

MONTHLY

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ENERGY UPDATE

LONGI

A GAS CRISIS
IN THE OFFING

OGDC's BLIND ON
CLIMATE CHANGE

CRITICAL NEED TO MODERNISE
PAKISTAN'S ENERGY SYSTEM

ENERGY A PATH TO
NATIONAL SECURITY


Illuminating Possibilities


Hi-MO 6 Guardian


Empowering an Intelligent Future


Equipped optimizer delivers smarter life

 +  Intelligent Optimizer

 Intelligent Monitoring

 Rapid Shutdown

 Real-time Optimization

 Increased Capability

LONGi

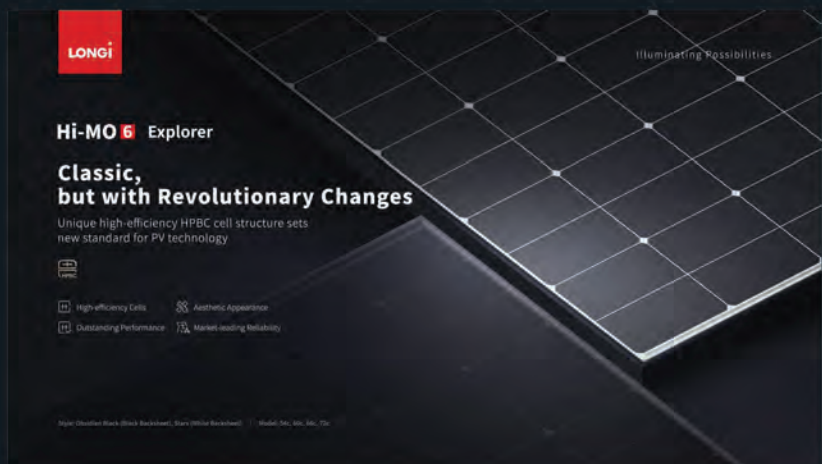
INTRODUCES ITS NEW HI-MO 6 MODULES TO THE WORLDWIDE DG MARKET

LONGi has unveiled the Hi-MO 6, its latest generation of photovoltaic modules that match high efficiency with stunning aesthetics for distributed generation and rooftop applications

On November 2, world-leading solar technology manufacturer LONGi introduced the Hi-MO 6, its first module designed exclusively for the global distributed consumer market. Using LONGi's high-efficiency HPBC cell technology, Hi-MO 6 achieves a maximum efficiency of 22.8% in mass production. Designed to meet the needs of diverse clients, the Hi-MO 6 offers superior efficiency, safety, and aesthetics.

Enhanced power generation efficiency through technological innovation

HPBC (Hybrid Passivated Back Contact) is a new generation of high-efficiency solar cell technology that's unique in its front-side busbar-free design. HPBC cell technology can considerably improve the cell's light absorption and photoelectric conversion capabilities by adjusting the cell's internal structure, and can thus effectively increase the module's output power. Modules equipped with HPBC cell technology can generate a greater volume of energy under high-temperature and low-irradiation conditions and also have superior power degradation performance. In global power generation simulations, Hi-MO 6 modules have demonstrated a significant power generation advantage over PERC products with an average power generation increase of up to 10% in typical scenarios.



When developing PV solutions for residential and commercial applications, LONGi's R&D team strives to achieve the highest level of safety and reliability. The Hi-MO 6 employs back contact soldering technology, which uses the one-line soldering structure rather than the traditional Z-shaped structure to enhance the module's resistance to cracking. This revolutionary technological design, combined with LONGi Lifecycle Quality, makes the Hi-MO 6 one of the most reliable PV modules on the market.

Bringing photovoltaic technology and architectural aesthetics to diverse applications

The Hi-MO 6 includes four series—Explorer, Scientist, Guardian, and Artist—all of which are in the standard M10 size (182mm) and are available in 72C, 66C, 60C, and 54C types. The module's aesthetic appeal evokes the minimalist style of modern industrial design and naturally complements a wide variety of application scenarios.

For applications in sectors with increased security and intelligence needs, the Hi-MO 6 also offers the option of further enhancing safety and optimization by pre-installing the Smart Optimizer. In the event of a PV system failure or module shading, the back-end system may be remotely monitored and optimized in real time using feedback from the Smart Optimizer's 'digital brain', ensuring power plant safety while maximizing system power output.

"LONGi has driven industry development throughout the years with high-quality technical innovation. The flagship Hi-MO series modules have contributed to upgrading global energy structure. The Hi-MO 6 is another solid step toward promoting energy equity," commented LONGi's Vice President Dennis She.

"LONGi aims to collaborate with more partners to participate in the new energy revolution, provide clean energy solution that is equally accessible to all, and accelerate our planet's energy transformation and development."

About LONGi

Founded in 2000, LONGi is committed to being the world's leading solar technology company, focusing on customer-driven value creation for full scenario energy transformation.

LONGi Illuminating Possibilities

Hi-MO 6 Guardian
Empowering an Intelligent Future

Equipped optimizer delivers smarter life

- Intelligent Optimizer
- Intelligent Monitoring
- Rapid Shutdown
- Real-time Optimization
- Increased Capability

LONGi Illuminating Possibilities

Hi-MO 6 Artist
Technology and Art in Unison

Powering a colorful life with artistic innovation

- Smarting Appearance
- Lighting up the Architectural Inspiration
- Connecting Life and Technology

Various colors are available:

- Blue
- Green
- Orange
- Light Blue
- Dark Blue

Under its mission of 'making the best of solar energy to build a green world', LONGi has dedicated itself to technology innovation and established five business sectors, covering mono silicon wafers cells and modules, commercial & industrial distributed solar solutions, green energy solutions and hydrogen equipment. The company has honed its capabilities to provide green energy and has more recently, also embraced green hydrogen products and solutions to support global zero carbon development.

www.longi.com/en

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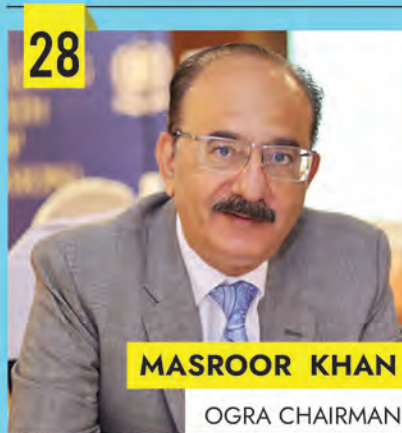
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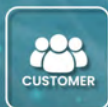


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Economy improving but inflation remains

Pakistan's fragile economy seems to be improving after the appointment of Ishaq Dar as Finance Minister who has reduced prices of petroleum products soon after his arrival. The per liter price of petrol has been reduced by Rs12.63, high speed diesel by 12.13, kerosene oil by Rs10.19, and light diesel oil by Rs10.78. That is a good omen while more cuts in oil prices are also likely as oil prices in the international market have come down. Furthermore, Rupee has also declined significantly and Mr Dar has stated that it will be brought to Rs200 a dollar in a short span of time. The declining trend in the value of the dollar and petroleum products will significantly help boost the economy.

But the rising prices of essential commodities and transport fares are still high and are haunting people, ruining their social and business life. The cost of doing business has also gone very high. It seems that there is no rule of law as every businessman, including shopkeeper and vender, are raising the prices of goods at their will. Hence, Mr Dar also needs to intervene and help contain uncontrolled price hikes so that people could take a sigh of relief.

The Sensitive Price Index (SPI) for the week ended on 06 October 2022 recorded an increase of 0.29%. Increase was observed in the prices of food items as: tomatoes (27.40%), onions (10.22%), bananas (2.24%) and powdered milk (1.18%). During the week, out of 51 items, prices of 17 items increased, 14 items decreased and 20 items remained stable. The year on year trend depicts an increase of 29.44%.

The inflation in the country has soared manifolds during the last four years while the salaries have risen with a very low ratio as compared to the price hike, which is a great injustices to the masses. Pakistan's economy has never been ideal. But its plight in the last PTI rule and current coalition government has been the worst.

Along with raising its economy, the government also needs to boost people's economy by reducing prices of essential items and transport fares in view of oil prices decline. The skyrocketing inflation has hit almost every sector of life, including the business community, and there is no chance of its ouster in the near future. The profiteering of essential commodities and life-saving medicines are also on the rise as there is no writ of the price-controlling bodies and deputy commissioners in all districts of the country, which is the matter of great concern. It seems that the government has no responsibility in this regard.

The government needs to control the high inflation by ensuring a contractionary monetary policy which is a common method to contain inflation. This policy aims to reduce the supply of money within an economy by lowering the prices of bonds and rising interest rates. Thus, consumption falls, prices fall and inflation slows down. The inflation could also be further reduced by decreasing imports and raising exports to a sufficient level.



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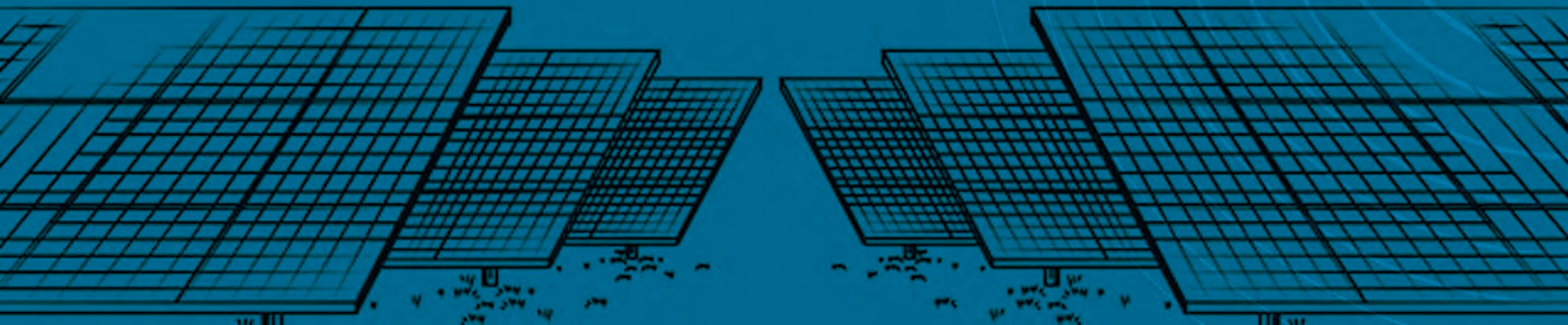


20 BILLION+
2021 SALES



10000+
CLIENTS

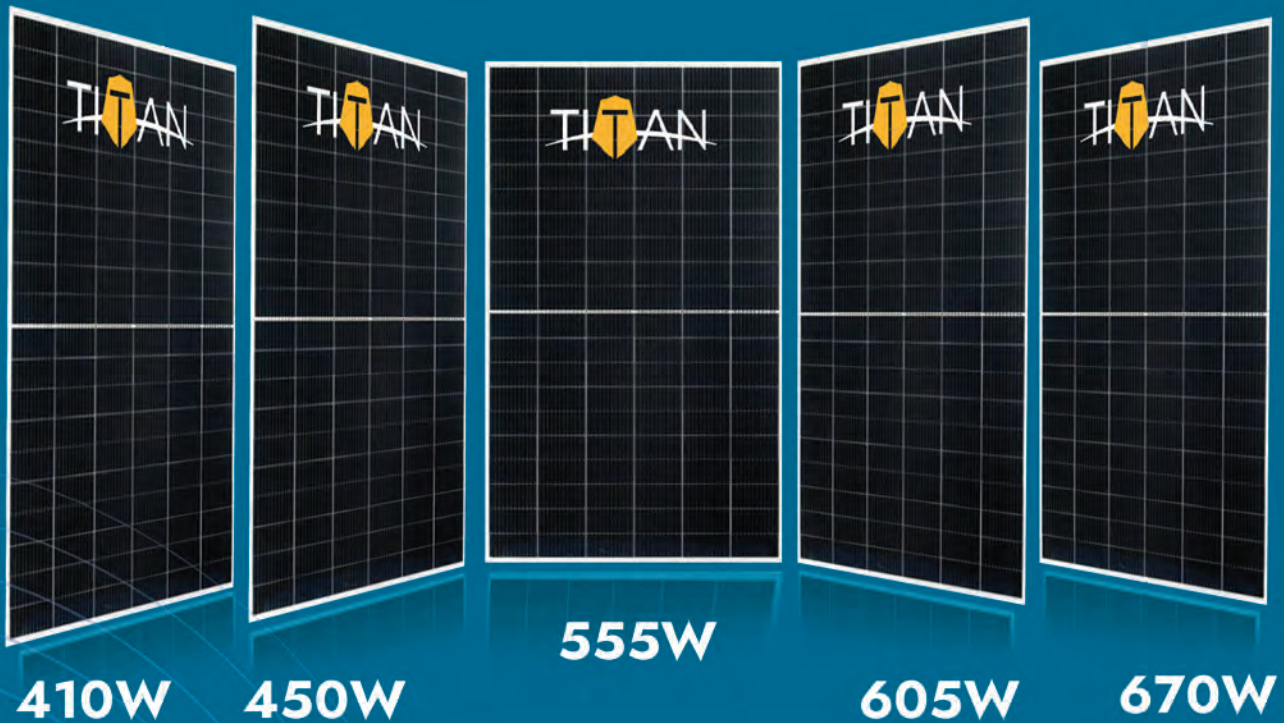
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Hydrogen: a clean substitute for oil, gas, coal

Saudi Arabia plans to replace oil production gradually by hydrogen

—◆— Syed Akhtar Ali —◆—

Hydrogen is not something new. It is being used for more than a century. It is Green Hydrogen (GH) that is new. Hydrogen is an energy resource, a clean one and the one which the global community is after for meeting fuel needs without adding to climatic concerns. Hydrogen is not only clean substitute for oil, gas and coal it is also a great storage medium. With increasing influx of intermittent renewable energy, there is and will be need for storage.

There is a competitive controversy between hydrogen-operated vehicles versus EVs (electric vehicles). Most probably, battery-operated EVs will succeed. In the case of hydrogen, one may have to replace batteries and add fuel-cell to the EV motors to convert EV to hydrogen, if need be. It depends on the availability issues of battery raw materials, which may ultimately decide the competition issue.

It is not the road-transportation sector only, where Hydrogen would be

of use. The greatest use of hydrogen may come in electrical storage for the grid, as batteries' requirement of rare and precious metals may be limited, limiting battery storage market.

Secondly, in case of high temperature industrial processes, electricity may not be able to compete—technically and economically. Hydrogen uses are almost everywhere where fossil fuels are used, and especially in the following where thermal or chemical uses are there: steel, cement, paper, food, chemical industry, fertilizer, oil refining and petrochemicals, metallurgy, food, glass and other extractive industries. Indeed a long list.

Hydrogen has a favorable impact on combustion characteristics of natural gas when mixed into the latter. Hydrogen can be stored in high temperature steel cylinders or cryogenic cylinders at normal pressures.

Existing natural gas pipelines may be repurposed for Hydrogen transport in a mixture form up to 40% without much changes in the pipeline parts including compressor, although there can be a 20% capacity loss. Thus,

initially one could start transporting hydrogen in a 20% mixture with in natural gas pipelines. All new gas transmission projects in Pakistan such as North-South gas pipe line project should be designed with this

factor in mind.

Hydrogen-natural gas mixture can be used as a mixture or hydrogen can be separated from the mixture. And there are other options of converting hydrogen to methanol or ammonia. For sea transport, ammonia containers may become more popular, eventually making international trade possible in hydrogen.

It may be noted that since water and sun may be available at most places, it will be producible at such locations and thus hydrogen may not require extended transmission and distribution system on the pattern of conventional natural gas pipelines.

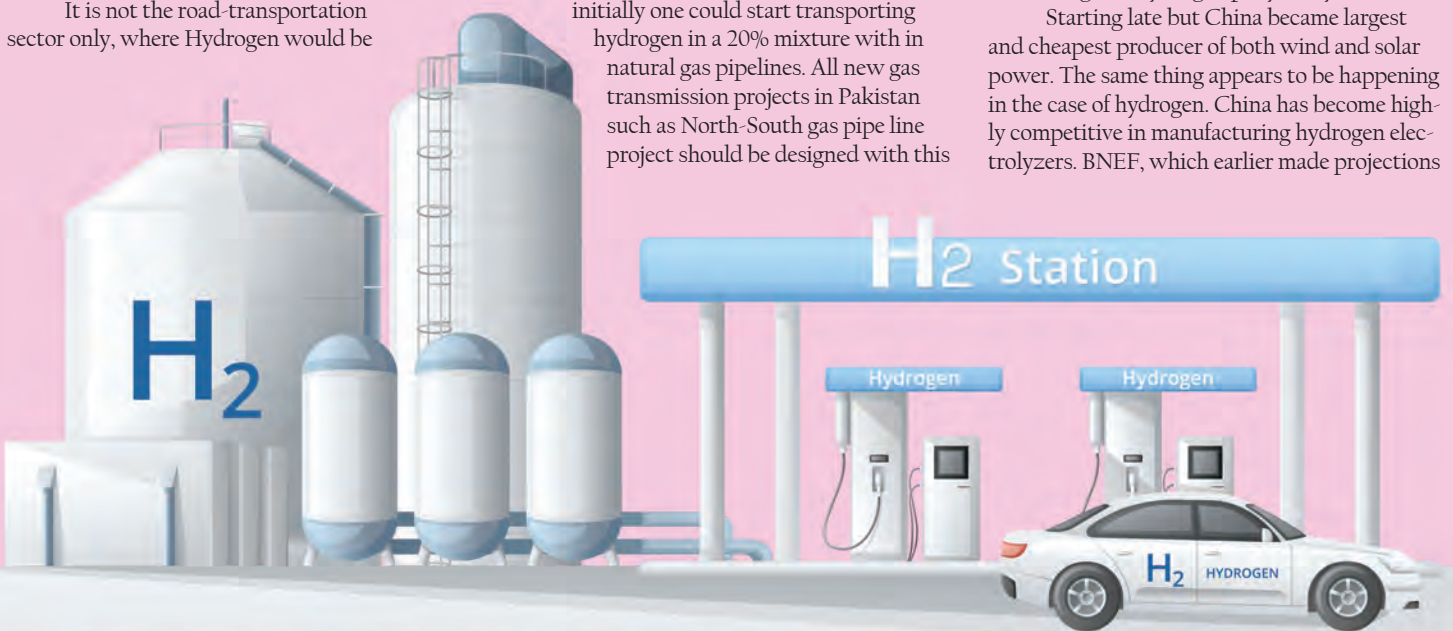
There is a 'Hydrogen III' programme; under which, the target is to produce 1 kg Hydrogen in 1 USD and in 1 decade. Currently, green hydrogen costs 4-5 Rs/kg, while black or grey hydrogen costs under 1 USD/kg. However, these are the numbers of pre-energy crisis period when fossil fuel prices were low. At present, the prices of LNG green hydrogen may be competitive. By 2030 or even slightly earlier, many jurisdictions will have competitive green hydrogen.

