities, towns, and highways. Cnergyico is also the only company in Pakistan that owns a dedicated crude oil terminal called the SPM (Single Point Mooring) located in the deep sea off the coast of Balochistan. The company is driven to deliver significant societal and economic benefits to a vast number of communities, and regions that rely on the vital and reliable energy that it supplies.

Last year, Cnergyico ran the "Pyara Pakistan, Hamara Pakistan" campaign that highlighted the country's vibrant culture, breathtaking landscapes, and delicious cuisines. This year, the company aims to spread a message of hope and compassion. Small acts of kindness, even a smile or a thoughtful gesture, can go a long way and make someone's day much better. These acts of kindness and compassion can lift our spirits, inspire hope for a better future, and make us stronger as a nation.

If we look around, we will see that so many people show generosity, selfless spirit, offer a helping hand, and support each other whenever any aid is required. If a car breaks down in the middle of a road, numerous pedestrians would stop to offer help without asking. If someone falls while walking, strangers would pick them back up. If a relative gets sick or goes to a hospital, then their entire network of families and friends swings into action to offer assistance. We see the generosity of our people during the holy month of Ramzan when free Iftari meals are given to hundreds of thousands and people ensure that no one goes home on an empty stomach.

On this Independence Day, let's vow to take the spirit of love, compassion, and selfless service forward, and let's promise to do at least one act of kindness every day. For example, we can greet the person standing next to us at a bus stop or an elevator with a smile, we can help a delivery rider or someone who is lost on a road by explaining to them the right directions, we can help the elderly during grocery shopping, we can provide food and water to the needy, we can observe patience during driving and let others merge into our lane, and we can give a call to our school teachers to thank them for everything that they've done.

There are virtually countless opportunities to do good deeds and spread joy. All we have to do is open our hearts. There is no doubt Pakistan is going through a difficult patch, but through simple acts of kindness, love, and compassion, we can spread joy and positivity. This way, everyone can play their part in making Pakistan prosperous. ■

Financial constraints

ECC okays Rs30bn bailout to save PSO

Zafar Bhutta

The Economic Coordination Committee (ECC) of the Cabinet has released Rs30 billion funds to help the Pakistan State Oil (PSO) come out of financial constraints and prevent the state-run company from defaulting on international payments.

The PSO was heading towards a default situation, as the receivables swelled an all-time high of Rs605 billion. The Petroleum Division had submitted a summary for funds for the PSO to meet the company's international contractual payments during 1-14 August, 2022.

Finance Minister Miftah Ismail presided over the ECC meeting at the Finance Division, which was attended by Power Minister Khurram Dastgir, former prime minister Shahid Khaqan Abbasi and Minister of State for Petroleum Musadik Malik.

Prime Minister's Coordinator on Economy Bilal Azhar Kayani, Federal Board of Revenue (FBR) chairman, Oil and Gas Regulatory Authority (OGRA) chairman, federal secretaries and senior officers concerned also attended the meeting.

The ECC was informed by the Petroleum Division that there had been a decline in the PSO's sales of the high-speed diesel and petrol by 28% and 32% respectively, while further devaluation of the Pakistan rupee against the US dollar had resulted in increase in cost of procurement of petroleum products.

For the smooth continuity of oil and gas national supply chain and avoid the PSO's default on international payments, the ECC decided to clear the outstanding payments accumulated during the period of pervious government and approved an amount of Rs30 billion as supplementary grant. ■

Murad launches 330MW coal-fired power plant

Imtiaz Hussain

Sindh Chief Minister Syed Murad Ali Shah has said with the launch of 330 MW Hubco power plant, 990 MW coal-fired power had been successfully added to the national grid.

He was speaking at the inaugural ceremony of 330 MW Coal-fired power project of Hubco and its partners at Thar Coal Block-II, Islamkot. The ceremony was attended by Minister Energy Imtiaz Shaikh and representatives of SECMC, EPTL, TEL, TNPTL, CEMC, HBL, the partners in the project. The chief minister said the Sindh government always considered Thar to be a cornerstone for country's energy security and had taken all necessary steps to ensure that the dream of Shaheed Mohtrama Benazir Bhutto was implemented.

Thar Energy Ltd was a 330 MW Coal Fired Power Project based on Thar Coal, he said, adding that it was part of the China Pakistan Economic Corridor (CPEC).

The project is a joint venture among Hub Power Company Ltd (Hubco), Fauji Fertilizer Company Ltd (FFC), China Machinery Engineering Corporation (CMEC) and has been completed at a cost of US$520 million. It may be noted that foreign financing for the project was arranged from Chinese syndicate, led by China Development Bank whereas local financing has been arranged via syndicate led by Habib Bank Ltd. The construction was started in May 2018 from sponsors' equity without waiting for financial close to ensure earliest utilisation of indigenous Thar Coal. The financial close of the project was achieved in January 2020. The project experienced delays in loan disbursement from Chinese lenders and later due to Covid-19 pandemic. The project is now in the commissioning phase and the chief minister formally switched it on to synchronise it with the national grid on August 3, 2022 whereas COD is expected by August 20 to 28. ■

Carbon offsetting: No solution to climate crisis

Sarah Saleh

The system of compensation has occupied an important role in human lives. Based on the principle of justice, it offers people the opportunity to right a wrong. However, whether the system is indeed just and effective depends on the situation.

In the wake of the escalating impact of the climate crisis, the use of carbon offsetting as a form of compensation has gained traction. The term 'carbon offsetting' essentially implies making up for one's increased carbon footprint by financing emissions reductions elsewhere. For example, a fossil fuel-based industry could compensate for its emissions by paying someone to plant trees elsewhere to act as carbon sinks.

The most basic and evident problem with offsets is that it doesn't offer a solution to the climate crisis. All it does is allow rich nations and businesses to buy their way out of the problem. Rather than changing course and switching to sustainable practices they are merely paying someone else to reduce emissions. It wouldn't be wrong to compare it to a hypothetical situation where people are allowed to murder others while paying blood money to compensate for it.

From a sustainable development perspective, such offsets offer a lucrative solution to help poor countries achieve sustainable development goals along with reducing emissions through financing and technology transfers. However, from an environmental perspective the mechanisms suffer from numerous lacunae.

Secondly, the quality of carbon offsets is extremely important in determining its effectiveness. Investing in low-cost projects like planting trees, solid waste management, incinerators etc is less effective. For example, the forestry sector is one of the biggest recipients of such funding. But despite their potential of absorbing carbon, trees face a high risk of being cut down or destroyed in wildfires. Thus it makes the offset less permanent and thereby less effective. On the other hand, financing renewable energy projects is very effective but least invested in due to their high cost.

Additionally, there is no effective mechanism for measuring emission reductions. The models are oversimplified and suffer from problems of overstating and double counting of credits.

Lastly, the idea of carbon offsets goes against the principles of net zero emissions and even the Paris treaty. As the world has pledged to achieve net zero by 2050, carbon offsets are merely delaying progress on achieving carbon neutrality.

There are, however, sectors like aviation where not many sustainable options are available and thus offsetting becomes inevitable. But such offsets must be encouraged in areas such as renewable energy which is most effective due to its permanence and better quality.

In order to effectively mitigate the climate crisis, the world is in dire need of absolute reductions and decarbonisation rather than carbon offsets. As illustrated above, offsets are ineffective when used as an excuse for inaction elsewhere. Moreover, the offsetting market requires regulation and oversight so that, instead of buying the cheapest way out possible, high quality and more permanent offsets are encouraged. ■

The writer is an economist, environmentalist and sustainable development enthusiast

Refineries to upgrade Euro-V specs in five years

Tanveer Malik

Government and refineries agreed to upgrade on Euro-V specifications in the next 5 years, along with a deal to relegate government's role to only a tax collecting authority instead of a regulator.The Ministry of Energy met with the local refineries in this regard in Islamabad, where State Energy Minister Dr Musadik Malik as well as former prime minister Shahid Khaqan Abbasi, secretary energy and other officials discussed refining policy 2022.Top executives of five local refineries – Pak-Arab Refinery, Pakistan Refinery, National Refinery, Attock Refinery and Cnergyico Pk were invited for the policy meeting. According to sources privy to the meeting, the government and refineries agreed to deregulate the sector on commercial terms. Sources said that apart from deregulation, refineries also committed upgrading on Euro-V specifications in next five years. Refineries would give a guarantee to the government in this regard. Sources pointed out that certain performance indictors would be set in, and the Oil and Gas Regulatory Authority (OGRA) would be monitoring the situation to see the implementations of the measures under this guarantee. After the project, refineries would be able to produce additional 25-30 million barrels of oil products per annum, which according to estimates would save foreign exchange reserves of around $0.4 billion in the long run. ■

Forthcoming energy crisis in Pakistan

Country policymakers also needs to formulate such plans before a crisis land

Shazia Anwer Cheema

The Russia-Ukraine war disrupted gas supply to Europe and there is a likelihood of a further reduction in supply. Therefore, the European Commission proposed plans to cut gas demand by 15% until next spring. To achieve this target, consumers' demands in public administrations, households, buildings, power suppliers, and industries will be capped.