Some thirty countries have developed 'hydrogen strategies'. While industrialized and developed countries are moving in the direction of hydrogen gradually including R&D and hydrogen production, even developing countries are moving in this direction as well.

Countries like Chile, Colombia, Costa Rica, Panama, Brazil, Morocco and a few other countries have started initial activities in hydrogen development intended to leading to commercial business.

Saudi Arabia plans to replace oil production gradually by hydrogen as oil market goes down gradually. The Saudis have cash. However, even Oman is moving towards developing hydrogen production. India has launched its 'National Hydrogen Mission' under which a target has been set to produce around 1 million tonnes of green hydrogen per year by 2030.

Starting late but China became largest and cheapest producer of both wind and solar power. The same thing appears to be happening in the case of hydrogen. China has become highly competitive in manufacturing hydrogen electrolyzers. BNEF, which earlier made projections



for solar PV, has reported recently: "Chinese alkaline electrolysis systems generally cost 25% of the price of the same type of project in Western countries, thanks to cheap labor and upstream supply from the domestic market." This was based on an industry survey of 20 companies.

It put the price of a Chinese alkaline electrolysis system at about \$343/kW, compared with \$1,200/kW in the West. Can we manage to attract CPEC (China Pakistan Economic Corridor) investment and technology to Pakistan's engineering industry as has been mentioned earlier?

Except for Australia and the US, solar intensities and land availability are much less in developed world, including the EU region, Japan and South Korea. For this reason, the EU is supporting hydrogen development in Africa. There were earlier similar initiatives in bringing solar generated electricity from Sahara to Europe. Significant soft investment activities and JVs (joint ventures) opportunities have been made available. Saudi Arabia, the UAE and Oman are also looking at export potential. Initially, a part of gas requirements may be procured from on-site green hydrogen production; and similarly in the oil refining sector where it may apply. Thar coal gasification may be the most competitive and ready route for fertilizer sector, however, climate politics may not permit it for a dependent country like Pakistan.

To conclude, GH is not a mere hype but a fast emerging reality with a potential to replace oil and gas and even open the doors for exports by those countries which have been hitherto energy importers. However, it is not a panacea. Nothing is a panacea, especially, in the energy sector. A right and affordable energy mix adds to energy security and affordability. ■

SOLAR ENERGY

Trina Solar's Vertex N modules redefine high-efficiency

Company aims to achieve 100% renewable energy use in manufacturing, operations

Trina Solar, the global PV and smart energy total solutions provider, has unveiled its latest head-turner, the Vertex N 595W for C&I and utility-scale projects.

Together with the Vertex N 690W for utility scenarios and Vertex S+ 445W for rooftop PV systems, Trina Solar's n-type module portfolio is based on the leading 210 product technology platform and n-type i-TOPCon cell technology. The release of Vertex N will hit and reshape the PV market again.

Vertex N 595W strengthens Vertex family, and is ready for delivery

The newly announced Vertex N module, inheriting the Vertex family's merits of higher power, higher efficiency, higher energy yield and higher reliability, boasts maximum power output of 595W, 30W higher than conventional n-type modules in the market.

In addition, this dual-glass module increases bifaciality to 80% and delivers higher efficiency, lower degradation and better energy yield, delivering lower BOS and LCOE to projects. The Vertex N 595W modules adopt the latest 210 product platform +i-TOPCon technology and are highly compatible with trackers, offering more feasibility to utility-scale projects in the most complex of terrain.

In addition to Vertex N 595W modules, Trina Solar is offering Vertex N 690W and Vertex S+ 445W modules with i-TOPCon technology for utility and rooftop segments. Against the backdrop of greater grid parity, increasing solar demand and rising market share, the latest n-type module portfolio, with power output ranging from 445W to 690W, will cement the modules as preeminent products for rooftops and utility-scale projects.

The new generation of Vertex N modules will be in mass production by the end of 2022 and over 10 GW n-type modules capacity is expected to release by the first quarter of 2023. Moreover, capacity of n-type modules will reach 20GW to 30GW by the end of next year.

Trina Solar started mass production and delivery of i-TOPCon modules in 2018, when the company was selected as a demonstration company for China's Top Runner program. Since then, Trina Solar's i-TOPCon modules have been well recognized by the market



and widely used in utility power stations and rooftop projects worldwide. To meet the increasing demand for ultra-high performance modules, Trina Solar will continue to develop and promote more n-type products.

Leading the industry with technological innovation and openness

Trina Solar is committed to technological innovation and continues to set industry standards and benchmarks for performance and sustainability. The company has set 25 world records with the efficiency of its cells and modules.

In August the aperture module efficiency of Trina Solar's proprietary Vertex n-type module using monocrystalline silicon reached 24.24%, a world record for industrial large-area n-type i-TOPCon modules, just a few months after it set a world record for industrial large-area n-type i-TOPCon cells.

As a first mover in the field of 210 product technology, Trina Solar is committed to building an open platform that is compatible with most cutting-edge cell technologies, such as i-TOPCon and HJT. The Vertex N family and Vertex S+, developed on the 210 product technology platform, are endowed with the advantages of both 210 product technology and n-type technology, creating greater value for customers.

A sustainable future

On October 12, in a session themed "The road to a sustainable future" hosted by Bloomberg in London, which a number of major renewable energy investment companies attended, Trina Solar outlined its vision for advancing toward a net-zero future by providing smart solar energy solutions.

According to Trina Solar, the Vertex family products have achieved an industry leading low carbon emissions assessment through ISO's life cycle assessment and carbon footprint qualification by renowned third-party certification bodies such as UL, EPD and Certisolis.

To realize its sustainable development strategy and acting responsibly with regard to the environment, Trina Solar also aims to achieve 100% renewable energy use in manufacturing and operations by 2030, aligned with the United Nations Sustainable Development Goal 7. ■

Heard a saying, during British rule in most British clubs in India and UK - "Dogs and Indians not allowed"

Now they have got an Indian origin guy with his dog at 10, Downing Street, London.





A gas crisis in the offing

Risks linked to gas crisis in EU will have implications on Pakistan

— Ahad Nazir —

George RR Martin, the author of *A Song of Fire and Ice*, which was adapted for the successful TV series, *Game of Thrones*, famously used the phrase ‘winter is coming’. I think it depicts a situation the world faces right now. The coming of winter, as depicted in the series, as an explanation for a contraction in economic activity.

The recent high global inflation and disruptions in economic activities on account of the conflict in Europe and the Covid-19 pandemic have led us to the brink of a deep recession.

For the last twelve decades abundant energy resources have been a driver of economic development. Petroleum products have had a major role in this. The energy needs of the world comprise electricity, transportation and heating.

According to ourworldindata.com, 84 percent of the energy consumed nowadays comes from fossil fuels – coal, oil and natural gas. Besides the climate change impacts of these energy sources, the economic price and the market dynamics are serious threats to the sustainability of the world economy.

Not all parts of the world are blessed with fuel reserves. Those having easier access

to natural resources have created an oligopoly in the form of the Organisation of the Petroleum Exporting Countries (OPEC) and the OPEC+.

These petroleum-exporting countries decide the quantity and the price to be offered to the importing countries. The importers are always adversely impacted by the terms and conditions devised for the trade by the exporting countries. The reciprocal exporting strength of the importers has a major role in reaching these trade agreements.

One such agreement was reached between the Soviet Union and West Germany for the supply of natural gas and the reciprocal supply of steel in the 1960s. In the history of energy deals, this has been one of the longest-standing agreements despite the demographics changing on both sides with the dissolution of the Soviet Union and the merger of West and East Germany. The supply of gas from Russia to Germany and to the European Union through Germany has continued.

An engineering milestone was reached in 2011 when the Nord Stream gas pipeline was followed up by the Nord Stream 2 which runs through the Baltic Sea from Vyborg and Ust-Luga in Russia to Greifswald in Germany. These pipelines are the major source of natural gas for Europe, particularly, Germany.

The supply of natural gas from Russia to Europe has been used for geo-political

leverage by the Russian government on several occasions. This year, asserting its claim to the Russian-speaking areas in Ukraine, Russia has attacked the country. The move has been vastly condemned. A number of Ukraine’s citizens have migrated to other European countries. Several EU member countries, particularly Germany, have, however, continued to receive natural gas from the pipelines.

With winter around the corner, the EU countries’ reliance on gas for space heating is making them even more vulnerable to the political economy of natural gas. At the end of September, it was reported that a part of pipeline had been damaged in the Balkan Sea. A difficult winter is expected in the EU states. Several EU member countries have already developed plans to curb energy use.

Humans, it seems, are better at reacting to situations than proactively managing risks. Even though the EU states are the frontrunners in the ride toward a clean energy transition, almost half of their energy needs are met through fossil fuels. This makes them vulnerable this winter.

Pakistan is one of the 80 countries for which the EU is the primary export market. A loss of purchasing power in Europe may result in a loss of orders. Our exports to the EU mostly comprise textile and leather-based goods. These exports could decline next year.

The high inflation, in addition to the

limited energy availability and eventually affordability will cause a dent in the EU societies' purchasing power. The largest EU economies like Germany need to continue use of fossil fuels to sustain their status.

The risks associated with EU gas demand have implications for countries like Pakistan as well. Pakistan is one of the 80 countries for which the EU is the primary export market. A loss of purchasing power in EU may result in a loss of export orders. Our exports to the EU mostly comprise textile and leather-based goods. These exports could drastically decline during the next year.

On the other hand, our dependence on oil and LNG will significantly impact our day-to-day work. Declining foreign exchange reserves might force us to purchase high-price fuel.

Firstly, development of indigenous resources should be prioritised. We need to start working towards extensive technology adaptation and best practices to prepare the most efficient wells and use our refineries to produce high quality petroleum products indigenously.

Thar coal-based power plants are a step towards this indigenisation of the energy mix. The inauguration of the extension of the coal mining facility in Thar is a positive step in this regard. This suggestion is only for the medium term. In the long term we have to get rid of fossil fuels.

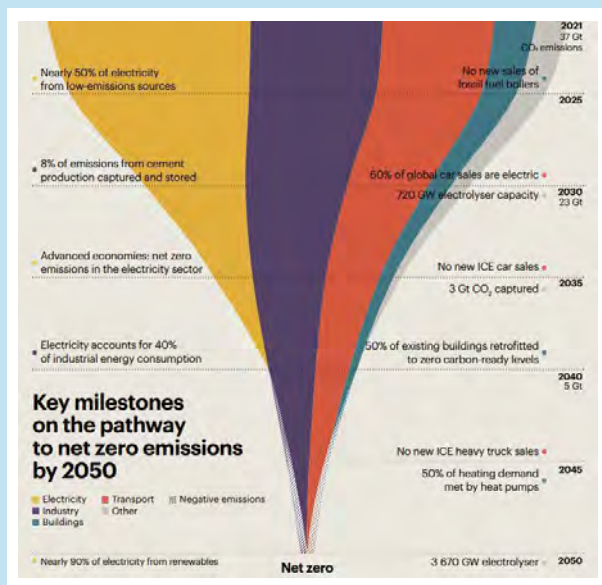
Secondly, we need to set sector-wise priorities in an apolitical way. The primary focus must be on sustainable development. The priority should be the industry, followed by residential and commercial units. Prioritisation within the industries should favour exports. We need to diversify our exports.

There might be options for low-energy consumption products. ICT-based exports can help us build useful dollar reserves.

Thirdly, we need better diplomacy with the petroleum-producing countries in the near vicinity. The establishment of economic corridors linking the Arabian Sea to the various neighboring countries including the China-Pakistan Economic Corridor (CPEC) and the Central Asia Regional Economic Cooperation (CAREC) are opportunities that need to be used to tap into the opportunities for energy sustainability as well as effective trade relations.

Prioritisation of projects like the Turkmenistan-Afghanistan-Pakistan-India (TAPI) pipeline can help in the long run. This will require effective diplomacy with all regional players and international powers.

Fourthly, Pakistan must shift towards renewable sources. There is great potential in the form of perennial rivers, solar irradiation and wind corridors. ■



COUNTRY IMAGE

Ten years in Pakistan

◆ Dr Afnan Ullah Khan ◆

We as a nation portray the image of our country very poorly. Rather than creating a good image, we are often portraying an unflattering picture of Pakistan. We should strive to change this mindset. In this spirit, here is an apolitical article about the major achievements of the Pakistani nation in the last ten years.

After completing my doctoral studies in UK and spending almost nine years abroad, I returned to Pakistan in the summer of 2013. I saw a country where there was massive loadshedding, regular bombings in major cities, lawlessness, tech infrastructure was in ruins etc.

In July 2013, Pakistan signed the historic agreement with China called the China-Pakistan Economic Corridor (CPEC). Through this agreement, China invested about \$46 billion in developing Pakistan's infrastructure. Some of the landmark projects from this initiative include building 1700 km of world class motorways. These motorways are at par with world standards and in fact nothing like this exists in neighbouring India even.

In the power sector, Pakistan manage to add 11,000MW of power projects, which include coal-fired power plants in Sahiwal and Karachi. These projects created about 46000 jobs. Run-of-the-river dams were built – such as Neelum Jhelum, Karot Hydro Power, Tarbela dam extension, Mangla raising, Dasu dam etc. Pakistan developed a world-class LNG infrastructure that enabled the deployment of LNG power plants. These plants are the most efficient energy plants in the world. With nuclear power plants Kanupp-2 and Kanupp-3 going live, Pakistan's nuclear installed power plants capacity grew exponentially in the last ten years to 3530MW.

In the area of education, Pakistan has 11 universities that fall in the top 1000 universities ranking

in the world. This list includes the likes of NUST, Quaid-e-Azam, LUMS, Comsats. There was not a single world class university in Pakistan till the 1990s.

In the public transport infrastructure area, Pakistan managed to launch metro bus and train services projects in six major cities. These projects ferry millions of commuters every month. From the Orange Line in Lahore to the Green Line in Karachi, millions of commuters benefit from this world class infrastructure.

In the tech sector, the licensing of 3G and 4G spectrum changed the technology landscape of Pakistan. In 2014, Pakistan had no 3G/4G users; in the last eight years we have added 118.57 million 3G/4G users. This is a world record as no nation has added so many users per capita as Pakistan. The country has seen a surge in venture capital investments post 2019. Last year, VC investments went to \$365.8 million, up from \$66 million in 2020.

In the defence sector, Pakistan not only managed to develop a fighter jet but also managed to export it to Nigeria and Myanmar. Only a handful of countries in the world has the capability to develop and then export fighter jets.

Pakistan is a vibrant democracy with a free media, as well as a recognized nuclear power. We have a world-class telecom infrastructure and motorway infrastructure. We have some of the largest dams in the world. In the last ten years we managed to defeat the menace of terrorism and significantly decrease loadshedding. Still, we are economically a weak country right now, but all of this can change if each of us start contributing towards the betterment of our country.

The government alone cannot fix all the ills and problems of the society. My message to the people of Pakistan, especially to the educated elite, is to stop complaining and start contributing. Pakistan is our homeland; if we will not strive to make it a better place, then who will?

5.4m geysers in Pakistan to use conical baffles to prevent energy wastage in winters



Masroor Khan, Chairman OGRA

—◆ M. Naeem Qureshi —◆

Some 5.4 million gas-run geysers in the country have been targeted to start using a conical baffle to prevent up to 25 per cent wastage of natural gas in the warming up of water during winters by the conventional household heating units that are highly energy inefficient.

This was disclosed by the Chairman of the Oil & Gas Regulatory Authority (OGRA), Masroor Khan, in an exclusive interview with the Energy Update in which he talked about reforms and special measures being introduced by the OGRA to overcome the natural gas crisis in the country in the winters. Following are the important excerpts from his interview for our readers:

Energy Update: Tell us about the history of natural gas discovery in Pakistan.

Masroor Khan: Gas reserves were discovered in Balochistan in 1958. At that time it was such a massive discovery that consultants were appointed to find suitable ways to consume this gas. That was the time when nobody knew about LNG. Owing to the abundant availability of natural gas in the country, vertical housing structures were built in Karachi after a massive increase in its population due to post-partition migration. As per the advice of the World Bank, kitchens in the flats on every floor of the apartment buildings were supplied with gas through a pipelined network. Natural gas played an important role in transforming Karachi into a modern city by constructing new multi-storey apartment buildings.

EU: How shortfall of natural gas did take place in the country?

Mr. Khan: With the passage of time, there was a rapid increase in energy demand in the country. Industrialization took place in the country as the indigenously available gas was used by the Pakistani industries. The same natural gas was utilized as automotive fuel in the form of CNG. Now in 2022, the circumstances have significantly changed so is the case of supply and demand numbers. Earlier, the average Pakistani didn't expect a direct supply of hot water in the bathroom during winter neither there was the concept of space heating as it is done now by warming up large drawing rooms. Later, the same indigenous natural gas was consumed by the IPPs

and five large fertilizer plants. During all these processes, there was a massive increase in the consumption of natural gas whereas there was no corresponding increase in gas production in the country. In the past six to seven years, there has been 25 per cent decrease in gas production in the country. Certainly, 1200 mmcf LNG has been available in the country during this time but the main issue concerning this imported gas is its higher price.

EU: How much significantly changed the situation of gas availability in the country since the introduction of LNG?

Mr. Khan: There has been an exponential increase in the LNG price in the last four to five months. As of now a maximum of 4,200 mmcf of natural gas would be available in the country if the two LNG terminals and 110 gas wells were operated to their maximum capacity. Whereas the unconstrained gas demand in the country stands at 6,500 mmcf. The tariff of gas supplied to domestic consumers in the country ranges from 80 cents to \$ 2.5. Once the winter season sets in, a significant portion of LNG will be supplied to consumers through the network of both SSGC and SNGPL. At that time the government will be purchasing gas at the price of Rs 3,500 per unit while the same will be supplied to the consumers at such a low tariff as Rs 150 to Rs 170 per MMBTU. The sale of gas at such a discounted tariff

couldn't continue for endless times as it is very dangerous for the economy. Such a thing is also dangerous for the two gas utilities in the country. As a regulator, it is our solemn obligation to keep raising objections to such a practice in the national interest.

EU: How much gas load-shedding is likely to take place in the country this winter and what mitigation measures are being proposed by the OGRA to overcome this situation?

Mr. Khan: I expect that there wouldn't be much greater gas load-shedding in the country this winter as its volume would be more or less the same as it happened last year. There are around 5.4 million gas-run geysers in the country as it is a big number. We calculated the average efficiency of these geysers which comes to around merely 18.5 per cent. If you touch the body of the geyser at home it would be hot when the unit is working. If the geyser is 70 to 75 per cent efficient then its body wouldn't be hot in the working condition.

To improve the efficiency of geysers, a clause would be added to the consumer contracts of both the SSGC and SNGPL to make it binding upon every gas customer to put the conical baffle on the geyser for saving 20 to 25 per cent of the natural gas that now gets wasted due to inefficient geysers. This conical baffle traps heat. We have to significantly move towards the options of energy efficiency

and conservation.

There is a need to check the pipeline system used to supply gas to stoves in our kitchens for the personal safety of the ladies in the house who do the daily cooking.

EU: What efforts the OGRA has been making to enforce the safety laws against unlawful and unsafe usage of LPG in the country?

Mr. Khan: The LPG was first introduced in the country in 1968. Since then different sectors gradually started using it like the cottage industries. It became a popular energy source wherever in the country the pipeline gas network is missing. The OGRA came into existence in the country some 20 years back. Out of this period, the initial seven to eight years were spent establishing the organizational setup of the regulator. That is the reason that we have yet to forcefully go into the field to perform our enforcement role. Our recruitment process is still continuing. We are hiring people to establish our regional offices. We are going into the field as it is very necessary. We are doing it on a priority basis. We are going to establish four to five regional offices. In the meanwhile, as our expansion process has been continuing, we have deputed two field officers for our enforcement tasks. We are recruiting more such field enforcement officers. We work with the district administrations as well to carry out our enforcement duties. ■

Pakistani companies participated in Abu Dhabi International Petroleum Exhibition

Abu Dhabi International Petroleum Exhibition & Conference (ADIPEC), one of the world's most influential energy sector event, held from October 31st to November 3rd 2022 in Abu Dhabi National Exhibition Centre (ADNEC), United Arab Emirates, under the patronage of President of the United Arab Emirates.

Pakistan's leading national oil and gas companies, PIP and Ministry of Energy [Petroleum Division] were being featured prominently in this event by setting up a grand Pakistan Pavilion which was spread over 90 square meters showcasing Pakistan and its upstream, midstream, and downstream energy sectors in vibrant style.

The theme of the Pakistan Pavilion was 'Pakistan - A Gateway to Energy Investments'. The objective of Pakistan participation in ADIPEC 2022 was to boost the soft image of Pakistan and encourage FDI in the country.

Participating companies from Pakistan includes MPCL, GHPL, PRL, PARCO, PAPCO, PPL, PSO, OGDCL, SNGPL with Petroleum Institute of Pakistan (PIP) as a focal point of



the industry, under the patronage of Ministry

of Energy (Petroleum Division).

—◆ Ali Tauqeer Sheikh —◆

Climate justice must begin at home. Increasing human and economic losses from climate-induced disasters has spurred a national debate in the country. Globally, too, many activists and policymakers urge compensation or reparation for countries that are low carbon emitters. It will take years to evolve international mechanisms,

vulnerability. It is made worse by inequitable resource allocation and weak governance reflected in poor planning for human settlements, absence of resilient infrastructure and an absence of or disregard for zoning laws, construction guidelines, standards and material. By simplistically attributing losses to climate change, we divert attention from the core issues of climate justice at the local community level. Global climate justice will remain elusive for Pakistan unless anchored internally in our policies.

laws, and iv) private law that determines relationship between individuals.

The Stockholm Declaration led to Pakistan's first environmental legislation and establishment of the environment ministry and environment protection agencies. All multilateral environmental agreements and environmental conventions since 1972 have also been inspired by the Declaration. Pakistan has signed almost all of them, but their implementation has remained weak, mostly because the early legislation of the 1990s languished.

Several judgements have defined the parameters of climate justice in the country. Pakistan was, however, quick on its uptake of the principles adopted in Rio in the realm of constitutional law and human rights, starting with the famous Shehla Zia case in 1994. Justice Saleem Akhtar adopted the precautionary principle that has informed numerous subsequent judgements. Later, the superior courts also adopted some other international principles, particularly in *dubio natura* ('when in doubt, support nature'), environmental justice and climate rights, principles of public trust, and the *mandamus* doctrine of instructing officials to correct an abuse of discretion.

Since words like 'environment' or 'climate change' are not used in the Constitution, several judgements have enriched Article 9, which deals with the right to life and associated rights in other articles, including right to property, privacy, dignity and self-respect — aspects threatened by the recent floods. By enlarging the definition of the right to life, the concept of human rights has been enlarged to include issues pertaining to quality of life, well-being and a healthy and safe physical environment. Environmental and climate rights go hand in hand and are inseparable. Redefining these rights has empowered citizens to hold governments accountable on their climate rights.

Several judgements have defined the parameters of climate justice in our domestic jurisdiction. Starting with the Asghar Leghari

Climate justice at home

agreed principles, and functioning institutions for global climate justice. But Pakistan has begun to develop a rich foundation for climate justice in its domestic legal system that is forward-looking. It awaits enforcement and compliance. Fuller ownership by the government can put Pakistan in the driving seat of delivering climate justice.

The recent rains may have been climate-induced but the losses were not. Most human and material losses occur because of

The principles of environmental and climate justice were initiated only 50 years ago with the Stockholm Declaration. These principles were refined and globally adopted at the Earth Summit in Rio de Janeiro 30 years ago. Together with efforts to operationalise the United Nations Framework Convention on Climate Change, they have shaped the jurisprudence of climate justice mainly in i) constitutional law and human rights, ii) planning, licensing and permitting, iii) company



case (2015) that articulated citizens' climate rights and governmental obligations. Justice Mansoor Ali Shah has, in several decisions, addressed the need for the integrity of ecosystems, groundwater and forest resources.

Justice Athar Minallah's groundbreaking ruling has underlined the need for climate adaptation, resiliency and sustainability to keep in step with our constitutional values of social and economic justice. In another case, he warned city administrators against modifications in master planning documents as any changes in land use would lead to adverse environmental consequences. In yet another, he determined that the neglect of animal well-being has implications for the right of life of humans as guaranteed under Article 9. Likewise, Justice Jawad Hasan has made important judgements on urban forests, food waste and biodiversity in Murree to protect mountain ecosystems, based on internationally recognised grundnorms.

In a remarkable innovation, the superior courts set up several commissions led by Dr Parvez Hassan, the country's most eminent environmental jurist to lead the process of bringing key stakeholders together and build consensus, capacities, and communities of knowledge.

Finally, an important dimension of climate change is inter-generational justice and the need for climate democracy. As Justice Shah articulated in one of his judgements: "...Democracies have to be redesigned and restructured to become more climate resilient and the fundamental principle of rule of law has to recognise the urgent need to combat climate change.

The preambular constitutional value of democracy under our Constitution is in effect climate democracy..." Pakistani courts have defined the anchors of climate justice for Pakistani citizens. These can inform government policies, plans and financial allocations to strengthen climate justice. Taking up the global cause is important, but not sufficient, unless we begin delivering climate justice at home. ■



EVENT REPORT

Women empowerment highlighted at special event



SRM Couture was founded by Syeda Raafia Mamujee. She dedicated her Brand's SRM Couture 6th Anniversary for Woman Empowerment by celebrating a special event.

Guest of honour Aftab Imam, Chief Commissioner IRS, FBR started ceremony with his motivational speech. He elaborated in his speech the importance of supporting woman empowerment and the vital contribution made by women in Pakistani society.

Chief Guest Tauseef H Farooqi, Chairman NEPRA highlighted the importance of promoting women empowerment. He said under NEPRA training programs,

woman are being trained in different fields.

At the event, Syeda Mahwish Sohail received a Lifetime Achievement Award on behalf of her late Husband.

The program was attended among others by Salman A Siddique, Head of Corporate Communications & Official Spokesperson SSGC, Abudl Jabbar, Razzak Pardesi, Atif Ashfaq, Naveed Wahid, Ms Ruqiya Naeem, Ms Farah Javed, Sahibzadi Mahin Khan, Aiman Sami Khan, Dr Tasneem Kausar, Syed Kashif Rafi, Varah Musavvir, Saher A Khan, Ahmed Rajput, Syeda Sarwat Naseem Shah and Nouman Ahmed.



TYPES OF solar systems, costs, issues



◆ Urooj Imran ◆

Have you ever taken a look at your electricity bill, which seems to be higher every time, and thought of switching to solar but did not know where to start?

Dawn.com collected information from a few companies operating across Pakistan to answer your questions about how much a solar system costs, what types there are, and how much you can expect to save.

Types of solar systems

The first thing you need to decide is the type of solar system you want, of which there are three: on-grid (also known as grid-tie), off-grid, and hybrid.

An on-grid system is linked to the power company in your city and allows you to use both, the solar panels generate electricity during the day while the grid supplies it at night or when the panels do not generate enough. The system allows you to sell any excess electricity, you produce, to the power company through a mechanism called net metering, which can lead to huge savings on your bill.

A hybrid system, when linked to the grid, comes with batteries that stores some of the excess electricity you produce during the day.

It works as a buffer against load shedding and breakdowns. However, the batteries are costly and the backup time depends on the type and quality you go for.

An off-grid system, as the name suggests, is not connected to any power company and gives you complete independence. It includes large batteries and at times, a generator as well. It is a lot more expensive than other two systems.

How much will it cost?

What the capacity of your solar system, should be, depends on the number of units you consume per month. On average, if you use between 300-350 units, you will need a 3kW system. If you use between 500-550 units, you will need a 5kW system. If your monthly electricity usage is between 1,000 to 1,100 units, you'll need a 10kW system.

According to estimates calculated after evaluating prices offered by three companies, 3kW, 5kW and 10kW systems cost approximately Rs522,500, Rs737,500 and Rs1.37 million, respectively. However, these rates are for systems without batteries, which means these rates correspond to an on-grid system. But if you want to have a hybrid system or go off-grid, you will need batteries which could increase the cost of your system significantly.

Rass Ahmed Khan, design and sales engineer at Max Power, a company operating

in Lahore, said there are two main types of batteries — lithium ion and tubular. Their prices depend on the quality and backup time you want. The former is expensive — for instance, a 4kW pylon tech lithium-ion battery costs Rs350,000, but it lasts for 10-12 years, Khan said. You can run a few light bulbs, a fridge and a TV for 7-8 hours on a 4kW battery. However, if you want to run an air conditioner or water pump, the battery will drain very quickly, he added.

On the other hand, a tubular battery of 210 amperes costs Rs50,000. Khan said two of these tubular batteries would be needed for a 3kW system, giving you a backup of up to two hours. You could run a few light bulbs, fans and a one-tonne inverter AC on it.

Information provided by Kaiynat Hitech Services (KHS), a solar contractor based in Islamabad and Rawalpindi, showed that tubular batteries for 3kW and 5kW systems cost around Rs100,000 and Rs200,160, respectively.

According to Mujtaba Raza, CEO of Solar Citizen, a solar provider based in Karachi, with batteries, a 10kW system that is otherwise priced at Rs1.4-1.5m would go up to Rs2-3m. Besides this, batteries need to be replaced frequently.

Due to these costs, many users opt for an on-grid or hybrid system which allows them to take advantage of net metering, which is a billing mechanism that credits solar system

OGDCs Blind on Climate Change

—◆— Munir Ahmed —◆—

Recent Pakistan Floods are the worst revenge of nature. It's a disastrous impact of Climate Change, mostly a man-made phenomenon.

World Bank and International Monetary Fund (IMF) estimates of losses and damages cross over US\$ 40 Billion. We could get a fraction of it so far in aid for rescue and relief. No hardcore assurances, promises or commitments visible so far despite the Pakistani government and the UN's global appeals for generous support for flood-affected ones. The world has seen one-third of Pakistan drowned in flood water of the carbon emissions of the developed countries. At the moment, millions are waiting under the open sky for generous humanitarian support under "climate justice."

The actual culprits behind climate change are fossil fuel producers and large consumers. They all are deeply silent while insufficient humanitarian aid is adding more woes to Pakistan flood victims. All appeals by the world leaders could not bother them – the large consumers and producers of fossil fuels. We don't see any oil and gas producing companies, the actual perpetrators of climate-induced disasters, coming forward to contribute generously. A meagre contribution would not work while early recovery, reconstruction and rehabilitation phases are around the corner.

Remember, what the UN Secretary-General António Guterres said during his Pakistan visit: Humanity has been waging war on nature, and nature strikes back. But nature strikes back in a country that has not made the emissions of greenhouse gases that have accelerated climate change so dramatically. So, there is a very unfair situation. And so, the international community needs to understand three things, and obviously, developed countries have a key role to play in international financial institutions, joining them. First, Pakistan today needs massive financial support to overcome this crisis. This is not a matter of generosity, it's a matter of justice. Second, we need to stop the madness with which we are treating nature. According to the

scientific community, we need to reduce emissions by 45 per cent by 2030. Now is the time to immensely reduce emissions. This will be essential in the discussions in Cairo [COP27].

Good signs that the US is back to the Paris Agreement. Many thanks to President Joe Biden for taking several measures to show the US firm commitment to cutting down the Greenhouse Gas emissions. President Biden has also urged the developed nations to generously support the victims of the Pakistan floods, a historic climate calamity. Meanwhile, the United States and partner organizations continue to provide support for Pakistan's recovery from disastrous floods that have affected 33 million people.

The U.S. government has provided more than US\$56 million in flood relief and humanitarian assistance for Pakistan this year. More than US\$50 million of the assistance has come through the U.S. Agency for International Development (USAID). The State Department provided an additional US\$2 million to support the U.N. High Commissioner for Refugees' response effort in Pakistan. Indeed appreciable.

Strangely, environmental conservation, awareness raising and advocacy on climate change are not on the Corporate Social Responsibility (CSR) agenda of the oil and gas development companies. We are fast losing biological diversity. Our glaciers are receding fast. The smog and heatwave have increased to the red point. Extreme events have not only impacted people downstream but become the limelight.

Minister of State for Petroleum Senator Dr Musadik Malik, a visionary political genius and a development practitioner, shall take all OGDCs working in Pakistan on board for an integrated and cohesive CSR strategy with obligatory investments supporting mountain conservation, promoting and mainstreaming their climate challenge downstream, and supporting initiatives to promote communities and their environmental and cultural heritage. The OGDCs shall support national climate advocacy and youth engagement programme. It is the sheer responsibility of the fossil fuel producers to pay back to communities and prepare a climate-resilient young generation. ■

owners for the electricity they add to the grid. You could sell any excess energy you produce to your power company and offset your bill for the power you consume from the grid during the night.

Another relatively small cost is that of maintenance. The solar panels need to be washed frequently so you could expect to spend around Rs2,500 every month on this.

However, Solar Citizen's Raza cautioned that the prices of systems could fluctuate, considering the exchange rate volatility over the past few months. "Every single component of the solar system is imported — solar panels, inverters and even the copper wires. So, every component has a dollar value as opposed to a rupee value. The exchange rate fluctuates a lot, so it becomes very hard to give packages/estimates. This is the solar industry's dilemma right now." KHS documents also showed that the prices were valid only for two days from the date of issuance of the estimated costs.

How much will you save?

This is perhaps one of the biggest concerns for those who are mulling over installing a solar system given the high capital investment. Raza said his company worked with the customer to set up a system through which the electricity bill would be reduced to zero.

How does this happen? The answer lies in net metering.

Assuming you don't have batteries during the day, you would use your own produced solar energy and sell the excess to your power company. At night, however, you don't produce your own energy and use electricity from your power utility. On net, you could end up paying nothing in electricity bills.

Max Power's Khan gave an example of a customer who used 382 units in July this year and was billed Rs11,500 for that month. The company installed a 5kW solar system for him, which produces around 500 units per month and 6,000 units annually. Given the per unit cost of electricity in Lahore in July, the return on investment would take approximately three years, Khan said.

Information provided by KHS showed that the payback period for 3kW, 5kW and 10kW systems was three years, 3.1 years and 2.6 years, respectively. The savings per annum for the three systems were calculated at Rs204,097, Rs340,162 and Rs612,291, respectively by the company. In addition, the expected life of a solar system is between 20 and 25 years so it would continue to save your money well after the initial investment is made.

Are there any risks?

Raza said in an on-grid system that has net metering, when there is no electricity in the grid such as during load shedding hours or in case of a fault at the power company's end, the solar system will shut down immediately. Even otherwise, with an on-grid system, you will rely on the power company's supply at night and will be exposed to load shedding and any breakdowns.

Raza added that if the system includes batteries, they would need to be frequently topped up with fluid. Batteries will also need to be replaced every few years, the cost of which could be in the hundreds of thousands. ■

Energy a path to National Security

—◆ Farrukh Mahmood Mian —◆

If there is a single lesson from the ongoing Russia-Ukraine war for us, it is that from this point forward, self-reliance in energy should become Pakistan's No.1 goal. This eight-month unfinished war will keep the international energy trade severely disrupted in the foreseeable future. The foremost objective of western countries is to take every punitive action that blocks Russia's crude oil and gas exports. On the one hand, they have imposed a price-cap on Russia's crude oil exports while on the other hand, Europe is trying to replace its gas imports from Russia with other international supply sources.

The ongoing energy trade war has disrupted the entire world economy, with less developed countries of Asia and Africa facing the brunt. We are left at the mercy of the LNG suppliers who are not too willing to sell it to us even at exorbitant rates, causing a massive shortage in the coming winter. Although there is very little recourse available to Pakistan in the short-term, by thinking strategically, it can improve its energy security at least for the medium-term (3 to 5 years).

What measures Pakistan can take to improve its energy self-reliance under this and similar future threats is the thrust of this article.

As Russia's oil and gas exports get seri-

ously jeopardized, other oil and gas producing nations are taking steps to fill the gap. For example, Qatar is undertaking a major expansion in its natural gas production and is simultaneously building new LNG export terminals. Furthermore, to hedge its future bets, it has embarked on signing long-term contracts for the sale of LNG not just with the Western markets but also with the Asian countries. One can only hope that Pakistan is actively engaged with Qatar at this important juncture to secure, if not its short-term needs, at least the long-term supply of LNG; otherwise this train too might leave the station, as they say.