I wonder if Pakistani policymakers also formulate such plans before a crisis land in their garden or do they keep waiting till panic triggers? The forthcoming winter can be disastrous for Pakistan as the country does not have long-term energy management plans. The shortage of gas and fuel deliveries to Europe will ultimately put pressure on Middle Eastern sellers who are our main source of imports. Our policymakers do not realise the crisis we are about to face. Early steps help spread out the efforts over time, ease market concerns and price volatility, and allow for a better design of targeted, cost-effective measures protecting the industry. Research has revealed that Pakistan has a maximum gas supply of 4,300 million standard cubic feet per day (mmcfd) against the average demand of 6,500 to 7,000 mmcfd. During the winter season, the demand rises to 8,000 mmcfd. Therefore, there can be a shortfall of 3,500 mmcfd.

Pakistan is already faced with multidimensional issues because of a lack of storage facilities, no planning, depleting foreign exchange reserves, and the absence of broad-based alternative energy sources. In Europe, traditional energy sources are coal, oil, nuclear and renewable sources but Pakistan is short of everything and has over 220 million consumers. Europe is working on an important pillar of energy saving: the reduction of heating and cooling while the Pakistan Market Share Report indicates that there is over 7.2% growth in usage in the domestic market.

Without a "demand reduction plan", we will be faced with critical energy shortages. Unfortunately, our state institutions are more interested in playing "election ludo" and political parties are busy in political kabaddi. Instead of locking cheaper gas deals, the former PTI government was more focused on political victimisation, blame game, and ethics degradation. The incumbent coalition government is also faced with uncertainty and is more concerned about staying in power and re-election. The tense political and economic situation has become a cause of concern for all citizens. However, those in positions of power have ignored the gravity of these issues.

As always, our policymakers adopt a reactive approach, which prevents them from resolving the ongoing issues. Our state motto appears to be "it will be dealt with when it will be visible", which needs to change. Our policymakers must adopt a proactive approach because states cannot be run on a day-to-day basis.

There is no plan for either international challenges or domestic ones. The forthcoming energy crisis is one of the many issues that need articulation.

If we do not provide our audience with the world view, they will keep bickering with each other on political affiliations while the root of the problem will remain intact. Energy, food, and security will remain in the shadows until they become a ghost and stand right in front of us to receive due attention. ■

CTBCM to bring efficiency to power sector: Farooqi

The Competitive Trading Bilateral Contract Market (CTBCM) is going to bring a paradigm shift in the power sector of Pakistan, said National Electric Power Regulatory Authority (Nepra) Chairman Tauseef Farooqi. In a series of workshops, the Nepra chairman highlighted the importance of CTBCM and informed the participants that CTBCM would provide an opportunity to the industry and bulk power consumers (one megawatt or above) to purchase power from suppliers of their choice at mutually agreed rates. CTBCM includes other institutional and regulatory reforms to bring much-needed efficiency, transparency and accountability to the power sector. Nepra organised these workshops to create awareness about the competitive wholesale electricity market. The roadshow series was held in capital cities of Lahore on June 24, Peshawar on July 15, Karachi on July 22 and at Nepra headquarters on August 5.

Transport sector leads energy consumption

Country's transport sector burnt off over 17.40 million tonnes of energy products to emerge as the top consumer of hydrocarbons during the fiscal year 2021-22, driven primarily by heightened economic activities, the latest data showed. According to the numbers, compiled by Oil Companies Advisory Council (OCAC), road transport consumed 17.01 million tonnes of energy products during the previous fiscal, the highest in the sector under review.

The fuel consumption of the road transport sector increased in the last fiscal compared to the 2020-21 when it was recorded at 15.47 million tonnes. Railways consumed 118,387 tonnes of energy products in the fiscal under review compared to 115,298 tonnes a year ago.

In the aviation sector, PIA used 159,024 tonnes and other airlines 110,546 tonnes. The consumption of energy products by the power sector jumped to 3.683 million tonnes in FY22 from 2.364 million tonnes in FY21. In the power sector, the usage of furnace oil by KE dropped to 707,013 tonnes from 830,771 tonnes. The utilisation of the same fuel by PEPCO rose to 123,146 tonnes from 63,858 tonnes, whereas that of Narowal Energy increased to 161,832 tonnes in FY22 from 59,953 tonnes in FY21. The consumption by the private power sector jumped to 1.799 million tonnes in FY22 from 1.108 million tonnes in FY21. The KAPCO utilised 617,772 tonnes in the last fiscal compared to 284234 MT. During the last fiscal, the government sector's consumption also rose to 373,489 tonnes compared to 306,961 tonnes in FY21. ■

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Says we provide investment banking services to small and medium enterprises

M. Naeem Qureshi

We have been working to serve underelectrified and underserved communities in Pakistan by providing them alternative energy solutions. We provide investment banking services to small and medium enterprises in developing countries and emerging markets to help them develop projects in the clean energy space.

This was stated by Global Coordinator of Private Financing Advisory Network (PFAN), Peter Storey while giving an exclusive interview to the Energy Update during his first-ever visit to Pakistan. Following are the important excerpts of his interview, in which he talked about PFAN's activities globally and in Pakistan to support clean energy transition.

Energy Update: Tell us about the PFAN and its activities the world over

Peter Storey: The PFAN is a global multilateral organization. It is organized as a public-private partnership essentially using donor financing. We provide investment banking services to small and medium enterprises in developing countries and emerging markets to help them develop projects in the clean energy space. These projects are designed to reduce emissions and increase climate resilience.

We currently have a pipeline of over 500 projects globally having a total investment of US$5 billion. Up to this date, we have leveraged $2.4 billion of investment for 212 projects.

EU: Tell us about the programme of the PFAN in Pakistan.

Mr Storey: In Pakistan, we have been operating under a dedicated country programme that is supported and financed by USAID. This support enables us to have a dedicated team in Pakistan. We have the target of raising $100 million of investment in Pakistan for clean energy projects.

We have been working very closely with the NEPRA, AEDB, and some of the relevant agencies of the provincial governments including the Sindh Enterprise Development Fund and Punjab Power Development Bard.

EU: Have you become aware of the challenges in the clean energy market of Pakistan?

Mr Storey: In the past two years, we have become very much aware of these challenges. We have put together a local team to sort out these issues. We have identified a number of priority areas on the basis of the opportunities and challenges in the renewable energy sector. These priority areas include rooftop solar systems particularly looking at the PPA model for captive use, electric vehicles and their entire value chain, their charging stations, as well as assembling, manufacturing, and distribution of two-wheelers and three-wheelers in the market. We have been looking intently at the opportunities to explore a number of other sectors including bio-mass and bio-gas energy as well as the whole concept of energy access to bring those people who are without power onto the grid and provide them with alternative sources of energy.

We will support any clean energy technology that is commercially and economically viable in a particular situation. In Pakistan, our pipeline consists of solar, EV, bio-mass, and a few wind and hydropower projects.

EU: When are you going to launch your services in Pakistan?

Mr Storey: We have already launched our operations in Pakistan. We already have a pipeline of projects in place here. We have a team in place here. We have 29 devices

working here as some of them are based in Karachi, Lahore, and Islamabad. We have 40 projects in our pipeline. We have been supporting local enterprises, SMEs, and entrepreneurs. We have been working with the local communities in the area of energy access. We have been helping to electrify these communities and households that currently don't have access to electricity.

EU: What sort of investment do you want to make in the clean energy market of Pakistan?
Mr Storey: The investment we want to facilitate here is a long-term investment. The projects we have been financing have a lifespan of seven to 10 years and even in some cases up to 20 years. We have been supporting two hydropower projects here as one of the projects will be completed soon. We have particularly been working to serve the underelectrified and underserved communities by developing alternative energy solutions for them. We have been in touch with the PPIB and Sindh Enterprise Development Fund for such projects.

EU: Tell us about yourself.
Mr Storey: I'm a banker by profession. I started my career with German and English banks and remained involved in projects of corporate finance and investment banking in the energy, communication, and infrastructure sectors. I have completed 10 years of project development working in Africa, developing economies, and markets in transition. I have been working with PFAN for the past 15 years. I'm now its Global Coordinator responsible for the global network and activities of the PFAN.

EU: How has been your visit to Pakistan?
Mr Storey: My visit to Pakistan has been extremely enjoyable. This is my first visit to Pakistan. I have been overwhelmed by the hospitality I received here. I have got the opportunity of some sightseeing in Pakistan. Mostly, I'm doing business meetings here. I have got the chance to closely observe the opportunities, dynamism, and challenges of the clean energy market in Pakistan. ■

OIL RATES

Petroleum prices: an analysis

Syed Akhtar Ali

From August 1, the government of Pakistan has reduced gasoline price by Rs 3.05 to Rs 227.19 per litre. However, diesel price has been increased by Rs 8.95 per litre with the new price being Rs 244.95 per litre. PLD (petroleum development levy) on gasoline has been increased from Rs 10 to Rs 20 per litre; while on diesel, it has been increased from Re 0 to Rs 10.0 per litre. No GST has been charged.