Russia is seeking alternate markets for its crude oil exports and is already selling more and more of it to India and China. Pakistan would like to benefit from Russia's predicament and import its crude which sells at a steep discount to world price. Alas! it may not be possible, largely due to pressure from the West. China trades with whoever it likes with no concern about the West's view, and India too has started doing the same as the recent rise in its trade with Russia indicates. The wind is blowing India's way as the West, especially the Americans, would like it to challenge China as the next international manufacturing hub. For example, the US government looks with glee as Apple Inc. moves some of its production facilities from China to India and more and more large US corporations follow the trend.

The international economic warfare

is moving not just in the arena of world's energy sources. A cold war between the US and China is already brewing on the issue of Taiwan, the largest manufacturer of semi-conductor chips. The world-wide shortage of chips is affecting the production of many industries, most prominent of them being the auto industry. China's attempts to beef up its chip manufacturing capability have been countered by the US by imposing restrictions on the chip-making machinery suppliers.

Another area of rivalry between the two largest nations to gain access to the world's limited reserves of precious mineral resources is:

China is the world's largest production base of solar panels and without storage batteries, their full potential cannot be realized. Precious metals viz. Lithium, Cobalt, Zinc and some others are the raw-material of battery technology and the race to secure them is already on.

The purpose of the above discussion is that the world's important nations are moving at a warp speed to secure their economic future. For Pakistan, the signs are ominous, and unless it recognizes its vulnerabilities and devises an adequate counter strategy, it will just be a spectator in the new international "great game". There are two key themes when it comes to securing our long-term energy future and hence, its economic future – exploiting indigenous resources and relying on alternate energy sources viz. wind

and solar power.

First the indigenous resources: The building of large hydropower projects (HPPs) serves the dual purpose of regulating the flows of water and producing electricity. But, these long-gestation projects – often taking eight to 10 years – are not ideal from a schedule and cost standpoint. The other indigenous energy source is the Thar coal field and the government has already given a strong policy direction for its speedy exploitation. It is hoped that state-of-the-art technology will be applied so that the environment remains clean and global warming effects are fully mitigated while using indigenous coal which is known to be of a poor quality.

Second, the case for alternate and renewable energy sources – solar and wind power – which have the drawback that their output is available on intermittent basis while the demand for power is constant. Due to its lesser intermittency, CSP (Concentrated Solar Power) technology should be seriously looked into. Also, the Battery Energy Storage Solutions (BESS) have to be adopted on a grand scale from now. BESS has two other advantages in addition to overcoming the intermittency of supply. First, it helps regulate the power grid, thus improving its safety and, second, it is a storage medium that stores electricity from whichever source it is produced and supplies in time of power shortage – quite similar to the UPS (Uninterruptible Power Supply) in our homes.

What type of strategy should be put in place to improve Pakistan's energy self-reliance. Firstly, the effects of a rapid increase in new Variable Renewable Energy (VRE) projects on the overall system should be studied thoroughly to avoid unexpected system faults. BESS technology can enhance power system flexibility and enable high levels of renewable energy integration as the share of VRE rises in Pakistan's total power generation mix. Being a new technology, BESS needs to be studied thoroughly before undertaking its large-scale adoption. There are several options relating to where it should be installed in the system – in the Transmission Network, in the Distribution Network Near Load Centers, co-located with VRE Generators or a combination thereof. Newer energy technologies, therefore, require a scientific and analytical mindset among our energy planners, decision-makers and the front-line energy organizations.

The wind and solar technologies, combined with energy storage solutions, is the best way to reduce long-term dependence on external energy fuels viz. oil and gas. This is also where the world is headed and Pakistan needs to follow the same line. However, their large-scale adoption has its own challenges which need to be studied and addressed. The old school engineers and scientists that are our planners and decision-makers are not fully well-versed with how to overcome these challenges. A new and modern approach to electricity system planning is needed for which highly trained scientists, engineers and practitioners will have to be engaged from wherever they are available. If we start treating the threat to our energy security as a challenge to national security, and take educated steps from now, it may be possible to realign our energy sector with the cutting-edge developments that are taking place in the world in the field of energy. ■

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ENERGY EVENT



Hitachi Energy hosts two seminars

Hitachi Energy organized two seminars in Pakistan. The face-to-face events attracted delegates from across Pakistan and brought together energy and utility companies under one roof. It was a great opportunity for collaborating with key industry players and influencers from the energy and utility industry.

Themed with "Advancing a sustainable energy future for all", delegates gained insights on the latest industry developments to enable a sustainable energy future. The event positioned Hitachi Energy's offerings and services amid Pakistan's goal of carbon neutrality.

The Lahore event was graced by Henrik Persson, Ambassador. Ms OKAMOTO Yu, Economic Advisor/Attaché Japanese Consulate Karachi, Pakistan made her appearance as the honorary guest at the seminar in Karachi.

The program covered an overview and technical requirements of many aspects of leading-edge transmission and distribution technologies. The event consisted of four key parts, an opening session followed by sessions on Gas Insulated Switchgear Technology, Generator Circuit Breakers, Air Insulated Switchgear, Multi-Function Module (MFM)/ Integrated Gas Switchgear Application (IGA), Advance Distribution Management System (ADMS) and Energy Management System (EMS), Power Quality - Filtration Solutions, and a talk on Transformer Digitalization and Services.

The seminar in Karachi was opened by Georg Steiner, Ambassador of Switzerland to Pakistan. The program in Lahore was opened by Henrik Persson, Ambassador of Sweden to Pakistan, followed by a customer voice session by Mr. Manzoor Ahmed, Deputy Managing Director of NTDC. The event focused on digital transformation as one of the key parameters to catalyze sustainability.

Najeeb Ahmed, Managing Director at Hitachi Energy Pakistan said, "Heartily congratulations to the team on conducting two major seminars (Lahore & Karachi). ■



68%

of all LNG marine imports come from Engro Elengy

Our terminal has ensured consistent gas supply to country, says company chief

Ismail Mahmud
CEO Engro Elengy

◆ Mustafa Tahir ◆

Energy Update: Pakistan celebrated its 75th Independence Day earlier this year, but it is yet to overcome energy shortfall issue. What role has Engro Elengy played historically to address this vital issue?

Ismail Mahmud: To better understand Engro's contribution, we should take a quick look at late 2000s and at the incredible leadership this company has had in the past decade. During this time, Pakistan was in the middle of a severe energy crisis. Of Pakistan's energy supply mix, natural gas accounted for nearly 40%, while expensive imported furnace oil is also a key component. Pakistan's indigenous gas reserves are depleting, and it is getting difficult to meet country's growing energy needs. Power shortage has reached over 8,500MW, or more than 40% of the national demand.

For example: Energy shortages have caused many towns to face a 12-hour load shedding while capacity utilization in key industries

has fallen to 50%. Besides the power sector, the residential, fertilizer, and industrial sectors have suffered the most, as they are the largest gas consumers. Export orders worth over USD 1 billion were canceled each year. Millions of jobs are at risk as Pakistan has become uncompetitive in the global economy. Pakistan is losing around 2% of GDP annually (USD 5-6 billion) due to energy shortages.

To overcome this crisis, a team at Engro identified a gap in the market and backed with research, was able to impress upon the decision makers the need for a fast-track LNG solution. With the support of the Ministry of Energy, Engro was able to develop, design, build and successfully commission Pakistan's first specialized FSRU-based LNG import terminal in 2015. Once mobilized, it took a record time of 335 days from contract signing to commissioning of the project. That is incredible!

Energy Update: Can you elaborate more on the significance of Engro Elengy for the present economy and

energy systems of Pakistan?

Ismail Mahmud: Sure. It is important to highlight the scale and economic impact of our operations. Our terminal has since inception contributed to ensure consistent gas supply to the country and prevented above crisis from aggravating.

15% of country's gas requirement is met by the Engro Elengy terminal. Today, our terminal is recognized globally as one of the fastest built and most utilized regasification terminals in the world with a utilization factor of nearly 100% (versus the global average of ~45%). EETPL has a regasification capacity of 4.5 million tonnes annually (630 mmscf/d), and we have handled more than 28 Million Tons of LNG (-1.4 trillion cubic feet of gas) since inception which has served many commercial entities including three major power plants of the country in Bhikki, Balloki, and Haveli Bahadur Shah.

With an availability factor of ~96%, EETPL has been able to ensure supplies to the power sector, key manufacturing industries,

and transport sector, which are all crucial to the economic well-being of the country.

68% of all LNG marine imports into Pakistan come from Engro Elengy. Looking forward to say year 2030, we foresee LNG prices to be around \$10/mmbtu, which is almost half of projected fuel oil price. Thus we expect LNG to play a key role in the energy mix of Pakistan.

Energy Update: Is there any plan to expand the operations and capacity of Engro Elengy's terminal to overcome energy shortfall in Pakistan, especially during winters?

Ismail Mahmud: EETPL aims to provide Pakistan with sustainable and affordable energy solutions that fuel the energy security framework for Pakistan. Our Third-Party Access (TPA) expansion and Onshore LNG terminal projects, which are in evaluation phase, are attributions of the same.

In the short-term, Pakistan must expand its existing terminals (under Third-Party Access regime), as this is among the quickest solutions to bringing additional capacity on-line while a new terminal would take at least -2 years to complete from Final Investment Decision (FID). This will prepare the country in anticipation of the upcoming winter months and impending gas shortages.

The establishment of Third-Party Access would allow private players to acquire capacity in existing and future terminals. As a result, there will be greater efficiency in the overall LNG supply chain, competition to procure cheaper LNG through spot/term contracts, and sharing of responsibility by the private sector players to ensure consistent gas supply. Further, this will encourage greater foreign investments in the LNG infrastructure and marketing services.

Energy Update: What HSE standards are generally followed by the Engro terminals? Are these standards recognized in the world?

Ismail Mahmud: EETPL has been performing its role in a manner that ensures no compromise on safety. The Terminal has recorded zero Lost Time Injuries (LTI) and zero Total Recordable Injury Rate (TRIR) since commissioning.

As we are part of Royal Vopak JV, all Vopak's terminals are governed by an extensive set of global standards that also meet the local regulatory requirements. Vopak Integrated Management System is a HSE quality management system mainly comprising the integration of the requirements of ISO 9001, ISO 14001, OHSAS 18001 and Responsible Care. Vopak also uses API-754 as a framework and the basis for monitoring safety, health, and environment-related performance.

Engro Vopak recently won an award at the 7th International Awards on Environment, Health & Safety by the Professionals Network



in the category of "Health, Safety & Environment Performance". This award is a testament and reassurance to us of top-class work being done by our safety teams on ground.

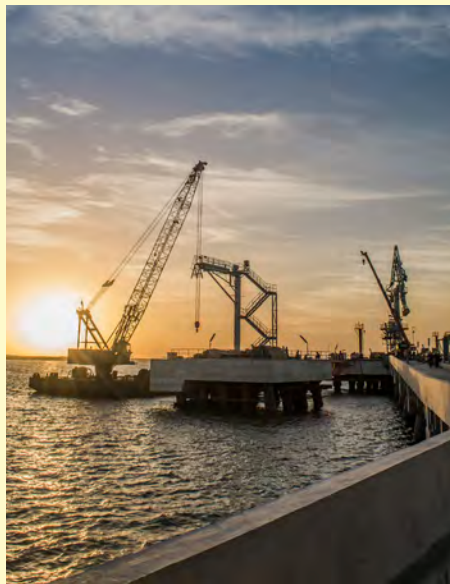
Excelerate Energy, the largest FSRU operator in the world, also our partner, has informed us that Engro's FSRU in Port Qasim is leading in operational excellence within their global fleet of all FSRUs.

Energy Update: How do you view the social and environmental impact of your business?

Ismail Mahmud: Community development and social responsibility to our people and planet is at the core of our inclusion philosophy. Over the years, we have participated in multiple social development initiatives.

For example: As part of its diversity, equity & inclusion initiatives, EETPL ran the Uraan Associate Training Program where 16 women were hired out of more than 300 applicants located near the Terminal within Port Qasim. These associates were hired through a rigorous recruitment process to develop a talent pool in technical fields. So far, more than 200 hours of training on key terminal aspects and soft skills have been completed.

On the community intervention front,



we have developed a sustainable coasts program in partnership with WWF, where we actively engaged the local fisherfolk in the vicinity of our Terminal at Port Qasim. In 2021, there were about 450 beneficiaries near Ibrahim Hyderi and the Terminal vicinity, where they were given longline fishing gears, toolkits and trainings by WWF experts on sustainable livelihood practices in fishing.

We have already partnered with Engro Foundation to plant mangroves on 500 hectares and are planning to plant and conserve plantation for another 2000 hectares of trees on a 10-year horizon via a tri-partite MoU with Engro, WWF and the Ministry of Climate Change.

Our achievements and social contributions have also been recognized globally. Engro Vopak and Engro Elengy Terminal have won the 'Executive Board Exceptional Achievement Award' at the Royal Vopak Annual Global Awards in 2021 Ceremony that acknowledges Pakistan team's resilience and commitment in ensuring business continuity safely and record growth during a raging pandemic. We were selected by the Vopak Executive Board from among 65+ terminals around the globe, which underpins my belief that our people worked as an exceptional team to overcome the challenges that pandemic threw our way.

I would like to also highlight Engro Vopak Terminal and Engro Elengy Terminal were amongst the top four finalists in the globally acclaimed Gastech 2021 awards in the category of gas, LNG or Hydrogen Project of the Year. The awards were held in September in Dubai, and Engro was selected from amongst 250 entries across 40+ countries. Other finalists included highly esteemed industry names such as ADNOC, Petronas, and BP led Trans Adriatic Pipeline. While we did not win the award, we were highlighted as few companies that are benchmarked globally in terms of delivering excellence in commercial performance in the energy value chain while ensuring that our business remained inclusive and socially responsible.

It is my sincere privilege to lead a team that is driven to ensure that our company is established as a socially conscious industry leader locally and globally. ■

Pakistan's Post-Disaster Needs Assessment Report

Damages to exceed **\$14.9bn** Economic losses to reach **\$15.2bn**

- Sector that suffered most damage is housing at Rs1.2 trillion
- 6,225 education institutions fully damaged, 10,980 partially
- Agriculture, food, livestock, fisheries losses hit Rs800bn
- 13 percent of health facilities damaged across country

Special Report by Mansoor

The Post-Disaster Needs Assessment Report pertaining to Pakistan's flood losses estimates that total damages will exceed USD 14.9 billion, and total economic losses to reach about USD 15.2 billion. Estimated needs for rehabilitation and reconstruction in a resilient way are at least USD 16.3 billion, not including much-needed new investments beyond the affected assets, to support Pakistan's adaptation to climate change and overall resilience of the country to future climate shocks.

The Post-Disaster Needs Assessment (PDNA) - Main Report of the 2022 Pakistan Floods has been prepared under the leadership of the Ministry of Planning, Development and Special Initiatives through its Flood Coordination Cell, supported by the Asian Development Bank, the European Union, the United Nations agencies with technical facilitation by the United Nations Development Programme, and the World Bank.

The 2022 floods have shown Pakistan's high vulnerability to climate change despite contributing less than one percent of global greenhouse gas emissions. This disaster has demonstrated what this vulnerability looks like for the people of the country. One-third of the country has been under water, and 33 million people have been affected. Nearly 8 million people

are reportedly displaced. The scale of the disaster is unprecedented in Pakistan, exceeding the damage of the 2010 floods. It will take a collective, international effort to recover from the impacts of this calamity.

The total damage is estimated at PKR 3.2 trillion (US\$14.9 billion), total loss at PKR 3.3 trillion (US\$15.2 billion), and total needs at PKR 3.5 trillion (US\$16.3 billion). The sectors that suffered the most damage are housing at PKR 1.2 trillion (US\$5.6 billion); agriculture, food, livestock, and fisheries at PKR 800 billion (US\$3.7 billion); and transport and communications at PKR 701 billion (US\$3.3 billion). The transport and communications sector has the highest reconstruction and recovery needs at PKR 1.1 trillion (US\$5.0 billion); followed by agriculture, food, livestock, and fisheries at PKR 854 billion (US\$4.0 billion), and housing at PKR 592 billion (US\$2.8 billion). The provinces of Sindh and Balochistan account for approximately 50 percent and 15 percent of recovery and reconstruction needs, respectively.

The 2022 floods caused unprecedented cumulative damage and loss to the public education sector. In the assessed districts, the entire span of education services, from pre-primary to lifelong learning, has suffered. The floods have impacted approximately 17,205 public schools (primary to higher secondary), colleges, special education centers/schools/institutions, technical and vocational education and training centers, and universities.

At least 6,225 education institutions were assessed as fully damaged and 10,980 as partially damaged. This has affected some 94,478 teachers and 2.6 million enrolled students Social 51 (of which over 1 million are estimated to be female students). School education (pre-primary to



higher secondary) suffered the most, with a 97 percent share of all damaged education institutions affecting an estimated 2.4 million students. Within school education, the damage to primary schools is highest with an 80 percent share of all damaged institutions, affecting 1.1 million students.

The 2022 floods affected close to half of the country, damaging 13 percent of the health facilities, which in turn interrupted health service delivery from the community level (primary healthcare including Rural Health Centers and Basic Health Units) through the secondary level (District Headquarters, Tehsil Headquarters, and Civil Hospitals). More than one-fifth of affected facilities were fully damaged.

Malnutrition, which was already dangerously high, has substantively increased. Around 650,000 pregnant women are facing challenges in getting access to maternal services, while nearly 4 million children lack access to health services. Pakistan is experiencing substantive increases of communicable diseases such as acute diarrhea, cholera, malaria, and dengue. Disruption in health service delivery will increase health inequities for the poor and disadvantaged due to hindered access to services such as immunizations, routine medical care including medication for chronic disease, maternal and child health services, as well as risk of higher out-of-pocket health expenditures.

The catastrophic flooding has triggered a cascade of crises and consequences are still unfolding. Crop and livestock loss, as well as displacement, have led

to loss of livelihoods. Lost food stocks, poor harvests, and rising food prices will exacerbate food insecurity and nutrition outcomes. The prevalence of standing water, lack of safe drinking water, and limited access to sanitation and hygiene services are contributing to a rise in waterborne illnesses and further loss of lives. Prolonged school closures and lack of education access will have long-lasting impacts on learning outcomes.

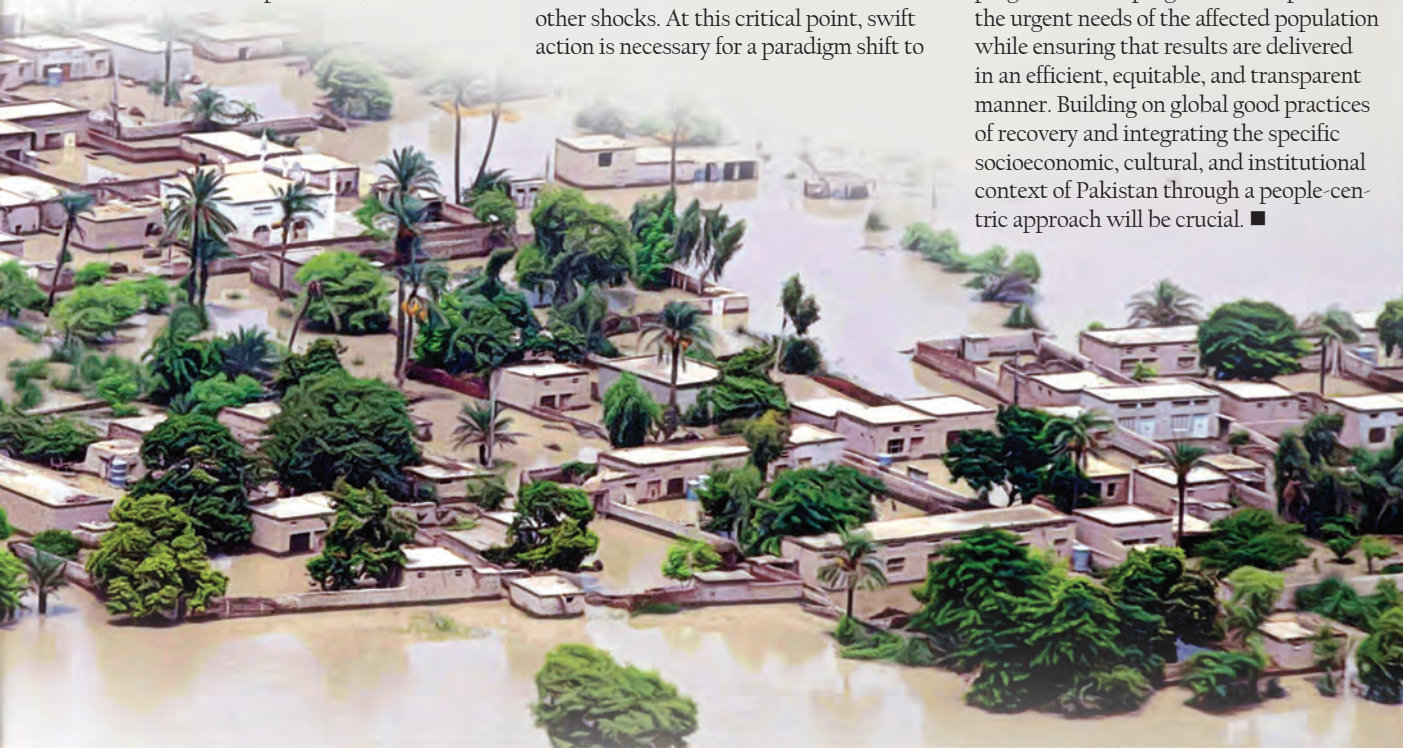
The extensive loss of livelihoods, assets, and human capital builds on existing disparities and will affect the most vulnerable and marginalized households, with disproportionate impacts on women and girls. The floods have also exacerbated long-standing structural weaknesses, posing risks to a sustained recovery. Ensuring macroeconomic stabilization while supporting relief and recovery is a complex challenge with worsening external conditions, including the rise of global commodity prices and interest rates.²⁶ Political stability is critical for a coherent and timely response. As climate change accelerates the severity and frequency of disasters, institutional reforms and investments must go beyond business as usual and build systemic resilience. If transformational measures are not taken for a resilient recovery, the disaster will have multi-generational impacts through the reduction of developmental gains.

The catastrophic floods are a wake-up call for systemic changes to address the underlying vulnerabilities to natural hazards and their intersection with other shocks. At this critical point, swift action is necessary for a paradigm shift to

THE 2022 FLOODS AFFECTED CLOSE TO HALF OF THE COUNTRY, DAMAGING 13 PERCENT OF THE HEALTH FACILITIES, WHICH IN TURN INTERRUPTED HEALTH SERVICE DELIVERY FROM THE COMMUNITY LEVEL (PRIMARY HEALTHCARE INCLUDING RURAL HEALTH CENTERS AND BASIC HEALTH UNITS) THROUGH THE SECONDARY LEVEL (DISTRICT HEADQUARTERS, TEHSIL HEADQUARTERS, AND CIVIL HOSPITALS). MORE THAN ONE-FIFTH OF AFFECTED FACILITIES WERE FULLY DAMAGED.

mainstream resilience to natural hazards in development planning and asset management. This requires a participatory and inclusive approach, bringing together civil society, government, private sector, academia, think tanks, and the international community around a common vision. The diaspora will also be critical considering their role in remittances and long-term foreign direct investments.

Stakeholder engagement will therefore be necessary to inform the scope, design, institutional arrangements, and a monitoring and accountability framework for a comprehensive resilient recovery program. Such a program should prioritize the urgent needs of the affected population while ensuring that results are delivered in an efficient, equitable, and transparent manner. Building on global good practices of recovery and integrating the specific socioeconomic, cultural, and institutional context of Pakistan through a people-centric approach will be crucial. ■



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COP27: A RACE AGAINST TIME

Pakistan's first goal at COP is to bring global goal on adaptation

◆ Sherry Rehman ◆

As Pakistan goes into the 27th Conference of Parties (COP27) at Sharm-al-Shaikh, Egypt, it is important to address a few challenges squarely, while disabusing a few misunderstandings.

Many imagine that there is a pot of gold at the end of such conferences, or that it is a forum where historic colonial wrongs can be addressed, such as reparations for exploitation, or where IFIs can settle chronic balance of payments issues for debt-strapped countries such as Pakistan. It is none of the above. Debt is rescheduled at the IMF or the multilateral donors club. It is not a function of COP27 at all. Neither is it a donors conference.

The COP platform is a UN forum for climate issues, where nation-states come together at the highest levels to debate, disclose, data-share, decide, and create frameworks for the cooperation that is pivotal to solving the triple planetary crisis of climate change, pollution and biodiversity. All decisions at this forum are dependent on consensus; there is no Security Council to enforce decisions, and no adjudicating forum where lack of progress on pledges for reducing emissions or not paying for pollution is actually penalized. All decisions are rooted in the moral principle of universal justice, but with no guardrails to stop slippages, let alone architecture to either tax or police emission-defaulters or finance-pledge backtrackers.

Today if the UN system is called toothless, as hegemony goes into wars without the prescribed UN sanction to do so, the COP system is even more fragile, and often resiled as deeply flawed. The flaws are obvious, as the Greta Thunbergs of the world insist. They often normalize delays and inaction that are exis-

tential in impact. But the problem is that this is all the world has right now. Without COPs on Climate Change, and another one solely on Biodiversity, we are all left to our own silos to make the ruinous decisions that have led us to this moment of acute climate stress.

Human activity and unchecked exploitation of natural resources has led countries to the realization that global warming is triggering an epochal imbalance in the earth's climate and environment, leading to catastrophic climate-induced events. The good news is that science is slowly triumphing over climate change denialists, but the bad news is that it is not fast enough. Targets that were collectively set for country emissions, for actions taken to reduce them, and for pathways to energy and other transitions that might save the planet from burning up are way off the mark. The plan of keeping GHG emissions down to 1.5 C from pre-industrial levels, for instance, was the global goal agreed in 2015, but scientific evidence suggests that today's trajectory could take us to a 3 degree celsius world.

Where do countries like Pakistan stand on all of this? A harrowing year of climate-induced heatwaves, forest fires, glacial lake outburst events in the north at triple their norm, and catastrophic flooding at 6-7 times the average in the south has left no doubt in anyone's mind that we need to act fast to save our populations from further trauma. A new development reform agenda is being drawn up, with water management and conservation at its core, and then coordinated and resourced to rebuild with climate resilient flood, and drought-planning in mind. Existing laws in the provinces have to be enforced along with a huge injection of climate governance capacity enhancement at the local and district levels. Urban and rural infrastructure has to be rebuilt from the down up, especially in the province of Sindh which withstood over 70 per

cent of the social and housing damage. Reform is crucial to adaptation.

Yet, at the multilateral level, which is literally one of the three tasks of a federal ministry set up for treaty obligations, dealing with climate donors, and national policy-making, the path is clear. Provinces enforce the projects we help sign on at their own pace, but as policy recommenders we need to prioritize 'adaptation', which is the building of capacity and shields for facing climate change. So far Pakistan has been privileging 'mitigation', mostly in response to calls at international forums, which is principally about reducing GHG emissions and enhancing our carbon sinks by planting trees.

The reasons to re-set focus are obvious. No amount of formal mitigation will change the warming impacts Pakistan faces. Given that Pakistan has a small carbon footprint, less than one per cent of global emissions, without prejudice to our mitigation goals, we need to shift focus on getting on with adaptation plans to save lives, soil, food, water, cities and well-being of our citizens.

Pakistan's first goal at the COP is to bring the Global Goal on Adaptation to the front and center of COP's agenda priorities. Second, the nature of green financing must change. At this point all climate funding is only accessible via the GEF, GCF or the Adaptation Fund, and the latter remains under-capitalized. The existing mechanism is onerous and extremely competitive. Countries have to projectize their needs and then compete with other bids to be awarded such financing. This is difficult for developing countries, and we end up receiving very small amounts relative to needs and pace of climate change. If at all a project is awarded, it often takes 2-3 years to operationalize its funding. By which time the country's needs have changed on the ground.

Third, we need to mainstream 'Loss

and Damage' as part of the green diplomacy agenda. When a disaster hits, there is no external window other than UN flash appeals for help and, despite their importance, those are overstretched and under-funded. Getting it on the provisional agenda for the upcoming COP27 is one of Pakistan's key successes, but in the larger scheme of things at a diplomatic forum where nothing is enforceable, these are largely moral successes. The thinking behind this initiative is that countries must not be forced to resort to the "begging bowl" model to enlist funds that should be institutionalized as an entitlement, but current receptivity tells us that even this seems like a bridge too far. At the same time, as per NDCs, Pakistan will continue its mitigation plans, which are the Green Pakistan Initiative and a path to renewables instead of fossil fuels.

Despite likely resistance by some countries, Pakistan is now ready to prioritize and mobilize climate financing and find ways to reset the climate model of negotiations at the

global level. The principle of Common But Differentiated Responsibilities (CBDR) is what the COP system pivots on, as big emitters are meant to take on bigger responsibilities compared to the smaller emitters, in the hope of equipping them to deal with unprecedented stresses on their people and economies. Yet, for years, literally from 2009, when promises were made to unlock \$100 billion a year for developing countries to take on green financing, only a fraction of the promised funds has been shared. The distrust between several parties, or countries, has now piled up like a landfill of toxic waste.

Whether we can change it or not, it is important to say that the current bargain between the Global North and Global South is not working. At the same time, a breakdown would be even worse. The COP27 system allows each country to have a vote, in the interests of parity. It also makes decision-making difficult as each country has a veto too.

Putting adversarial 'reparations' into

such a mix is futile and in fact, dangerous, designed to break any small possibility of change. Participants who know how the system works realize that the process is not about intellectual grandstanding. It is about seeking climate justice, but also finding common ground for the survival of the human race. It is of paramount importance that the world now bands together in this fight. Pakistan has taken a lead, but it can only do what others agree to.

In the end, the fight to save the planet may become one country at a time; the vulnerable will go down first. Either way it will become a race against time for some, while for others with more resources to adapt, it will be a delayed decision. Our job is to remind others that delaying climate action is like making vulnerability a death sentence. And once one ecosystem is fast tracked to die, it takes others down as well. What goes on in Pakistan will not stay in Pakistan. ■

The writer is the federal minister for climate change.

Energy efficiency to save \$1.15b annually

◆ Zafar Bhutta ◆

Amid high energy costs and an impending energy crisis, the government has approved energy and conservation measures preventing the outflow of \$1.15 billion per annum.

The people of Pakistan are currently paying high electricity prices and yet are suffering from prolonged power outages in addition to circular debt of multi-billion rupees. In their electricity bills, consumers are paying several surcharges in addition to multiple taxes resulting in higher electricity costs.

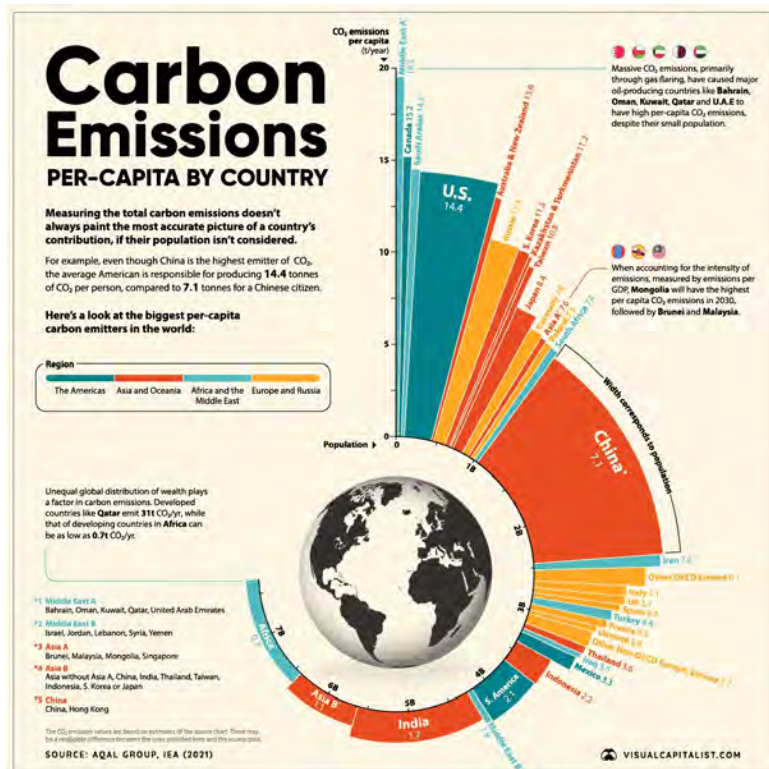
Now, the coalition government has approved energy efficiency measures that will save over one billion dollars annually. The power division presented the "Efficiency and Conservation Measures Implementation Roadmap" to the cabinet in a meeting held last week chaired by Prime Minister Shehbaz Sharif.

The cabinet was briefed about how major international events had resulted in the disruption of the global energy supply chain. As a result, prices of crude oil and imported coal witnessed an increase of 32% and 103% respectively, in the last nine months. Pakistan, as a net importer of energy resources, was consequently facing serious supply-side challenges. In such situations, energy conservation measures are used by countries across the globe. However, in Pakistan, both energy efficiency and conservation are generally treated as alien concepts.

According to the Energy Yearbook, final energy consumption for FY 2020-21 stood at 60.2 million tonnes of oil equivalent, registering an increase of over 15% in the previous year. The power division warned that the situation was becoming unsustainable for the country and, therefore, there is an urgent need to implement measures for energy efficiency and conservation nationally. This will be applicable across the energy value chain.

MARI's profit jumps 40pc in Q1

KARACHI: Mari Petroleum Company Limited has reported a 40 percent rise in its first-quarter (Q1) net profit on an increase in its sales. In a statement to the Pakistan Stock Exchange, the company reported a net profit of Rs12.714 billion for the quarter ended September 30, up from Rs9.098 billion in the same period the previous year. The company skipped any payout for the period. Earnings per share came in at Rs95.31 per share, compared with Rs68.21 per share same quarter last year. The company said its gross sales for the quarter rose to Rs35.760 billion, compared with Rs23.448 billion a year earlier. ■





Healthy lifestyle, self-exam, early diagnosis could save millions

—◆ Ruqiya Naem ◆—

A healthy lifestyle, balanced diet, self-examination of the body, and early diagnosis are the key factors to protect the lives of millions of adult women in Pakistan from the fatal disease of breast cancer.

This was the crux of the awareness seminar on breast cancer, organized by the National Forum for Environment and Health (NFEH) in collaboration with the Arts Council. The expert medical practitioners and noted women from different fields highlighted the precautions the female population of the country should adopt against breast cancer at an awareness seminar on the cancerous disease.

In her keynote speech, Dr Ayesha Hasan, Cancer Awareness Medical Officer of Shaukat Khanum Memorial Trust, said that girls should be educated to promptly report to the doctor if there was any anomaly related to their reproductive health or physical well-being for early diagnosis of the women's cancers.

She lamented that women in the urban areas had long forgotten the importance of a balanced diet for maintaining their health. She underlined the importance of adopting the regular practice of self-examination of the body to detect any early signs of breast cancer. She advised the



audience that they shouldn't ignore any early signs or symptoms of breast cancer as the timely diagnosis of the fatal disease could save many lives.

Dr Ayesha said that there were many social myths attached to breast cancer, but one shouldn't subscribe to them as they had no scientific basis as their adoption could delay the proper treatment of the disease.

Dr Unaiza Niaz, a senior psychiatrist, suggested that cancer treat-



ment facilities in the country should hire the services of a psychologist for maintaining the emotional and mental health of female cancer patients who had to face enormous stress. She said that cancer patients during and after the treatment of the disease should undergo psychiatric evaluation on a regular basis to maintain their mental health against the massive stress caused by the onslaught of the fatal disease.

Prof Zubala Yasir Lufti, a nutrition specialist, informed the audience about healthy dietary practices in daily life, which could ward off the chances of cancerous diseases among women.

She urged the girls and young women to go out and acquire their due place in the parks and other public spaces for jogging, walking,

sports, and other healthy recreational activities to maintain their health.

Earlier, in her welcome remarks, NFEH Secretary-General Ruqiya Naem expressed gratitude to the Arts Council Karachi for sparing its premises every year for holding awareness sessions on breast cancer. She said that her non-governmental organization would continue organizing more such activities to spread mass awareness about fast-spreading diseases, especially among women.