A highly volatile Rupee-USD exchange rate makes analyses or comparisons very difficult. Pricing has been made on a weighted average of the exchange rate of the last fortnight at Rs 225.9 while the earlier prices were based on a lower exchange rate of Rs 210.

In this period, international prices of both gasoline and diesel have come down; 15 days average price for gasoline came down from 121 USD/barrel to 103 USD/barrel (15% down) and diesel's came down from 149 USD/barrel to 132 USD/barrel(11.4% down).

Under the IMF (International Monetary Fund) agreement, the GoP has to increase PLD gradually to Rs 50 per litre. Soon, another Rs 10 may have to be added in this respect. If the oil prices do not go down and exchange rate does not stabilize at reasonable level of Rs 210, another increase would not be unavoidable.

The GoP has still some space available in the form of customs duty that it levies at the rate of around Rs 23-25 per litre. There is some confusion about customs duty and its purpose. Is it to generate revenues or to support local refineries? There used to be deemed duties, which have perhaps been eliminated. Petroleum pricing in Pakistan is done on the basis of landing prices of PSO (Pakistan State Oil), which tenders its procurements regularly. Recently, high premiums are being charged by suppliers, which may partly be influenced by low PSO risk rating.

One does not understand why there is customs duty on gasoline imports from China? It should be otherwise. China has been benefiting from low priced supplies from Russia and Iran. Some JVs (joint ventures) with Chinese oil companies may enable us to get lower prices and premiums-hopefully. There are procurement and logistics inefficiencies as well which, if removed, may help reduce petroleum prices. However, the dichotomy is that any improvement in PSO efficiency hurts local refineries.

New petroleum products' prices in Bangladesh have come as a bombshell in the region: petrol's price has been increased by 45% and diesel's and kerosene's by 41.7%. Petrol's price in Bangladesh is now 1.366 USD/litre as opposed to 0.961 USD/litre in Pakistan; and diesel's is 1.198 USD/litre as opposed to 0.98 USD/litre in Pakistan. This is despite a significant reduction in Brent prices. However, heavy exchange rate reduction has influenced affordability in Pakistan.

Petroleum prices in Bangladesh--after the new hike--are almost comparable with those in India. Earlier, there was not much difference between gasoline prices in Pakistan and Bangladesh. Bangladesh is facing similar or identical difficulties despite a less acute current account deficit issue. Bangladesh had been keeping oil prices lower in order to be competitive in exports in the region. It, too, has gone to the IMF but is in a better position than us.

However, in India, gasoline prices are 37.5% higher than those in Pakistan. In India, prices are deregulated and there is mildly heavy taxation, still much lower than those in Europe. Also, there is both Federal Excise tax and State VAT in India.

In Pakistan, IFEM is charged to average the transport cost and keep the prices uniform throughout the country, except for some minor differences. In India, there is wide variation among states due to VAT and transportation costs. In New Delhi, prices are the lowest these days: gasoline's price in Mumbai is available at IRs 111.3/litre as opposed to IRs 96.0/litre in India's capital. Diesel's prices vary as well.

On the average, these days, taxation in India is 40-42% of the selling price as opposed to 12-13% in Pakistan, partly because of not charging GST. If the IMF requirements are met ultimately and GST is charged, there will be no difference between the taxation levels of Pakistan and India. If taxation and selling expenses are removed, gasoline base prices in Pakistan are 23.9% higher than those in India while diesel's prices are 11% higher.

This is, however, a back-of the-envelope estimate. India has a very large oil refining industry; it exports petroleum products despite meeting a huge domestic demand.

Higher international oil prices and a falling Rupee have adversely impacted Pakistan's economy, causing heavy inflation as almost anything is oil dependent. It is hoped that international oil prices would keep coming down, and if the exchange rate is brought to a reasonable level, our difficulties may be contained in this respect. Hopefully, with the IMF agreement, this would be achieved. ■

Give us clean air

Ensuring clean air is a public service

Kulsum Ahmed and Sanval Naim

Recently, we shared data on stunting. This week, we turn to the second highest risk factor underlying Pakistan's health burden — air pollution. According to the Global Burden of Disease 2019 report, after malnutrition, exposure to air pollution increases the risk of diseases that cause both premature death and illness in the country — this is a sobering fact, one we can no longer afford to overlook or dismiss.

Pakistanis are exposed to hazardous levels of both indoor air pollution and outdoor air pollution, raising the incidence of ischemic heart disease, stroke, lung cancer, neonatal morbidity, lower respiratory infections, diabetes, and chronic obstructive pulmonary disease. Experts refer to these diseases as non-communicable diseases (NCDs), which we can prevent only by eliminating risk factors that cause them. Otherwise they need to be managed over a lifetime, incurring substantial costs.

A recent paper from Aga Khan University Hospital notes that about 1,000 people in Pakistan suffer a stroke every day. Out of these, about 400 people die within 30 days. The authors suggest that limiting air pollution exposure alone can prevent 30 per cent of strokes in Pakistan. Yet, the Punjab government's NCD Unit does not even list air pollution as a risk factor for NCDs. This suggests that we require significant efforts to raise awareness of air pollution's health impacts.

Besides health, air pollution also directly and indirectly affects cognitive ability — that is, our IQ, logical thinking, and our ability to reason, form ideas, and retain information. Air pollution directly affects the brain's neurological function, leading to cognitive degeneration. On the other hand, the inability to breathe properly affects one's focus. We all know that when we cannot breathe properly, focusing on basic tasks becomes difficult, let alone physical chores and schoolwork.

Ensuring clean air is a public service. Yet improving air quality does not involve quick fixes. Air pollution thus increases school and job absences and performance. Researchers have found strong evidence demonstrating that an increase in pollution levels leads to higher school absences. Similarly, improvements in air quality improves school attendance. Even if students make it to school, studies from California and Israel show that exposure to air pollution in the classroom can noticeably decrease students' test scores — keep in mind, these settings have vastly superior air quality compared to Pakistan.

Pollution exposure even before birth can lead to permanent, lasting consequences. Research from various countries suggests that exposure to air pollution during pregnancy results in the child in later life having lower scores on language and math tests in school; depressed earnings later in life; high unemployment; lower probability of college attendance; reduced high school completion; and higher chances of incarceration.

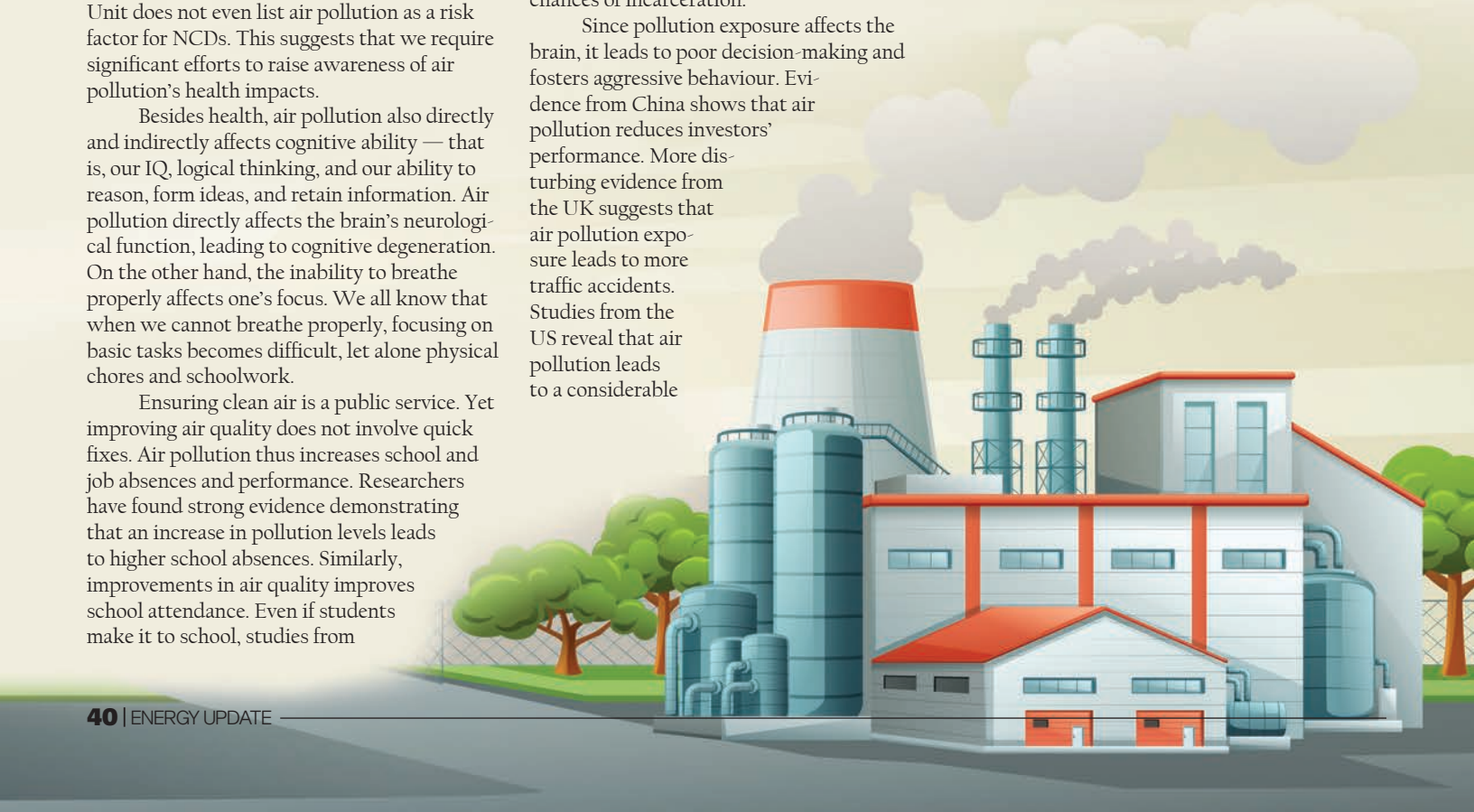
Since pollution exposure affects the brain, it leads to poor decision-making and fosters aggressive behaviour. Evidence from China shows that air pollution reduces investors' performance. More disturbing evidence from the UK suggests that air pollution exposure leads to more traffic accidents. Studies from the US reveal that air pollution leads to a considerable increase in violent crime. Shockingly, the rise in violent crime due to air pollution occurs at levels well below stipulated air quality standards.