President NFEH M Naeem Qureshi, Vice President Engr Nadeem Ashraf, Consultant Medical Practitioner Dr Saira Bano, Homeopathic Health Practitioner Dr Yogi Wajahat, and Dr Afshan Rubab, Administrator of District South in Karachi also spoke on this occasion. ■



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Daronomics — good or bad for the economy?

◆ Dr Manzoor Ahmad ◆

Is “Daronomics” or economic policies followed by our Finance Minister Ishaq Dar good or bad for our economy? Most commentators give a “yes” or “no” answer. However, this response is generally not based on objective criteria but on political partiality. This article presents a four-year comparison of three key economic indicators during the three previous governments. It also suggests the way forward where Daronomics did not work in the past.

GDP growth is the most important economic indicator, which shows whether our economy has expanded by producing more goods and services or contracted due to lower output. This indicator favoured Mr Dar’s performance, as GDP growth during his tenure was 4.3 per cent, compared to 3.5pc and 2.6pc during the PTI and PPP periods.

Keeping inflation in check is another important indicator, as an increase in prices has a huge impact on the lives of ordinary people. Once again, Mr Dar’s performance has been commendable. During his tenure, inflation averaged 5pc compared with 9pc during the PTI government and 13pc during the PPP regime. A caveat is that external factors such as commodity and energy prices have always influenced domestic inflation rates.

Finally, how did our exports fare during

Mr Dar’s earlier stint? Unlike the two previous economic indicators, the data shows Mr Dar’s performance was much below par. As compared to a growth of 37pc and 23pc during the PPP and PTI regimes, respectively, exports fell by 10pc during Mr Dar’s period.

Many blame Mr Dar’s exchange rate policy for making our exports non-competitive. But this may not have been a significant factor as Pakistan’s previous experience shows that our exports grew faster when the rupee value was stable than when our currency was weak. Our neighbours like India and Bangladesh had the same experience.

Empirical reasoning would suggest that Mr Dar’s regressive taxation policies, particularly those relating to customs duties, impaired our exports. A big jump in customs duties reversed most of the gains made over the last twenty years of tariff reforms. As a result of these new tax measures, the share of customs duty in tax revenue jumped by over 50pc during his period. According to the Lerner Symmetry Theorem, export taxes and import tariffs have symmetric effects on trade. This means that import duties are equivalent in their effects to export taxes.

While the new duties and other import taxes resulted in an increase in tax to GDP ratio from 9 to 11.2pc, these taxes had a far bigger negative impact on exports, which fell from 13.3pc of GDP to 8.2pc. Some customs duty increases, particularly on industrial raw

materials, were rolled back during the PTI era, but most additional and regulatory duties are still in place. Even books and other scientific materials, which had always been exempt as Pakistan is a signatory to the United Nations Educational, Scientific and Cultural Organisation agreement, were not spared and subjected to customs duties.

We also have to be mindful that if our exports in the subsidised sectors make any substantial inroads in the EU and US markets, they are likely to impose anti-subsidy duties as has been done in the past. Thus, foreign governments will likely collect a major share of the subsidy given to our exporters.

The only way forward is to emulate the policies of other successful game changers like Turgut Ozal, Deng Xiaoping, or Manmohan Singh. These leaders changed the direction of their countries’ economic thinking from import-substitution models of trade and development to export-led growth.

They achieved this through gradually lowering import tariffs, removing nontariff barriers and opening their countries to foreign investment. These are tried and tested policies that brought success to scores of other developing countries as well. Export subsidies and high tariffs have not worked for any country and are not likely to work in our case. If we want to promote our exports, there is no alternative but to open our economy to competition. ■

Courtesy: The News

Critical need to modernise Pakistan's energy system

— Frank F Islam —

Pakistan has begun the slow and painful process of addressing the crisis wrought by its catastrophic flooding. Unfortunately, that climate-related crisis does not stand alone. In its aftermath, various writers and publications in Pakistan and the United States have pointed out that flooding is just one of the many crises confronting Pakistan currently due to planning, policy and political failures. The energy crisis must rank near the top of that list of crises. Pakistan had an energy crisis before the flood waters came. They surged and took that crisis to a much higher level.

The deluge caused interruptions in power transmission across the country. The torrential rains damaged 22 power stations in Gilgit-Baltistan disrupting the electricity supply to almost 90 per cent of the area. Similarly, power outages, even complete shutdowns, were experienced in the Sindh province. Gas pipelines in Balochistan province were damaged, severing the gas supply to the UHC power plant, which provides 932 MW of power to the national grid. This caused masses to remain without electricity for days in many parts of the country, while in other parts, there were regular daily outages of 12-13 hours.

Indigenous energy resources such as gas production are falling while demand is projected to go up by eight per cent in upcoming years.

This necessitates relying on expensive imported fuel for power plants. Pakistan is currently spending \$ 21.43 billion annually on fuel imports, which is about 66 per cent of its total foreign exchange. The debt of Pakistan's power sector has soared to Rs 2.5 trillion. This debt has triggered a chain of deferred payments for the imported oil and gas required for power generation.

The energy needs of the country will continue to grow in the future years. According to energy sector expert, Dr Shahid Munir, the energy demand in Pakistan will rise to 49078 MW by 2030. This increase in demand and costs for the supply of energy will make electricity much more expensive for the Pakistani consumer.

Pakistan needs to modernize its energy system to respond to this crisis. The modernized system must be a diversified one with

both old and new components to be useful in both the short and long term. It should include coal-powered, hydro-powered, and renewable-powered projects to reduce and eventually eliminate the energy crisis. Pakistan already has several coal-fired power projects in the pipeline. Recently, a 330MW power plant was launched in Coal Block-II of Thar, which has 175 billion tons of coal reserves. Officials state that by the end of 2022, the plant capacity will be enhanced up to 2,640 MW.

The cheapest and most nature-friendly power projects are hydropower ones. Many dams and subsequent power projects are under construction in the country including, to name just a few, Diamer-Bhasha Dam, Naulong Dam, Kurram Tangi Dam, Nai Gaj Dam, and Dawarat Dam, with a storage capacity of around 7.747 million acre-feet. Finally, there is the opportunity to provide cheaper energy in an eco-friendly manner. This will be possible through proper design and planning.

At present only four per cent of Pakistan's energy comes from renewable sources (solar, wind and bagasse). Over the past several years, there has been a gradual increase in investment in alternate energies including 6 solar power projects of 418MW, 19 wind power projects of 980MW, and 8 bagasse (sugarcane waster) projects of 258 MW. These projects are all now providing electricity to the national grid.

In conclusion, I believe Pakistan needs a three-phased approach to create and implement a solution that will enable making an orderly transition to a modern energy system. First, to improve and replace the old transmission infrastructure to reduce electricity line losses and to make distribution govern-

nance efficient to avoid 'nationwide blackouts' which usually occur in the winter.

Second, to introduce policies to facilitate renewable energy and technologies such as solar system installation domestically and industrially. At this time, solar systems – panels, frames and allied equipment – are imported and expensive. Consequently, there is a need for a subsidy or tax reduction to encourage their use. As importantly, the

production of these goods should be supported locally. This would lead to a significant reduction in their prices. Third, to encourage gradual switching from heavy fuel-consuming items such as gas-burning vehicles to eco-friendly vehicles and products. Electric cars are both environmentally friendly and cost-efficient.

Pakistan's energy crisis will not go away by itself. But, Pakistani leaders and people with the right policies, practices and pragmatism, can put a modernized energy system in place that will make the crisis go away. ■

The writer is an entrepreneur and civic leader based in Washington DC.



Dialogue on energy crises

Ex-PM Abbasi for resolving inefficiencies in energy sector

Former prime minister Shahid Khaqan Abbasi has said that inefficiencies in the energy sector have to be addressed on an emergency basis to save the national economy from an utter crash.

While addressing a dialogue on “Energy crises and way forward” organized by the Energy Update here at the Islamabad Club, the former PM said that inefficient working of the power and gas sectors had been affecting the entire economy.

He said the entire national economy had to suffer when the energy sector couldn’t work in an efficient manner. He told the audience that the energy sector was a large part of the national economy as its inefficient working would affect every economic and financial component in the country.

Abbasi said the first and foremost problem was that the gas sector of the country couldn’t recover the cost price of the essential energy commodity they supplied to consumers all over the country. He said the domestic consumers had to learn that they had to pay the price of the gas they had been using for their household needs.

Abbasi, who also heads the PM’s Task Force on Energy, said that inefficient use of natural gas in the country was another major problem of the energy sector. “It is pitiful that we do have gas in our kitchens to cook food but we don’t have gas to feed our power plants,” said the former PM.

He suggested that privatization was key to resolving the issue of inefficient power distribution companies in the country. He said the inefficient DISCOS in the country accounted for up to 80 per cent of the problem which persists in the power sector.

Abbasi, who is chairman task force on energy, said that provinces as per the constitution had to play an important role to improve the working of the DISCOS.

Iqbal Z Ahmed, Chairman of the Associated Group and renowned energy sector investor, urged the present government to immediately open up the LNG business to the private sector in the country.

Ahmed said that the monopoly of the two state-run gas companies on the LNG business should end as the private sector should be allowed to sell the imported gas commodity to the many prospective buyers in the private sector that were not just limited to the power sector.

Earlier, Muhammad Naeem Qureshi of Energy Update welcomed the audience and said that he aimed to organize more such interactive events to let the relevant stakeholders thoroughly discuss and find solutions to the problems of the energy sector.

Secretary Petroleum Capt (Retd.) Muhammad Mahmood, Tauseef H. Farooqi, Chairman NEPRA, Masroor Khan Chairman OGRA, Shah Jahan Mirza Managing Director, PPIB & CEO AEDB, and Jamil Ahmed Member Power WAPDA also participated in the event.



Power and energy issues require structural reforms

Nature has endowed Pakistan with hydropower potential of 60,000 megawatts

◆ Raashid Wali Janjua ◆

Pakistan's power and energy issues are interlinked and require structural reforms. The problems are interdisciplinary and multidimensional and not amenable to placebo solutions. It is time the anodyne prescriptions gave way to the strong nostrums to yield sustainable solutions.

Starting with energy mix of the country that is heavily tilted in favour of fossil fuel sources with 64% fossil fuels, 27% hydropower and 9% other renewables and nuclear power the problems abound when it translates into expensive power cost for the consumers and commercial units alike. Pakistan is suffering from power and gas sector circular debt due to inefficiencies of the system and a basic structural issue i.e. inability to reform and indigenise.

Nature has endowed Pakistan with hydropower potential of 60,000 megawatts out of which only 7,320 MW has been exploited. India that at the partition had 300 large dams has taken that number to 4,000 whereas we after large reservoirs and 23 barrages started plumping for costly fossil fuel power production. Due to our failure to develop large dams and small hydel projects when the power needs of the country reached a crisis proportion the harried political governments fell for

short term yet costly Independent Power Projects (IPPs) with atrociously profligate 'Take or Pay' and capacity power payment provisions saddling power sector with a perennial debt issue.

Pakistan is blessed with a wind potential of 50,000 MW just in Jhimpir corridor with average wind velocities to the tune of 7 meters per second. The potential capacity for wind energy is estimated at 122.6 GW per year, twice the country's current power generation. The solar potential of the country is tremendous due to high solar irradiance i.e. 5.3 kwh/sq meters but despite that God given gift only 568 MW (AC) has been installed so far. The government has the desire to take the solar production to 4 Gigawatt level but the present renewable power policy does not inspire the potential investors. Despite the intermittency issue of renewable power resources such as wind and solar their value in lowering the overall cost and reducing the import bill of costly fuel for power production is tremendous.

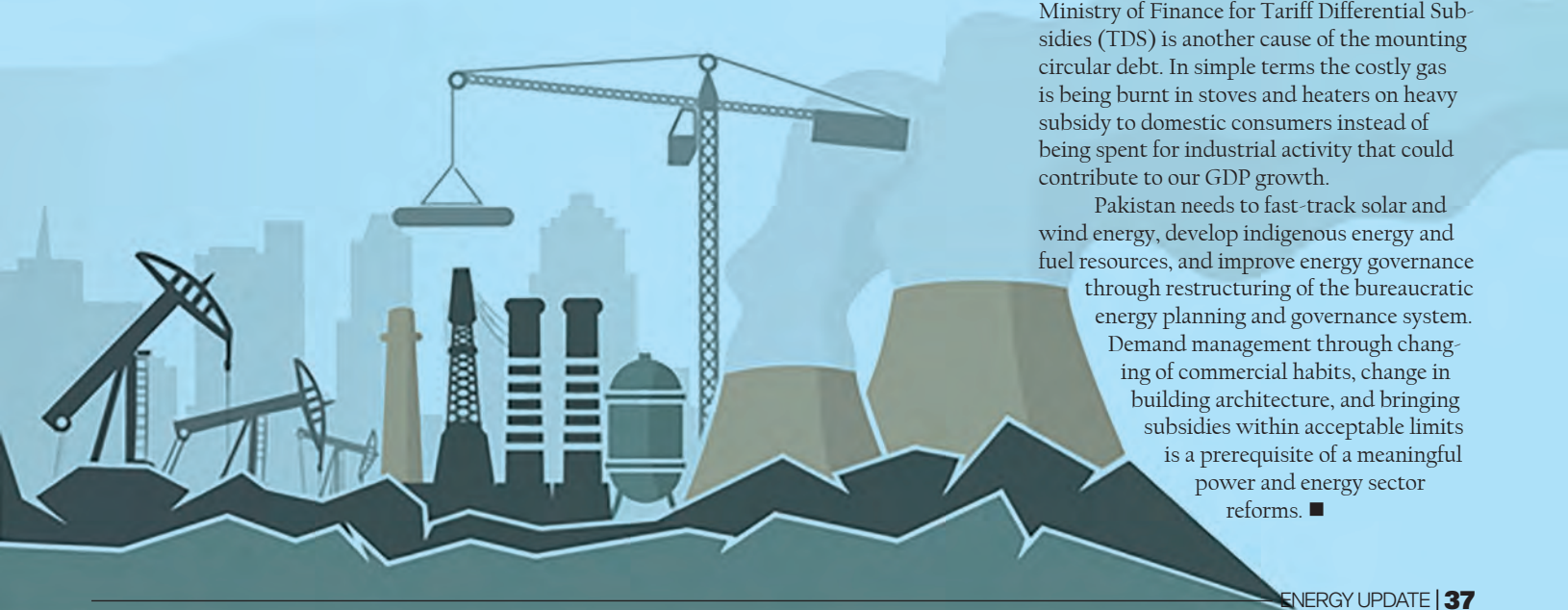
According to a study of LUMS Energy Institute (LEI) Pakistan's power sector is beset with four major issues i.e. weak demand management, transmission and distribution losses, capacity payments and reluctance for structural reforms. The utilisation of scarce power for non-productive activities like domestic heating and cooling instead of productive industrial activity is causing un-

sustainable burden on the national exchequer. The national architectural practices have also departed from climate adaptation practices of the past with airy houses having natural roof and verandah insulation to beat the heat. Now veritable heat boxes are being built in imitation of the West (cool climate regions), putting avoidable burden of air conditioning on national power grid.

Pakistan needs serious reforms on demand management side as a study of LEI shows that even in peak summers the demand for productive activities is far too less than what the spike in demand curves indicates in terms of domestic air conditioning demand, jacking up the demand figures. If the country has to reduce its heavy import bill it has to institute reforms in power conservation through reduced dependence on air conditioning and other non-productive usages and concentrate on managing the demand primarily for productive use of this precious resource. The snowballing capacity payments are another issue that needs attention. The capacity payments that stood at Rs500 billion in 2018 are expected to swell to Rs1.6 trillion in 2023 burdening the consumers further with this unsustainable inflationary spiral.

The unaccounted-for gas losses (UfG) stand at 120 billion cubic feet per annum while delayed tariff determination, and failure to collect bills from consumers is continually adding to the circular debt. The delayed payment from Ministry of Finance for Tariff Differential Subsidies (TDS) is another cause of the mounting circular debt. In simple terms the costly gas is being burnt in stoves and heaters on heavy subsidy to domestic consumers instead of being spent for industrial activity that could contribute to our GDP growth.

Pakistan needs to fast-track solar and wind energy, develop indigenous energy and fuel resources, and improve energy governance through restructuring of the bureaucratic energy planning and governance system. Demand management through changing of commercial habits, change in building architecture, and bringing subsidies within acceptable limits is a prerequisite of a meaningful power and energy sector reforms. ■





Urgency of Water Governance needed

This year has turned out to be the worst so far

—◆ Aamir Latif —◆

Until a couple of decades ago, the monsoon was feted with dance and songs in rural Pakistan. It was enshrined in poetry and attributed to romantic fantasies. But, the otherwise romantic monsoon in recent years has become the second name of destruction and fatalities with its increasing ferocity, frequency, and unpredictability. It has regularly been bringing devastation and diseases in short intervals to this part of the world, especially over the past two decades.

This year has turned out to be the worst so far. The drenching monsoon followed by super floods caused lakes and rivers to overflow, flattened hundreds of thousands of houses, washed away uncountable cattle, and damaged huge amounts of ready-to-reap crops.

The raging deluges brought a third of the country under water, aside from killing over 1,700 people, and inflicting a staggering loss of 30 billion dollars to an already sputtering economy so far since mid-June. A recent visit to several flood-battered districts of Sindh and Balochistan suggested that things are fast moving from bad to worse as the secondary disasters are plaguing the poor victims who have been living in squalor and diseases.

Large swathes of croplands are still under three to six feet of water, with no hopes

for immediate clearance. It means, tens of thousands of farmers won't be able to grow wheat—a key source of their income—for next year. Pakistan is among the top ten countries vulnerable to the challenges relating to climate change and global warming.

It is ironic that the country is “full of water” at present but after a few months, it is likely to face a drought-like situation, causing further damage to the crops and putting extra pressure on the country's already depleting water resources.

Despite having one of the world's largest irrigation systems, Pakistan is an importer of wheat, lintels, and other staples as its agricultural lands shrink due to a string of factors ranging from massive floods to drought.

This lethal combination has also triggered widespread migration within Pakistan in the past decade. More than two million people were displaced by floods that inundated one-fifth of the country in 2010, triggering mass migration to cities from rural Pakistan.

Of that figure, almost 70 per cent did not go back to their hometowns and permanently settled in big cities to make a living because of the destruction to their homes and farmlands, according to the Ministry of Climate Change. How long will it continue? The answer is very simple. Until the country has a modern water governance system.