Given the above research, we shouldn't be surprised that governments in many countries take air pollution seriously and voters demand this from their elected officials. In Pakistan, however, the same urgency is not evident.

Poor air quality affects all Pakistani households, regardless of income. However, it disproportionately affects poor households, deteriorating their health, raising their health expenditures, and thus dragging them back into poverty. Given that more than half of Pakistan's population is vulnerable to falling back into poverty, and that much of the country's population is already exposed to dirty outdoor and indoor air, this makes for an explosive mix.

Ensuring clean air is a public service. Yet improving air quality does not involve quick fixes. Pakistanis already have a constitutional right to a clean and healthy environment. Under the 18th Amendment, air quality management is a provincial government responsibility. To improve air quality, we need to devise an overarching national-level clean air plan — after all, air does not respect provincial boundaries. The federal government must ensure that provincial governments keep their end of the bargain. We also need stakeholders across the board — including citizens, the private sector, and local governments — to band together to fix this problem. In short, we must prioritise air pollution. ■

Courtesy Dawn



Tackling energy Vecna

Hamza Haroon

The recent Netflix season of 'Stranger Things', a teen series where monsters from a parallel universe terrify the peace-loving citizens of Hawkins, has me on my toes.

In the latest season, a monster named Vecna has emerged. El, the protagonist, put him in the parallel universe a long time back, but her memory failed her, and she forgot all about Vecna. Vecna is dangerous and aims to wipe off Hawkins. Vecna reminds me of all our strange energy policies over the last couple of decades. The dependency on the dirtiest fossil fuel plants constantly burdens our import bill and the environment.

Being held hostage by IPPs, fluctuating global fuel/gas prices, and unable to craft an ambitious renewables strategy is comparable to allowing Vecna to live amongst us, looming and waiting to strike. If we do not act soon, these regressive policies and status quo, like Vecna's threat to Hawkins, will further harm Pakistan.

The recent announcement by the government to come up with a comprehensive solar policy is a good yet concerning sign. It once again signals that a holistic view and a deeper understanding of Pakistan's energy landscape are missing. Half-baked policies with superb soundbites will lead to the usual lackluster execution. This failed cycle can no longer sustain.

What we need is a comprehensive energy policy, of which, no doubt, solar energy must be a key player. On the climate front, remember that Pakistan currently emits less than one percent of global GHG emissions. Our immediate focus, given our energy needs, should be on adaptation and not entirely mitigation. This complex challenge requires thorough diagnostics across all energy-consuming sectors, understanding of all available clean energy tools, and leadership towards future-proof planning.

Just to put things in perspective, Pakistan's solar capacity is a mere 1.04 per cent of the total national capacity (approximately 430MW, 0.4GW) compared with that of India's solar capacity of 50GW, which has 116 times more capacity than Pakistan and 25 per cent more than Pakistan's total electricity capacity.

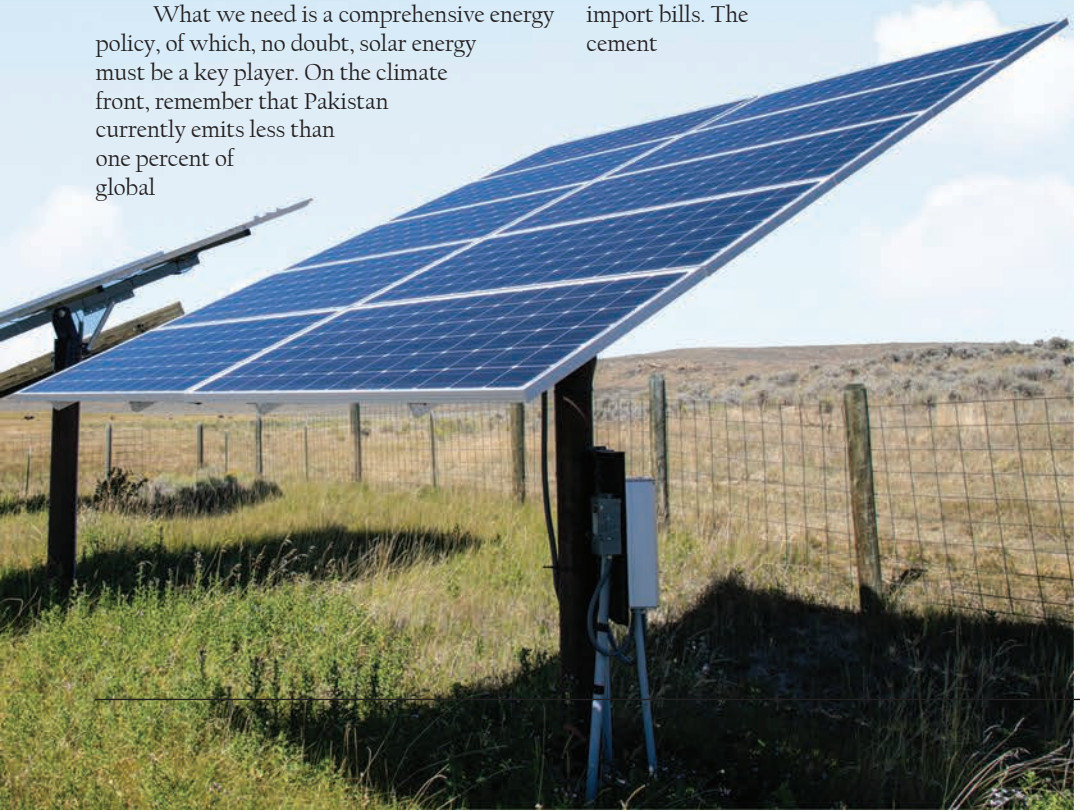
Solar power, like wind energy, inherently has intermittency issues, with solar capacity factors averaging 10-30 per cent, compared to nuclear power plants with a capacity factor of 90-95 per cent. The capacity factor is low for renewables, and intermittency is an issue for wind and solar because the sun does not shine, and the wind does not blow all the time. The intermittency issue may require expensive undertakings such as industrial scale or home batteries, which in many cases may increase the cost of electricity generated. Batteries, among other things, are also not manufactured in Pakistan and will have to be imported.

We must ensure that we simultaneously utilize, develop, manufacture, and transition to clean technologies in transportation, industry, residential and commercial sectors. Pakistan's growing transport sector requires approximately 59 per cent of our oil import bills. The cement industry of Pakistan uses massive amounts of coal, 8-12 million tons a year, which is approximately 30 per cent of our total coal import. Can we also develop a plan to offset this? Can we plan to use and transport Thar coal to supplement this need? What about better insulation material development for the residential sector that can impact energy consumption in our homes?

Wind also has immense potential; Pakistan's Meteorological Department measures Pakistan's coastal belt at Gharo-Keti Bandar and shows an exploitable potential of 50,000MW of electricity generation through wind turbines.