For many environmentalists, nevertheless, it would not change much in terms of

global warming as the Countries like Pakistan, which have a very minor share in the destruction of the environment. Countries like Pakistan cannot do much to minimize the impact of climate change and global warming. What they can do is adopt the modern ways of water governance to not only minimize the devastations caused by regular floods and droughts in terms of human lives, infrastructure and food security.

Certainly, the country, as a whole, lacks an orchestrated water management system. There are, nevertheless, some small but valuable efforts aimed at countering urban flooding and drought by recharging the groundwater.

The key feature of these efforts is a groundwater recharge wells technology, which experts reckon, should be adopted as a national policy to counter urban flooding and ensuing drought due to climate change.

The groundwater recharge well is a cost-effective nature-based solution to revive aquifers and mitigate the risk of urban flooding through the most modern indigenous technology available. There are several methods used to artificially recharge groundwater aquifers, including redirecting water across a land surface through streams, infiltration ponds, or simply injecting water directly into the ground through injection wells. The Institute of Urbanism, International Water Management Institute (IWMI), Pakistan Council for Research on Water Resources (PCRWR) and Heinrich-

Böll-Stiftung (HBS) have joined hands to push the idea of groundwater recharge that, experts agree, is the need of the hour. The Capital Development Authority (CDA) is establishing 100 recharge wells, of which 50 have been already operating, in Islamabad to conserve rainwaters and reduce the frequency of urban flooding.

These 50 recharge wells, according to PCRWR, have conserved 10 million gallons of water, resulting in not only replenishing the groundwater but also reducing flooding in Rawalpindi's Nullah Lai, which has long been the focal point of a flamboyant Shaikh Rashid Ahmed.

If these 10 million gallons of water were dumped into Nullah Lai then it would have resulted in urban flooding and inundation of roads and streets to an alarming level.

The PCRWR reports that if only 50% of the runoff from the urban area (220 km²) could be effectively harvested, groundwater recharge equal to the present shortfall of about 200 MGD could be achieved. The council has also established a network of rainwater harvesting system in the Cholistan desert where 110 rainwater harvesting reservoirs have been established each with a capacity of four million gallons. According to Dr Mohsin Hafeez, the IWMI's Country Director and Regional Representative for Central Asia, his organization is helping CDA in implementing it on 100 sites. "The water recharge level in the federal capital, he said, was 130-150 millimetres in 1990 which remained the same in 2021 despite a rapid spike in population and urbanization.

Established at the capital's sprawling Kachnar Park, an artificial recharge well – the CDA's pilot project – has helped improve the 4.5 mm water table. From May to September, the capital received 78mm of rainfall, and 1.9 million gallons of rainwater was conserved on this site. Similarly in Lahore, a rainwater harvesting site has been established by WASA at Bagh-e-Jinnah with an underground water storage capacity of 1.4 million gallons. The water is later used for watering greenbelt plantations across the city.

Construction of another two underground water tanks is underway at Sheranwala Gate and Alhamra Arts Council to store rainwater, causing flooding on the city thoroughfares.

These numbers may sound small but the coalition involved in this campaign is committed to transforming it into a national movement, whereby the groundwater recharge well should be an integral part of building by-laws of public buildings including academic institutions, private housing societies and industries and green belts. Thank you, IU, IWMI, PCRWR and HBS. ■

The writer is a senior journalist and works for Turkey's Anadolu Agency

STAKE SALE

Offshore firm buys indirect stake in K-Electric



◆ Kazim Alam ◆

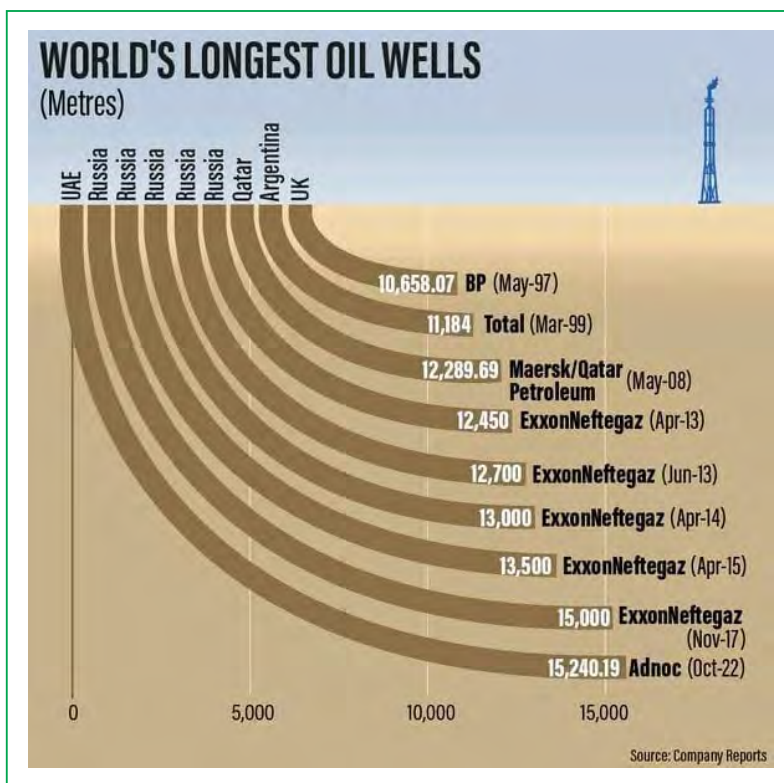
In an opaquely worded notification issued on the Pakistan Stock Exchange, K-Electric Ltd has said "changes have been consummated" involving IGCF General Partner Ltd (IGCF GP), a fund manager, and the Infrastructure and Growth Capital Fund L.P. (Fund), which owns the fund's assets.

Analysts interpreted the dense text of the regulatory filing as an acknowledgement of the transfer of K-Electric's major shareholding to Sage Venture Group Ltd, a British Virgin Islands-registered special purpose company wholly owned by AsiaPak Investments Ltd. K-Electric's holding company is Cayman Islands-registered KES Power Ltd, with a shareholding of 66.4 per cent. The government of Pakistan controls 24.36pc shareholding in K-Electric while the rest is owned by institutional investors and the general public. The doomed private equity fund Abraaj Capital held a majority stake in KES Power Ltd until its chief, Arif Naqvi, was arrested in 2019 for misappropriating investors' funds. In a 2020 interview with Dawn, K-Electric Ltd CEO Moonis Alvi said Abraaj Capital acted "only as a management company" while actual investors

belonged to the Infrastructure and Growth Capital Fund. This appears to be the same fund that Sage Venture Group Ltd has now taken over in the offshore transaction. Standard Capital Securities research analyst Shahzad Khan said the transaction seems to be an outcome of the Cayman Court-sanctioned sale of certain assets of Abraaj Investment Management (AIM), which is currently undergoing official liquidation internationally. AIM held a controlling interest in KES Power, he said. "If the now-defunct AIM had a controlling interest in KES Power, and also appointed the majority of directors on the K-Electric board, then whoever steps into its shoes will also have control over K-Electric," he said while referring to a series of recent news stories. The change in K-Electric ownership was first reported by the newspaper's London-based reporter on Oct 12. Subsequently, K-Electric expressed ignorance about any such development. The company confirmed it — albeit in a highly convoluted language — through a stock notice only on Thursday.

Shanghai Electric Power had agreed to buy a controlling shareholding in K-Electric from Abraaj back in 2016 for a sum of \$1.77 billion. But the transaction remains incomplete because the seller has so far failed to obtain the required approvals from different authorities. ■

Courtesy Dawn



PPSE co-creating solutions for gender responsiveness in clean energy financing



The USAID funded Pakistan Private Sector Energy Project (PPSE) organized a consultative dialogue on the gender and clean energy financing nexus on 14th September. PFAN's Value Proposition catering to the gap between clean energy entrepreneurs and investment, is extending dialogue towards filling the gender inclusion gap in Pakistan's clean energy sector. The workshop brought together representative from National Electric Regulatory Authority, State Bank of Pakistan, Private Power & Infrastructure Board, Engineering Development Board, K-Electric, private banks, financial institutions, as well as gender specialists.

Dialogues covered the themes of gender inclusion in clean energy project development, financing and public sector institutions regulating the clean energy sector. The percentage of women in the workforce in Pakistan is 25%, much lower to its South Asian counterparts such as Bangladesh and India, who have 31% and 36%, respectively. The connecting thread however, is that all countries have exceptionally low numbers of women in energy and even lower in clean energy.

Changing systemic and cultural gender biases in society and the energy sector means

including more women in management and decision-making roles, and encouraging women to pursue technical clean energy skills by removing barriers from field work. It is a collective duty to ensure that the clean energy transition is not business as usual but is more inclusive, diverse, equitable and equal for all, which is why multiple stakeholders were involved.

The consultative workshop was inaugurated by Rabia Bukhari, Program Management Specialist, Energy, USAID. Currently, she is working as the private sector engagement lead for Energy Sector and also managing the Clean Energy Loan Guarantee project with the local commercial banks. She shared that gender mainstreaming and inclusion is an integral priority area in all facets of the sector and USAID is committed to furthering women's empowerment in clean energy under a myriad of projects such as PPSE.

One of the recurrent challenge raised during the consultation was regarding lack of safety, security and facilities for female engineers, climate scientists and energy workers that deter their entrance and sustained work in the field. Participants acknowledged that while women graduate with engineering degrees, they are lost to the supply change to

such structural challenges and cultural norms/expectations, such as marriage and child-rearing. However, participants noted that more women can be brought in to (clean) energy if due facilities and support are given to women as their male counterparts.

It was highlighted that K-Electric doubled women's representation over the past two years, including inducting two women leaders in KE's seven member C-Suite. During the PPSE consultation the need for a shift in corporate culture where investment in a more gender diverse team, management and leadership included, is seen as an asset and not a cost.

PFAN, through its global network and platform believe in the power of cross-pollination and the innovative solutions that come from learning across contexts and continents. This is why PFAN Global has initiated its Gender Focal Points regionally to build more climate resilient technologies and solutions across the gender spectrum within regions and countries. PFAN through its regional focus will be working closely more closely with cross-country learning to ensure sharing support and best practices across countries.

Ammar Yasser, Chief of Party, PPSE elaborated that, going forward, PPSE will be actively looking into women led businesses in clean energy arena to be made part of its pipeline so that its services leverage more inclusion of women into clean energy sector. PPSE will work with State Bank of Pakistan and other financial institution for better access to finance for women led businesses focusing on clean energy investments. Further, it will work with its public sector partners to remove

Reon's marketing, project management, human resources, delivery and engineering team are led by women. We have achieved this by becoming more sensitive about women's requirements in the workforce such as transport and flexible work hours etc.

Mujtaba Haider Khan, CEO, Reon Energy

Hiring more women is actually more cost effective. The biggest barrier for women is corporate laziness. You have to go and find the women, I assure you they are out there. Creating opportunities is not the only solution. We have to provide safety, mobility and infrastructure to address barriers

Sadia Dada, Chief Marketing and Communications Officer, K-Electric

barriers to entry and participation for women in the clean energy sector. This consultation was an initiation to connect with industry leaders, finance experts, gender specialists and government representatives to develop a collective ecosystem towards gender responsive commitment in various sectors; while also gathering insights in to sectoral gaps.

The consultation was led by Fiza Farhan, member of the UN Secretary-General's panel on Women's Economic Empowerment and Chairperson to Chief Minister Punjab's Task Force on Women's Empowerment. Fiza is currently consulting with PFAN PPSE to formulate a gender action plan for the project alongside Mavra Bari, PPSE Communications and M&E Expert/Gender Focal Point. Pakistan Private Sector Energy is a USAID funded project being implemented by PFAN and UNIDO.

JJVL plant can save \$200 per tonne on import of LPG

—◆— EU Report —◆—

To cope with the energy demand in winter season, instead of increasing the local LPG production, both the Sui Gas companies have planned to import LPG up to 20,000 tonnes per month with the landed cost of \$780 per tonne without GST.

However, if the Jamshoro Joint Venture Limited (JJVL), an LPG (liquefied petroleum gas) and NGL (natural gas liquids) extraction plant, is allowed to be operational, it can produce LPG of 9,000 tonnes per month at the cost of \$582 per tonne, taking into account Rs1,008 per MMBTU prescribed price + \$237 per tonne processing fee. Even considering the 57:43 sharing ratio, which was the last arrangement finalised with Sui Southern, it will cost \$572 per tonne to SSGC, a senior official at the Petroleum Division told The News. The official, who deals with LPG issues, also posed a question as to why they (gas companies) wanted to pay \$200 per tonne more, meaning that they would pay more \$4 million per month. With JJVL plant in operation, the government can save \$200 per tonne and this will also help lower the cost of LPG in the market.

For the first time, both SSGC and SNGPL would distribute LPG cylinders among the masses for the winter season, each at Rs2,350 with a cylinder price of Rs7,000. Both the gas utilities have started marketing campaigns for selling LPG cylinders among the people.

The SSGC on June 20, 2020, closed down the gas supply to JJVL, which is capable of producing up to 500 MT of LPG and 150 MT of NGL per day, and didnt extend the agreement with JJVL plant. Earlier, Sindh on September 30, 2022, sought the prime ministers intervention for restarting the Jamshoro Joint Venture Limited (JJVL), an LPG (liquefied petroleum gas) and NGL (natural gas liquids) extraction plant, to provide these cheaper fuels to the flood-hit people of the province. ■

2nd International Hydropower Conference to be held in Islamabad in Dec



The second International Hydropower Conference will be organized in Islamabad in December with an aim to recommend the best doable strategy to the government to ensure maximum utilization of water resources in the country for clean power generation.

The Energy Update is organizing the daylong event at a hotel in the federal capital to gather at once place all the concerned stakeholders relevant to the scenario of hydropower generation in Pakistan. The theme of this year's conference "Sustainable dams and drains in mitigating climate change" has been specially chosen in the context of the recent devastating flood emergency in Pakistan.

The Energy Update has partnered with the International Hydropower Association, Water and Power Development Authority and Private Power Infrastructure Board to organize the conference that is likely to be attended by over 250 leading national and international experts on hydro resources. The conference will be attended by representatives of the power sector regulator, government authorities, private sector, local banks, international donor agencies, energy companies, and prospective foreign investors that are keen to invest in hydroelectricity to help Pakistan decrease its reliance on fossil fuels for

power generation.

Former Prime Minister, Shahid Khaqan Abbasi, recently performed soft launching of the 2nd International Hydropower Conference at an event at Islamabad Club and praised the efforts of Energy Update to regularly organize conferences on different aspects of the power sector.

On This occasion Chairman NEPRA Tauseef H. Farooqi, Managing Director PPIB Shah Jehan Mirza, Director General Hydro PPIB Dr. Munawwar Iqbal, Karot Power's Advisor NA Zuberi, Koak Power CEO Sultan Ahmed and others also attended the event.

Naeem Qureshi, Chairman of the organizing committee of the conference, hoped that the recommendations of the conference would go a long way to suggest a clear way forward for expanding hydroelectricity resources in the country for greater clean electricity production.

He said that maximum utilization of the hydro resources was key to furthering the government energy sector policy, which stood for electricity generation based on renewable and indigenous power sources while minimizing the use of fossil fuels for energy production.

Qureshi said the development regime under the aegis of the CPEC also provided an excellent opportunity to attract local and foreign investment in the hydroelectricity sector.



How to revive Pakistani economy?

◆ Shahid Javed Burki ◆

I have studied the Pakistani economy for decades and written several books on the subject. Of the several themes explored in this body of work, one is of particular importance. I have suggested that policymakers in Pakistan since the founding of the state 75 years ago have shown remarkable ability to deal with the crises that repeatedly hit the country. However, those in charge of looking after the economy had outside help. In dealing with the crises, the country was aided repeatedly by external developments.

These saved Pakistan from economic distress, some of them so severe that the country could have gone under. The country is again faced with a major economic crisis but this time foreign help would not be readily available. In fact, the global economy is also under stress and it is not clear whether we are moving towards another recession.

The first crisis was brought about by the way the British divided their Indian colony. They pulled out their troops even though it was clear that without their involvement the age-old tensions between the area's two religious communities — Hindus and Muslims — could lead to bloodshed. That happened. There were bloody riots in the months leading up to the partition of the British colony and after India and Pakistan became independent states. There are no firm estimates available as to the number of people killed in the confrontation

between the two religious communities — perhaps a million people died including those who were attacked as they were leaving on foot and headed to Pakistan or to India.

While I was a graduate student at Harvard University in the late sixties, Alexander Gerschenkron who was then recognised as the world's foremost economic historian, encouraged me to come up with an estimate of the number of people who moved across the newly defined border between India and Pakistan.

I did that. When the British left and went home, India had a population of 400 million people of which one-fourth, or 100 million, were Muslims. Of the Muslims, some 75 million came to Pakistan's share; 34 million lived in what is today's Pakistan and 41 million who were residents of what was to become the state of Bangladesh. Communal riots on both sides of the new border made people leave their homes and seek security on other side of the border.

Eight million Muslims came to Pakistan and six million Hindus and Sikhs went from Pakistan to India. When Pakistan took its first census in 1951, one-fourth of the population of West Pakistan were refugees. The proportion for India was much lower — less than 2%. The presence of such a large number of people who were born outside the country was to have profound consequences for the development of

the Pakistani economy and its political system.

Resettling such a large number of people was not the only crisis Pakistan's new government faced. The other was the extreme hostility towards its sister state shown by the Indian leadership, led by then Prime Minister Jawaharlal Nehru. New Delhi took several steps to bring Pakistan down on its knees. These included the trade embargo by India in 1949, when Pakistan refused to follow the British Commonwealth and devalue its currency against the American dollar. "I will not pay 140 Indian rupees for one hundred of Pakistani rupees," said Sardar Vallabhbhai Patel, India's Deputy Prime Minister.



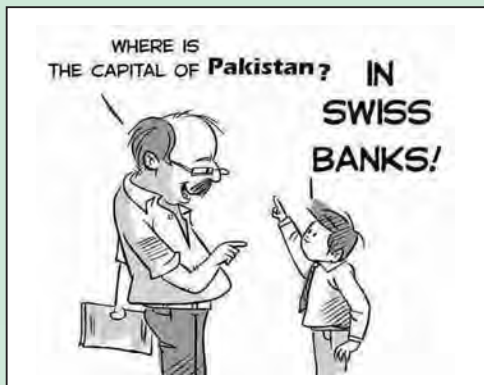
With these words, he stopped all trade with Pakistan. This move seriously impacted Pakistan since most of what the Pakistanis consumed was made in India. However, an external development — the war in the Korean Peninsula — increased the world demand for two of Pakistan's major exports, cotton and jute. Dollars flooded into the country with which Pakistan could import consumer goods from Europe. The cessation of trade with India also encouraged entrepreneurs in Pakistan to set up industries to produce for the local market. The result was the rapid industrial development of the country.