To avoid creating another Vecna living in a parallel universe, we must look at the energy policy holistically. Renewables are a part of the solution, not the complete solution. We cannot afford to put a band-aid on a wound that needs stitching. We need an evidence-based, comprehensive energy policy that works on an ambitious, pragmatic, and future-proof energy policy that helps increase R&D for new tech, local manufacturing capacity, the proliferation of clean technologies amongst the masses, and future export potential. ■

The writer is a graduate of the Kennedy School of Government, Harva



Usefulness of IGCEP

Top brass of power regulator disagree

Mushtaq Ghumman

The top brass of power regulator, National Electric Power Regulatory Authority (Nepra), has disagreed with each other during discussion on "usefulness" of existing Indicative Generation Capacity Expansion Plan 2030, baffling the entire Nepra team and other participants.

This untoward situation was witnessed during a public hearing on positive adjustment of Rs 9.91 per unit in tariffs of power Distribution Companies (Discos) for the month of June 2022 to recover additional amount of Rs 133.5 billion under monthly FCA mechanism.

However, Nepra has agreed to approve an increase of Rs 9.8970 per unit to pass on additional financial burden of Rs 133.3 billion to consumers.

CPPA-G once again pointed out that rebasing of tariff has been delayed. Minister for Power Khurram Dastgir Khan has already stated that it was due in February 2022, which has been delayed. Nepra also approved an increase of Rs 11.37 per unit in tariff of K-Electric for June 2022 under FCA mechanism to recover over Rs 22 billion. The cumulative financial impact of positive adjustments of Discos and KE for June 2022 would be over Rs 155 billion. The main factor for the massive increase in FCA is price and mix variation.

The scuffle between Chairman Nepra, Tauseef H Farooqi and Member NEPRA (Sindh) Rafique Ahmad Shaikh became evident when the latter questioned CEO CPPA-G, Rehan Akhtar for choosing to generate expensive as opposed the cheaper renewable projects.

Rehan Akhtar stated that the government is working on draft Renewable Energy (RE) Plan and work is also under way on a revised IGCEP, which will be presented to the Authority, adding that the total focus of revised IGCEP would be on solar and wind energy.

Member Sindh inquired about the benefit of IGCEP 2030. CEO CPPA-G noted that there was no consolidated energy plan before IGCEP, whose improved version will be unveiled.

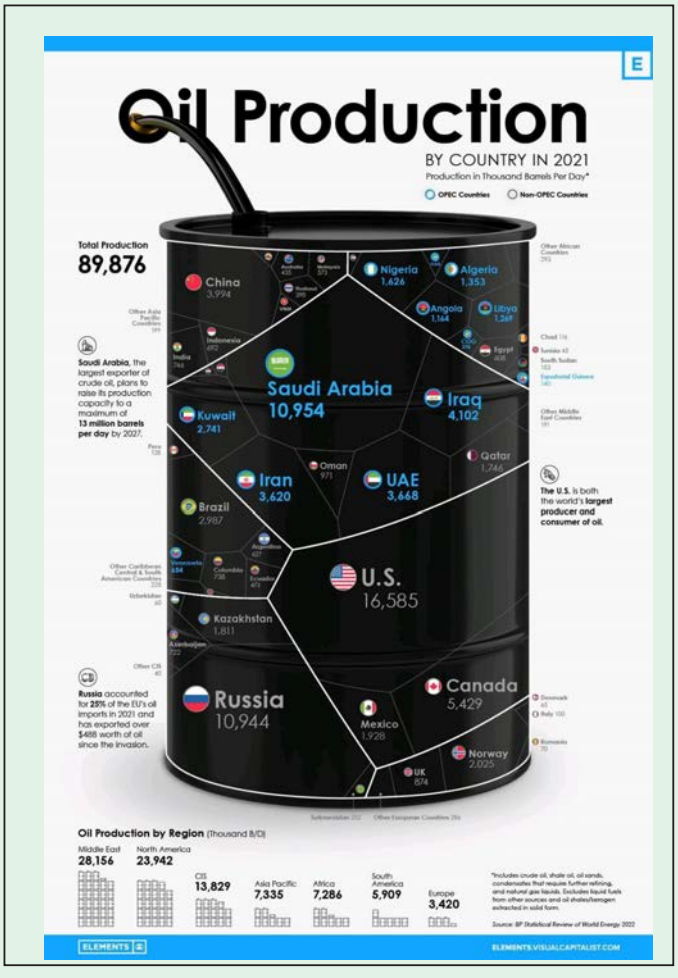
IGCEP was launched almost a year ago so what are the benefits of its first version, inquired Member Sindh in his individual capacity. CEO CPPA-G clarified that there was no energy plan in document form and procurements were made in accordance with the first version of this plan. He; however, admitted that there were shortfalls in IGCEP.

"I admit in personal capacity that there were issues/ problems in the first version," CEO CPPA-G said adding that now the revised version is on the cards.

When Member Sindh asked again why if there were no benefits associated with IGCEP, it was supported. CEO, CPPA-G responded that there were benefits to IGCEP, adding that it is far better to have a document instead of no document. However, he further stated that now the concerned organizations are improving the document in light of changing environment and based on studies. Member Sindh observed that it is good that CEO CPPA-G had admitted that IGCEP was useless, Chairman NEPRA intervened saying it was a public hearing and such comments should be avoided.

Member Sindh, angered at the intervention of Chairman, stated that he knew it was a public hearing but he can offer personal comments on IGCEP. Chairman NEPRA commented that IGCEP should be viewed in the same context for which it has been developed instead of seeing it the context of rupee dollar parity or international prices. ■

Courtesy: Business Recorder



Need to use energy sector competitively

Energy resources utilized inefficiently for decades

Muhammad Sheroz Khan Lodhi

The South Asian subcontinent is facing a massive energy crisis, which has placed regional governments on edge, compelled widespread switching to extremely polluting fuels like coal and fuel oil, and plunged nations like Sri Lanka into socio-economic chaos. An uninterrupted, reliable, and economical energy supply is a crucial prerequisite for lowering poverty, promoting investment, and accelerating economic progress in a developing nation like Pakistan.

Pakistan's energy resources have been inefficiently utilized for decades due to poor energy management. As a result, the country is experiencing a severe energy crisis that frequently hinders manufacturing and the service industry and disrupts electricity supplies in towns and homes all around the country. According to a survey by the World Bank, 66.7 percent of the businesses in Pakistan cite electricity shortages as a more significant obstacle to business than corruption (11.7 percent) and crime/terrorism (5.5 percent).In view of these aspects, the nation's energy sector urgently needs to innovate.

Due to a severe discrepancy at the policy level, there are no simple or quick fixes for the power deficit that the nation is currently experiencing. Although there are domestic alternatives, policymakers have been ignoring them for more than three decades. Power outages are unlikely to be eliminated anytime soon unless the new government harmonizes the fragmented governance in this area. In the next 20 to 25 years, the nation will require US $210 billion to meet its expanding energy needs.

By 2050, it is predicted that the world's energy consumption will have doubled, with emerging economies accounting for 90% of the increase as more people recover from poverty and increase their energy use. Energy demand in Pakistan has increased four-fold in the last 25 years; it is expected to increase eight-fold by 2030, and by a factor of 20 in the year 2050.

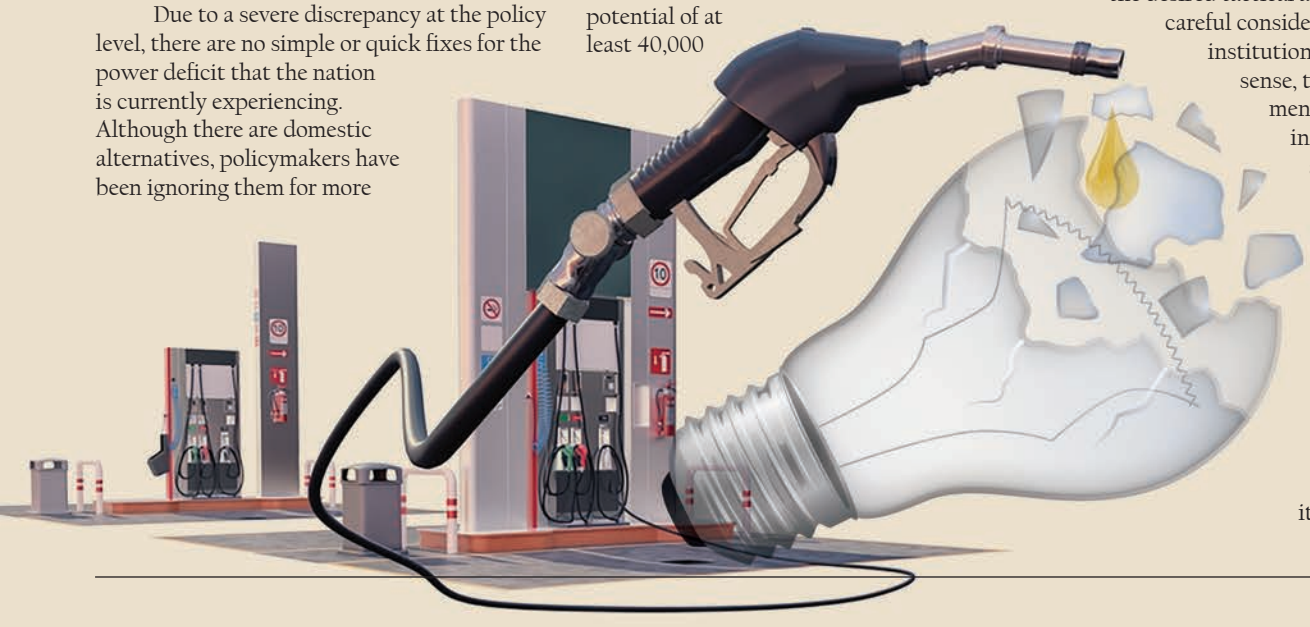
The Thar Desert contains 175,506 million tonnes of coal; the world's seventh largest coal reserve. It is the largest coal reserve in the world and has the capacity to produce more than 100,000 MW of power over a 300-year timeframe. However, building new infrastructure requires 5-7 years. Within only Baluchistan province, Pakistan is thought to have shale gas deposits worth 51 trillion cubic feet (TCF). Shale gas production is currently nonexistent in Pakistan, and tremendous effort is needed to get this highly promising energy source up and running. Our rivers also offer an extra potential of at least 40,000 MW if properly marshalled.

Converting this local potential into production capabilities is hampered by financial limitations and political baggage. According to a review of local resources, Pakistan is capable of resolving its energy crisis. However, in order to build electricity projects, sufficient funding and planning are required. The affordability of the electricity generated by the new power plants for residential and commercial consumers should be a priority for policymakers.

Moreover, the Covid-19 pandemic offered many lessons in work-from-home and hybrid arrangements, which can be reintroduced if residential areas can be assured of uninterruptible power. Another choice would be to bargain with traders to limit business operations to daytime hours, which can save a lot of electricity. Additionally, in order to compete in international markets, exporters must lower their margins and boost their efficiency rather than relying on government subsidies.

To summarize, beyond redefining energy efficiency as a rhetorical term, a solid and well-considered energy productivity policy framework must be created. Offering incentives for the development of distributed energy resources, i.e., encouraging a shift toward renewable energy sources like solar, wind, and biogas, is one way to address Pakistan's energy crisis (and consequent environmental damage). Thankfully, Pakistan has access to renewable energy sources. In addition to having potentially abundant solar energy resources, it may also be able to access wind energy resources, particularly near the Arabian Sea's shore. Pakistan's possibilities for renewable energy are encouraging.

According to energy experts, Pakistan's overall renewable energy potential is estimated to be around 167.7 GW, more than enough to fulfill the entire country's demand for electricity. But it is difficult to evaluate the energy productivity programme and its subsequent implementation in a vacuum. To achieve the desired tactical and strategic aims, careful consideration by the relevant institutions is required. In this sense, the Pakistani government must take the lead in order to ensure peace and security as well as political stability and institutional reform. Until that time, the country won't see an "invigorated" homeland, a healthier environment, an improved economy or, ultimately, a better standard of living for its citizens. ■



Fixing economy when debt servicing is 45.6% of expenses

Maryam Mastoor

Pakistan's GDP is $263 billion, and the country's expenditure is more than its income. According to the Pakistan Economic Survey, the fiscal deficit is around Rs4 trillion, therefore, the government is compelled to seek foreign loans to meet its needs.

Debt servicing in Pakistan is 45.6 per cent of the total expenditure. With this situation at hand, Rs800 million has been allocated for public-sector development in this year's budget. In the last budget, Rs900 million rupees had been allocated for public-sector development with a range of projects from road construction to building of colleges and hospitals.

One may ask whether anyone has thought of scrutinizing the projects. How many projects have been completed, how many of them need more funds? The amount is allocated by the federal government without taking into account a proper estimation of the need. Then, surprisingly, Rs699 billion has been allocated for subsidies, the burden of which will automatically be borne by the state which is already thin on credit.

Pakistan's exports are worryingly low, amounting to $26.8 billion, when compared with imports. The import bill has grown compared with the previous year. A major chunk of import is oil, which is not only used for mobility but also for electricity production. Other than oil, Pakistan also relies on coal for electricity generation. We import coal as well. Ominously, it is projected that Pakistan doesn't have money to pay its import bills for more than two months.

The economic situation is bleak. However, there is always a way out from a chaotic situation. Often huge problems have simple solutions. Instead of just relying on 'friendly countries' or the IMF, Pakistan should focus on indigenous solutions to its problems. First, there should be strict accountability of the funds spent in the previous fiscal year to avoid unnecessary expenses in the impending fiscal year. Second, Pakistan can reduce its import bill by completely switching to alternate energy resources, as far as electricity generation is concerned.

According to a World Bank study, Pakistan has massive solar resource potential. If Pakistan utilizes only 0.071 per cent of its area for solar PV installation, the electricity produced by it would meet the demand. The country can become self-reliant in terms of electricity by making use of alternate energy resources. Similarly, Global Wind Atlas indicated that wind resource Balochistan can also be used to generate electricity. It is high time we started implementing alternative energy resources for power generation; this will help reduce the import bill.

In the first phase, the power generation plants that are already in place can be switched to alternative energy resources. Then more alternate energy dependent plants can be installed.

Additionally, in order to reduce the import bill, Pakistan can simply stop unnecessary imports for one or two years. Instead, it should focus internally on manufacturing. Pakistan's large-scale industry is limited, consisting of textiles, food beverages, tobacco and automobiles. Automobiles are also assembled rather than manufactured in Pakistan. By easing the business structure, investors can be attracted to invest in industry.

Fourth, a country earns through taxes. Tax contributes around 10 per cent to our GDP. But Pakistanis are more inclined towards giving charity than paying taxes. According to Active Tax Payer lists, prepared by the Federal Board of Revenue, only 2.2 million people (including companies) pay tax.

The FBR has failed to increase the tax base. Instead, the state has imposed a sales tax of 17 per cent on goods. A poor person whose income is as less as Rs200 per day is paying the same tax on a necessary commodity, as one whose daily income crosses Rs10,000. There is no federal tax on agriculture. In 1997, after pressure from the World Bank a modest provincial tax on agriculture was imposed. But only a few pay that tax.

Pakistan's economy can be fixed. Initially, three steps can be taken: (a) make Pakistan energy sufficient; (2) reduce the import bill; and (3) increase the tax base. The problem with Pakistan is that [some of the] people are wealthier than the state. Bold decisions against tax evaders can work wonders. Legislation to include the rich in the tax net can be proposed. ■

The writer is a research analyst at the Institute of Regional Studies, Islamabad.

Ground breaking of Pak-Korea Lab held

EU Report

The ground breaking ceremony of Pak-Korea Testing Laboratory for PV-Modules and Allied Equipment being established by the Pakistan Council of Renewable Energy technologies (PCRET) and Korea International Cooperation Agency (KOICA) was performed in Islamabad.

Federal Secretary for Science and Technology, Ghulam Muhammad Memon was the chief guest on the occasion. Ambassador of Republic of Korea, Mr Sangpyo Suh and Director General PCRET, Dr Syed Atta-ur-Rehman were also present on the occasion.

Speaking on the occasion, the federal secretary said that the bilateral cooperation between the two nations reflects that their all-weather strategic partnership was developing by leaps and bounds. He appreciated the cooperation between Pakistan council of Renewable Energy Technologies (PCRET) and KOICA in the field of Solar Photovoltaic (PV) testing as per international standards.

He said that Pakistan being a sun belt country has great potential of solar photovoltaics, specially due to the fact that this wide spread country is a laterally developed country. The rooftop mounted PV systems connected with the local grid through net metering can significantly alter the pi-charts of our power generation and consumption patterns. The power generated through solar photovoltaic offers the lowest cost of the power generation while the hydel source is highly capital intensive.

Ambassador Sangpyo said that the impact of climate change is getting severe and now climate change becomes the biggest threat to human beings all over the country.

Considering the current situation, it is our prime responsibility to make every effort for CO2 mitigation and climate change adaptation as agreed in Paris Climate Agreement. In this respect, this project will contribute to implementing The Paris Agreement and is in accord with Pakistani government's renewable energy policy initiative with the aim of generation 20% of its energy from renewable energy by 2030, the ambassador said. ■

Stuck up solar equipment

PSA seeks PM help for customs' clearance

EU Report

Pakistan Solar Association (PSA) has called upon Prime Minister Shahbaz Sharif to intervene for customs clearance of containers carrying solar equipment stuck for months at various ports across the country.

"A huge number of solar devices import containers are awaiting clearance while importers are facing heavy demurrage charges," PSA chairman Rana Abbas said in a statement.

He added that it was the time to aggressively promote alternative and green energy sources, and encourage the traders dealing in solar energy equipment in Pakistan. "The containers containing solar equipment have been stuck for months at ports mainly awaiting approval from the State Bank of Pakistan (SBP)."

Abbas said the govt had imposed restrictions on import of all items starting with 85 prefix in directory of H.S. codes while the current procedure required that every time, import documents of solar equipment including solar panels and inverters must be submitted to the SBP through the bank's forex portal.

"Despite passing of several months, there is no response from the SBP to approve the LCs [letter of credits] while importers are unable to get released their goods from the Customs authorities. This is resulting in excessive demurrage and detention charges on a daily basis being suffered by the importers and traders, as their terrible financial losses would ultimately lead to their bankruptcy."

That would help lower the cost of power, achieve greater energy security and reduce greenhouse gas (GHG) emissions, it added. "Following an optimal scenario with a major scale-up of VRE would save Pakistan $5 billion costs over the next 20 years, mainly from reduced fuel consumption," the report stated.

Abbas said such delays in customs clearance would do no good to the economy of the country, rather they would discourage the traders community who were committed to contribute to the revival of economic indicators. ■

Power generation
Need stressed for indigenous fuel

EU Report

The summer came earlier this year with unannounced electricity load-shedding that later became scheduled. The timing coincided with the PDM (Pakistan Democratic Movement) assuming power. Right from day one, the new government started blaming the outgoing government for not procuring fuel for numerous power plants.

The problem was supposed to be solved in weeks. However, power load-shedding has only increased since. Now the blame is on the previous government that they have delayed the commissioning of some plants that were conceived and planned during the PML-N (Pakistan Muslim League-Nawaz) tenure (2013-18).

The media strategy is to pass the buck on to the others just as the PTI (Pakistan Tehreek-e-Insaf) government was doing for the rise in circular debt during its tenure by accusing the PML-N government of failing to initiate more than needed number of plants. The basic issue today is not of capacity as there is enough baseload generation capacity in the system to achieve nearly zero load-shedding. That was the case last year too as there was no or little load-shedding. However, the problem is quite different today.

The issue is not about the competence of PML-N or PTI. Whosoever would have been governing today, the result would be similar. The problem is financial in nature. International prices of coal, RLNG and furnace oil are too high for the country to afford, given its precarious balance of payment situation. At such a high fuel cost, the government finds itself unable to pass on this through increase in tariffs proportionately. Not doing so would exert pressure on the fiscal balance. Furthermore, at such a high-cost generators (Independent Power Producers) too are reluctant to generate at full capacity as they find it hard to finance the growing circular debt.

These are the basic reasons for the high load-shedding scenario today. Had there been additional capacity available on imported fuel, the fate of power generation would be no different. For example, the government is claiming that the PTI government had delayed the Punjab Thermal Power Limited (on RLNG) by 26 months. And this is leading to higher load-shedding. However, the shortfall of load generation on RLNG by existing three power plants was of 785MW as on 30th June 2022. This is due to not buying LNG at exorbitant spot rates. It is a right decision.

The net capacity of four plants based on imported coal — Sahiwal Coal, Port Qasim Coal, China Hub Power and Lucky Electric — shows a shortfall of 34,283MW. Three of these four plants are operating at sub-optimal level as the government has decided against using the insanely high priced imported coal for power generation as it would not be able to recover the cost.

Moreover, it cannot afford an additional strain on current account deficit. Last year, these plants were running at maximum capacity as coal prices were a mere fraction of what these are today. There are some transmission constraints that hamper the ability of China Power and Port Qasim plants to run at full throttle simultaneously. Lucky Electric, which runs on lignite coal (whose price is lower), was, however, closed due to technical reasons. Now it is back on the grid.

There would be less load-shedding in the remaining summer this year. Our hydel capacity is close to 10,000MW and half of it is not being obtained (end June) due to non-availability of water. That is a seasonal issue. With the onset of monsoon and glaciers melting, water availability would be better in coming months. Plus, the load on the national grid would be less due to falling temperatures.

The hard time has perhaps passed; the problem is in the long-term planning as for majority of the power plants of IPPs established under the 1994, 2002, and 2015 policies were envisaged on imported fuel. The lack of reliance on local coal and other fuel options has created this systemic problem, especially in days of high global fuel prices. The need is to fix this and to focus on indigenous fuel to generate power. ■

Pakistan's first electric car prototype unveiled

High profile guests and media gathered here at Beachn Luxury hotel recently to witness the unveiling of Nur-E 75, Pakistan's first electric car prototype. Presented as a gift to Pakistan, the car has been designed and developed by DICE Foundation, a US-based non-profit organization, run by expatriate Pakistanis from US, EU, etc. along with support from local academia and industry. DICE Foundation has been working in Pakistan for the last 15 years promoting innovation, capability building, converting 'Brain Drain' into 'Brain Gain'.

Speaking on the occasion, AK Memon, introduced the chairman and founder of DICE Foundation, Dr Khurshid Qureshi, a leading expert on the development of autonomous vehicles.

Dr Qureshi said "I cannot stress enough on the significance of this innovation and how it will be a game-changer both for Pakistan's economy as well as for the well-being of the common man of Pakistan, once it comes into the market in the last quarter of 2024. What's more, this E car will play a phenomenal role in the context of environment and climate change, and will help us move away from non-renewable fuel consumption. This prototype is of 5-seater hatchback but we also have plans to develop sedan and small SUV on the same common platform.

Dr Qureshi also thanked all the partners who helped make this milestone achievement possible: NEDUET, DSU, NCA, TEVTA Punjab, NUST, SSUET, Amreli Steels, PSG, Kruddson Aluminum

Kohala Hydropower Project

PPIB extends due financial close date by 2 years

Mushtaq Ghumman

The Board of Private Power & Infrastructure Board (PPIB) has reportedly granted a two-year extension in financial close (FC) date to 1,124MW Kohala Hydropower Project.

Official sources said, PPIB, in its proposal requested the Board to allow extension in the FC date for an appropriate period to accommodate remaining pre-requisites of FC of Kohala Hydropower Project (a CPEC strategic project), on the basis of single Performance Guarantee (PG) as the reasons for the delay in achievement of FC were beyond the reasonable control of the project company.

According to the PPIB, there is no provision of waiver of exemption from Fee Payment against "extension in Financial Close under LoS (for each extension)" based on the reasons of extension, in the "Private Power and Infrastructure Board (Fee and Charges) Rules, 2018"; however, the board should consider the request of the project company for waiver of applicable LoS extension fee on merit basis.

The project company, which sought a three-year extension in FC date will submit monthly progress report that sets out in adequate detail, the additional actions taken by the project company in achieving the FC in the extended FC date.

The project company through a letter of July 14, 2022 stated that project activities, unfortunately, remained suspended for nearly three years due to various disruptions like Covid-19 pandemic, E-flow issue raised by the government of Azad Jammu and Kashmir and imposition of certain taxes on import of project equipment, etc. which were beyond the reasonable control of the company.

After the execution of the project agreements with the government entities, the project company approached China Export & Credit Insurance Corporation (Sinosure) for issuance of the LOI, however, in spite of all the efforts of the Project Company and its Headquarters in China, the LOI has not yet been issued by Sinosure which is the requirement for arranging finance for the project.

OGDCL provides Rs20m relief aid

Oil and Gas Development Company Limited (OGDCL), being a responsible corporate entity, has provided relief aid to rain and flood affectees of Balochistan province. As a part of its relief activities, the company provided Rs20 million relief aid to DG PDMA Balochistan for distribution among the the affected families. In addition, medicines amounting to Rs2 million were also delivered to Jhal Magsi authorities for the affectees. In June 2022, OGDCL also provided medicines to Dera Bugti authorities to cope up the Cholera outbreak.

Rs0.47 hike sought in hydroelectric power tariff

Pursuing a revenue target of Rs121 billion for the current financial year, the Water and Power Development Authority (Wapda) has requested the National Electric Power Regulatory Authority (Nepra) to increase the tariff of hydroelectric power by Rs0.47 per unit

During a meeting held in this regard, Wapda requested that the average tariff of 21 plants should be increased from Rs3.68 to Rs4.15 for the financial year 2022-23. NEPRA Chairman Tauseef H Farooqui asked WAPDA officials why they needed Rs1,500 million to repair power plants. He also sought the submission of separate data for each project. The Nepra chief said there is a misconception that hydropower is cheap. Electricity was also purchased from some projects at Rs142 per unit, he added.

He wondered why Golen Gol Hydropower Project costs were increasing, adding that consumers were interested in electricity, and they did not know why projects were delayed and messed up. "Today, Wapda is giving electricity at the cost of Rs3.5 per unit," Farooqui remarked.

Wapda officials said that they could not build a dam every 10 years due to which they are facing circular debt today. Nepra then sought a written response from Wapda regarding receipt of Indus River System Authority (Isra) charges.

Solar plant to replace Gwadar power project

Govt not interested in plant based on imported fuel

Khalid Mustafa

The Power Division has decided to abandon the 300MW imported coal-based power plant at Gwadar and replace it with a solar plant.

The project was conceived under the CPEC and approved in 2016, but its formal construction had not started. Now the government wants China to install a solar power plant of the same capacity after it decided not to install any new power plant based on imported fuel in the future.

"We have decided to abandon the project, but we will have to take up the issue at various CPEC forums with our Chinese counterparts. CPEC projects have sensitivity and importance which is why the Power Division's decision to replace the imported coal-based project at Gwadar with a solar plant is being kept at a low profile," an official said.

Federal Minister for Power Division Khurram Dastgir Khan also hinted the government wanted the Chinese power plant at Gwadar to be replaced with a solar power plant of 300MW. He said that the government had decided to ban new power plants based on imported fuel.

More importantly, the minister said, the government has also decided to convert the existing imported coal-based power plants of 3,960MW, including the Port Qasim plant, Sahiwal power plant and China Hub plant, each having the capacity to generate 1,320MW of electricity, to local coal. The fuel import bill had eaten up almost $20 billion in the first 11 months of the last fiscal 2021-22. The initiative is being taken to scale down the fuel import bill and reduce reliance on imported fuel for power generation.

The Joint Cooperation Committee (JCC) for the CPEC had decided in its 6th meeting held in Beijing in December 2016 that a 300MW imported coal-fired power project must be developed on a fast-track basis at Gwadar.

Pakistan is currently importing 30 to 70MW of electricity from Iran under an agreement of 110MW. Sometimes, Pakistan has some fluctuation in electricity import because of demand in Iran. Pakistan had inked a new agreement of importing 100MW electricity for which a transmission line would be laid from Polan (Iran) to Gwadar by the end of 2022, or the start of 2023. The government has also increased its emphasis on laying its own infrastructure in Balochistan and the NTDC will lay a high transmission line of 500kv from Makran coast to Gwadar. ■

Renewables show slowest growth in 15 years

Munawar Hasan

Renewables have shown slowest growth in power generation mix in the last 15 years starting 2006-07, according to a report on 'Trends in Electricity Generation' released by Pakistan Bureau of Statistics.

The country broadly relied on thermal power generation during 2006-21; however, due to environmental concerns, the world now discourages production from these sources which paved the way for green energy.

With the adoption of Sustainable Development Goals (SDGs) in 2015, the focus was shifted to affordable and clean energy under Goal 7. Various targets were substantially set to increase share of renewable energy in the global energy mix. "The targets can be achieved through enhancing electricity generation capacity through alternate and renewable energy sources," the report added.Pakistan has also adopted new Alternate and Renewable Energy (ARE) policy 2019 with the aim to create a conducive environment for the sustainable growth of ARE Sector in Pakistan. This section highlights the renewable energy installed capacity of the country.

Renewable energy sources comprise hydel, wind, solar, bagasse, geothermal, tidal wave etc. Pakistan is mainly using hydel, wind, solar and bagasse as renewable sources, whereas plans are also underway to tap other potential areas as Pakistan has abundant resources for green energy.

Data shows renewable energy mix in the total installed capacity is 30.1 percent. It further explains that out of 30.1 percent, hydel is 24.4 percent, wind comprises 3.1 percent, solar 1.4 percent, and bagasse 1.3 percent.

Shifting of capacity to other sources such as bagasse, wind and solar-based plants in the system was also evident. The overall growth rate by all type of plants was 105.6 percent during 2021 over 2007. The share of installed capacity of hydel contracted from 33 percent to 24 percent from 2007 to 2021 but in absolute terms its installed capacity increased from 6,474MW in 2007 to 9,912MW in 2021.

All other sources also expanded their share from 2007 to 2021 ie nuclear 2.16 percent to 4.36 percent, thermal 64.9 percent to 65.5 percent, bagasse 0 to 1.3 percent, solar 0 to 1.37 percent, and wind 0 to 3.06 percent.

From 2007 to 2021, the installed capacity increased with an average annual growth of about 5 percent. However, during the last six years, a visible increase of 9 percent can be observed in the average annual growth, the report showed. ■

Thar Coal Block-1 project

Affectees to be settled in colonies: Sindh CM

Sindh Chief Minister Syed Murad Ali Shah has said that the Thar Coal Block-I affected people would be settled properly by establishing their colonies to be equipped with all the facilities.

"The Shanghai Group working in Block-I should expedite construction of the residential colony so that affected people could be shifted there," he said while talking to a delegation of Shanghai Electric Group led by its President Liu Ping here at CM House.

The delegation members include Deputy President Yi Xianrong, Chairman Block-1 Power Generation Co. Meng Donghai and others. The CM was assisted by Energy Minister Imtiaz Shaikh. Mr Shaikh briefing the chief minister said that two villages had been affected with the start of work in Block-I. He added that the project had affected many families. The chief minister said that his government would provide them proper houses in a colony.

The energy minister told the meeting that the Shanghai Group had paid 50 percent payment for construction of the houses for the affected

people. He added that as the work would progress, the company would pay the remaining 50 percent amount.

President Shanghai Group Liu Ping told the meeting that the land acquisition had not been completed. At this, Mr Shaikh said most of the land acquisition matters had been solved. ■

Call to solarize universities

Country's all universities need to convert their electricity power into solar energy to save nation's billions of rupees, said VC Gomal University Prof Dr Ifrikhar Ahmad in his letter to chairperson Higher Education Commission (HEC).

He suggested that HEC should play a role to install solar panels in all Pakistani universities to generate electricity and run all campuses, departments and centers using solar energy to save more than Rs20 billion annually.

Ahmed wrote a letter to Chairperson HEC Islamabad Dr Shaista Sohail, in which the Vice Chancellor said that Gomal University pays one crore rupees in the head of electricity bills. He said that a 700KW/h solar system project was in the final stages of implementation on which work will start soon. ■

Clean Energy Financing Task Force launched

UNIDO and USAID have launched a Clean Energy Financing Task Force (CEFP-T for Pakistan the Clean Energy Financing Pakistan under the Pakistan private sector energy project.

The Task Force will operate as a community of practice, fundamentally a learning and knowledge platform that brings together professionals from banks, investment and financial institutions in general, that are working on clean energy financing solutions and instruments in Pakistan.

In October 2021, Pakistan committed to a 60% share in renewable energy generation capacity by 2030. Investment in clean energy deployment is key to realizing this pledge and moving towards a decarbonized economy in the future.

The CEFP-TF will build momentum through identifying challenges and opportunities facing financial institutions in the Pakistan clean energy financing markets and exploit them through a hands-on approach that will promote and accelerate change.

"We should be looking towards subsidized funding for the clean energy shift, for example, the subsidized scheme provided by State Bank of Pakistan, stress on the outcomes and success of the scheme, which hopefully will be continued", Tayyaba Rasheed, Head Investment Banking Group, Faysal Bank Limited.

"Renewable energy and clean financing are elements that have come to stay in Pakistan for the long run and it is becoming the cornerstone for development. Collaborative platforms for financial experts working on emerging markets such as clean energy are critical to the growth of the sector", Shezad Abdullah, Senior Vice President, Head of Structured Finance and Advisory, Askari Bank.

The Task Force has been summoned for the following session to be held in August 2022 to initiate a work of reflection and practical learning to promote strategies and synergies for Pakistan. ■

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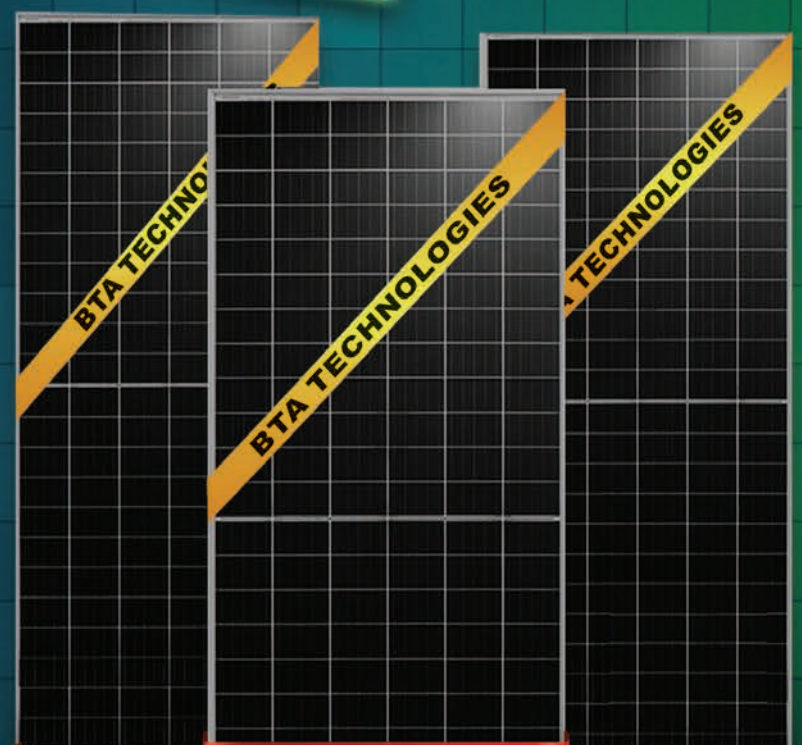

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