There were several other instances of outside help Pakistan received in developing its economy. Pakistan has had three periods of rapid economic growth — in the sixties, in the eighties and in the early 2000s. All of them were financed by money that came in from the US. Washington assisted Pakistan to compensate the country for the help it was providing the Americans.

In the sixties, Pakistan joined two American-led defence pacts to prevent Russia from advancing into South Asia. In the 1980s, Pakistan helped groups of mujahedeen to throw the Soviet troops out of Afghanistan who had invaded their country in 1979. It took a decade of intense fighting for the local fighters to expel the invaders from their country. In the early 2000s, Pakistan joined America's war against terrorism.

The relatively easy availability of American assistance had one important negative consequence. It made the country excessively dependent on foreign help, not developing its own economic system to raise domestic savings for promoting economic development. Pakistan today has one of the lowest tax-to-GDP ratios among the world's major economies. There is no doubt that unless it has its citizens pay taxes to the government on their incomes and assets, Pakistan will not be able to finance reasonable rates of economic growth. That domestic resources must be available not only to grow the economy but also to deal with the kind of destruction brought about in the summer of 2022 by rain and floods.

“And what I think may be one of the most dangerous nations in the world: Pakistan. Nuclear weapons without any cohesion.” Pakistan reacted sharply to the US President's remarks. The US ambassador to Pakistan was called into the office by the Secretary of Foreign Affairs and told about “Pakistan's disappointment and concern to the unwarranted remarks which were not based on ground reality”. By distancing itself from Islamabad, the US was pushing Pakistan into the orbit of Beijing. At this time China is the only source of badly needed external finance. ■



LOAD MANAGEMENT

Gas load management plan for winter Govt to give top priority to domestic sector



The government has decided to extend top priority to the domestic sector in the winter season for ensuring gas supply three times for cooking purposes with full pressure under the gas load management plan to be implemented from November 1, 2022 till February end of 2023.

Gas will be closed down to the non-export industry i.e. the CNG sector. The current gas supply to the export sector would be halved and, more importantly, the present supply of RLNG to the power sector would be reduced by 40 percent, a senior official of the Energy Ministry told The News.

Top officials of the Petroleum Division and gas companies here on Wednesday put their heads to fine-tune the gas load management plan to be tabled before the prime minister for approval.

However, the government, even after the diversion of 250-350mmcf RLNG to the domestic sector, will ensure gas to domestic customers only three times for cooking purposes as the piped gas deficit is huge.

“Both the gas utilities – Sui Northern and Sui Southern – will also import LPG of 20,000 metric tons on daily basis with the price of over Rs2,300 per cylinder apart from charging Rs7,000 one-time cost of the cylinder.

“The concerned officials have

worked out in the Sui Northern's system, an estimated gas deficit of 250mmcf in November, 400mmcf in December and 700-750mmcf in January, and in the Sui Southern's system 250mmcf in November, 300mmcf in December, 350mmcf in January and 250mmcf in February 2023.”

This means the country would be having a gas deficit that would touch over 1.1 billion cubic feet of gas per day in the peak winter month of January 2023. However, Sui Northern will have availability of RLNG 600mmcf and local gas 750mmcf in November, RLNG of 800mmcf and 800 local gas in December, and RLNG of 800mmcf and 800mmcf local gas in January 2023, and the same gas availability in February 2023. Likewise, Sui Southern will have 75mmcf RLNG and 875mmcf local gas each in November, December, January, and February.

The government has decided to reduce the LNG gas supply to the Power Division to 250mmcf from 470mmcf in November 2022. The gas supply to the power sector may further plummet in January to 200mmcf. However, in February the gas supply to the power sector may increase up to 350mmcf. The government would increase electricity production based on coal by up to 4,000MW. The country would also continue to rely on nuclear power generation. The demand for electricity in the winter season oscillates between 9,000 MW and 12,000MW only. ■



Massive gas crisis in the making

Demand for domestic sector growing unabated

—◆ Ali Khizar —◆

Winters are coming. And a massive gas crisis is in the making. The demand for domestic sector is growing unabated due to low prices while the supply (both indigenous gas and imported RLNG) is shrinking. Local gas supply is falling by around 8 percent per annum while the LNG supply is going to be limited at 8-9 cargos per month this winter as compared to 12 cargos per month two years ago.

The plan is to divert imported expensive molecules to domestic sector at dirt cheap rates. This may add another Rs100 billion to the gas circular debt which may reach Rs 1 trillion after this winter. There would be political bashing of the government for not supplying enough gas in a winter, and there would be economic repercussions of recovering a mere fraction of the cost.

The optimal response would have been to give the right pricing signal and let the gas to divert to the most efficient use. Unlike common perception, majority of the pipeline gas connections are not for vulnerable population. There are around 11 million pipeline gas connections out of 35 million households in the country – covering less than a one-third of the population.

On the other hand, there are 31.6 million electricity connection – conservatively covering 80 percent of population after discounting for multiple connections.

Electricity prices have been revised upward. But the gas prices are not. People living in affluent areas are paying monthly bill of over Rs 50,000 for electricity while their gas bill is less than Rs 500 in summers. Most of the readers have this story at home. On the other hand, the vulnerable segment (without gas pipeline connection) is paying higher amounts by using LPG cylinders or other expensive means. Then the line losses and thefts are high in pipeline networks. There is little justification of providing gas at dirt cheap price through pipeline to residential areas.

A better way is to let the gas divert to power production and direct industrial use (mainly in cogeneration facilities) where efficiencies are multiple times as compared to the use of geysers and stoves at homes. And let the affluent (and middle class) pay their fair share. However, no government has the courage to do so. This weak coalition is worse, as its prime objective seems to revive the lost political capital of the PML-N (Pakistan Muslim League-Nawaz).

The imported LNG prices are at crazy high levels. There is no way Pakistan can procure spot cargos at current prices. The supply is only by term cargos (of 100 mmcf each) – 5 cargos from

the first contract with Qatar, 3 cargos from 2020's contract with Qatar (in Dec) and this to increase to 4 cargos from January, and one 1 cargo from Eni (but Eni could still default on its commitment). Hence, there would be 8 cargos in December and 9 in Jan and Feb. The number was 12-13 two years ago and there was gas load-shedding back then. The situation is going to be much worse this winter.

The grapevine is that supply to the power sector would be reduced to 150 mmcf in the NTDC (National Transmission and Dispatch Company) system – that is enough to run merely one RLNG plant. Then there would be 75 mmcf supply to KE for running half of its new RLNG plant. The supply to power sector would be half of what it was two years ago. The expensive gas molecules to divert from 50 percent plus efficiency to less than 15 percent efficiency use. How can an energy deficient country while heavily relying on imported energy afford that?

Then there would be a tug of war for industrial usage. The finance minister has agreed to provide RLNG at \$9/mmbtu to Punjab exporters (this may get fixed in PKR) and the indigenous gas is provided at Rs840/mmbtu in Sindh and KP. RLNG is costing at \$17/mmbtu at consumers' doorsteps at current prices. There would be a subsidy of 50 percent for industry. Therefore, the supply should be only confined to the efficient users who have in-house cogeneration facility. The supply to north is required at 170 mmcf while in South it's at 100 mmcf.

The rest would be supplied to domestic users. And the PM wants to increase the domestic use at the expense of others and taxpayers. He should think twice. The average price charged to domestic is Rs350-400/mmbtu while the RLNG is costing at Rs 3,700/mmbtu at current currency parity – a massive subsidy. This would add Rs100 billion to the gas circular debt in Sui North network.

And even with this subsidy, there would be massive gas load-shedding. Nothing is making sense. Apart from that, the government should encourage LPG use for stoves and facilitate conversion of geysers and heaters to electricity. LPG is produced both locally and imported from Oman and other sources illegally.

However, the private company has a clout in the influencing circles. A few days back, the issue was raised in a government meeting where the petroleum minister and secretary vocally disagreed with a senior PML-N leader (who is not the energy minister, but is running the show).

In a nutshell, these winters are going to be messy. The winters usually after floods are tougher and the gas supply would be even less. The high political temperature will rise further. For consumers, it's better to start preparing for alternates. It's advisable to buy LPG cylinders and electric geysers in advance. Do not rely on the pipeline gas. ■

ECONOMIC CONSTRAINTS

Gas sector circular debt balloons

— Khalid Mustafa —

The gas sector circular debt has ballooned to a staggering Rs1.5 trillion, making the sector virtually unsustainable, primarily owing to the rapid fall in indigenous gas production, failure to fully recover the gas price, diversion of costly LNG to the domestic sector in the winter, and under-utilisation of LNG infrastructure.

This all has been unfolded in the latest presentation of Sui Northern Gas Private Limited (SNGPL) shared with decision-makers on October 13, 2022.

While painting the bleak picture of future gas demand-supply, the Sui Northern has projected that the gas deficit which stands at 1,479 mmcf in 2022-23, will escalate to 3,590 mmcf in the next seven years in 2029-30. The indigenous gas production that stands at 3,408 mmcf will alarmingly decline to just 1,659 mmcf in 2029-30. It also projects that the LNG supply capacity of the country, currently at 1,200 mmcf, will increase to 1,800 mmcf with unconstrained gas demand reaching up to 7,049 mmcf in the next 7 years.

Regarding the failure of full recovery of the price of costly RLNG, it has been mentioned in the presentation that in line with the government directions, SNGPL sells RLNG to various subsidised sectors including fertiliser, export-oriented consumers, and the domestic sector. SNGPL receivables from the government against subsidies on RLNG have increased to Rs199 billion.

"And due to subsidised tariffs, SNGPL's ability to pay RLNG suppliers such as PSO and PLL had been badly impacted. Currently payable amounts to PSO and PLL stand at Rs284 billion and Rs135 billion respectively."

The power sector though pays in full but its receivables have increased to around Rs115 billion leading to considerable delays in payments to suppliers. Regarding the local gas price recovery, the receivables in respect of natural gas of SNGPL stand at over Rs400 billion and SSGC at Rs 300 billion. And the biggest issue remains that 90 percent of domestic consumers fall under the first two subsidised slabs.

The way forward in ensuring the full recovery is that the government should provide an upfront subsidy to end consumers or

ensure full price recovery through a revision in the sale price. The gas price escalation of local gas is required for full price recovery. The sale price will need to be increased to Rs1,722 per MMBTU to recover the entire accumulated receivables in one year, which will again come down to around Rs900 per MMBTU in subsequent years.

However, the country has natural gas reserves of 63,311 billion cubic feet out of which cumulative production stands at 42,449 billion cubic feet and the recoverable balance stands at 20,861 billion cubic feet. It has also been projected that the gas supply in SNGPL system from 1,400 mmcf in 2015 will deplete to below 400 mmcf in 2026 and in SSGC system the supply will deplete from above 1,200 mmcf to 800 mmcf till 2026.

Mentioning the way forward, SNGPL asked the decision-makers to come up with incentives for encouraging exploration and production activities for gas that include lucrative conventional, tight and shale gas policies. The Sui Northern also recommended grid connectivity of stranded gas fields. It also stressed the utilisation of low Btu gas fields.

The SNGPL also asked for streamlining the DGPC (Directorate General Petroleum Concessions) approval process ensuring ease of doing business initiative to be extended to existing licenses and leases. It also suggested a reduction of security risks and costs for exploration activities. It also mentions that 95 TCF shale gas and 14 billion barrels shale oil are recoverable. ■

Courtesy The News



Risen Energy signs deal with ACT Engineering



Risen Energy has announced that it has signed a strategic cooperation agreement with ACT Engineering in Pakistan.

At the signing ceremony, Muhammad Ahsan, Risen Country Sales Head for Pakistan, stated: "Pakistan has become our main market in Asia since its extraordinary boom in demand over the past few years. The Pakistani government has shown a great interest in renewable energy and continues to support

the development of the industry."

"We are delighted to cooperate with ACT Engineering, one of the country's most professional EPC companies that share the same corporate values as ourselves in putting product quality as a priority," he said.

Leo Risen, Director of Sales for Central Asia, said that Pakistan had also stated that it was an emerging and potential solar market in Asia.

11 power projects completed under CPEC

As many as 11 power projects with accumulative capacity of 6,369 MW under China Pakistan Economic Corridor (CPEC) have been commissioned while 10 more projects are under various stages of development.

According to data, in the energy mix of CPEC power projects, coal is leading with 8,220 MW, hydel 3,428 MW, solar 1000 MW and wind 400 MW. The projects already completed are 1320 MW each Sahiwal Coal Power, Port Qasim, China-HUB Coal Power, 660 MW Engro Thar Power and Mine, 330 MW HUBCO Thar, 720 MW Karot Hydropower, 400 MW Quaid-e-Azam Solar Park, 100 MW UEP Wind Farm, 99 MW Three Gorge Wind Power Projects, and 50 MW each Sachal Wind Farm and Hydro China Dawood Wind. The projects which are under various stages of development are 1,320 MW Shanghai Electric (TCB-1) and Mine, 330 MW ThalNova Thar Power, Azad 700.7 MW Azad Pattan Hydropower Project, 1,124 MW Kohala Hydropower, 884 MW Suki Kinari Hydropower, 1,320 MW Thar (Oracle) Coal Plant, 600 MW Quaid-e-Azam Solar Park, 300 MW Gwadar Coal/Solar Power Plant and 50 MW each Cacho Wind Power and Westren Energy Pvt Ltd.

The 330 MW ThalNova Thar Power Project will start generation by December while 1320 MW Shanghai Electric will commence its generation before the next summer season.

There are some six potential power projects which are expected to be included in CPEC in future are 640 MW Mahl Hydropower, 135 MW Taunsa Hydropower, 350 MW Toren More Hydropower, 260 MW Jameshill More Hydropower and 80 Phander Hydropower Projects.

Reforms in power sector

Serious effort needed rather than cosmetic measures

The eyewash of 'drastic' measures approved by the federal cabinet in the name of power-sector 'reforms' underscores how deeply ad hocism is rooted in Pakistani officialdom. The decision to chuck out corrupt officials from key posts of state-owned power companies, roll out smart-metering infrastructure and set up low-cost solar energy projects in order to weed out corruption, revamp the distribution system and improve electricity generation amounts to treating an illness with aspirin when complicated surgery is required.

The cabinet decision comes days after the World Bank president had impressed upon Finance Minister Ishaq Dar the dire need for critical power-sector reforms at their meeting in Washington. The issues bogging down the country's electricity sector are

too complex to tackle with the appointment of 'honest' officers or shifting to solar energy. Any serious effort to improve and restructure the collapsing power sector should simultaneously target the multiple problems pulling it down.

Broadly, the comprehensive reform strategy must aim to supply uninterrupted electricity at affordable prices to all types of consumers, privatise electricity generation, transmission and distribution to woo private investment in the power infrastructure, and develop a competitive market. No action whatsoever will work if implemented in isolation.

The build-up of fiscally unsustainable power-sector debt to more than Rs2.5tr underlines the fallacy of bureaucratic thinking that piecemeal measures like the

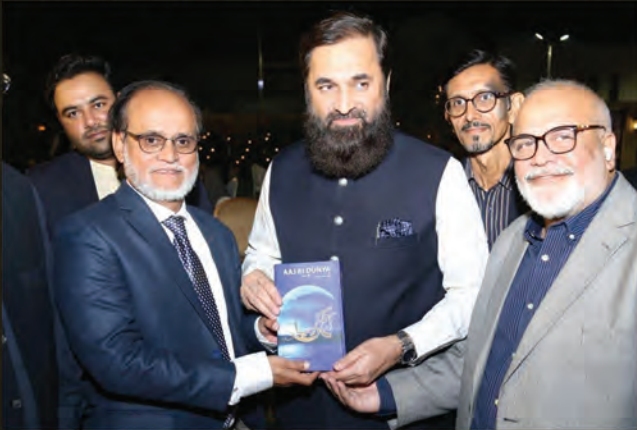
ones approved by the cabinet will help the government deal with the challenges present in the power sector. They will not. For example, when the previous PTI government strong-armed independent power producers to get them to revise their power purchase agreements, the people were told this would make electricity affordable for them.

That has not happened as yet. This kind of thinking has only aggravated existing issues, burdening Pakistani consumers with inflated bills and regular blackouts at the cost of big losses to the economy and industrial competitiveness in the international markets. It is advisable for the government to make an all-encompassing and serious effort to fix the power sector rather than implement cosmetic measures.

Courtesy Dawn



National Forum for Environment and Health's delegation led by its President M. Naeem Qureshi met with Governor Sindh Kamran Tessori and discussed clean and green Karachi, CSR Activities and Fire Safety matters.



Governor Punjab M. Baligh ur Rehman presenting book of Mirza Ishtiaq Baig to Managing Editor Energy Update M. Naeem Qureshi.



Dr. Mussadiq Malik Minister Petroleum presided over the LPG meeting at federation house Karachi

SOCIAL ROUNDUP



A MOU Signing Ceremony held by Art of giving with NFEH on Fundraising for welfare organization. AOG installed a donation machine at port grand, Karachi.



Fly Jinnah a New Airline started its domestic operation in Pakistan. A Picture of Crew was taken on this occasion.



Khurram Dastagir Minister Power Division met with European Parliamentarian and discussed cooperation on Renewable Energy

New hydel projects to produce over 11,000MW

Overall hydroelectric power capacity will rise to 20,684MW



The Water and Power Development Authority (Wapda) is pursuing six hydroelectric power projects that will add 11,241 megawatts of environment-friendly electricity to the existing hydel generation capacity of 9,443MW in the coming years.

Wapda officials said that at present total installed capacity of 24 hydel power stations of Wapda stood at 9,443MW and the addition of 11,241MW would enhance it to 20,684MW. The existing hydel power stations included Tarbela, Mangla, Ghazi Barotha, Neelum-Jhelum and Warsak, which contributed about 25% to the total system capacity of 36,166MW from all sources. The net electricity output of those power

stations was about 32,000 gigawatt-hours (GWh) per annum.

Sharing details of the upcoming hydel power projects, the officials said that the Dasu Hydropower Project would contribute 4,320MW, Tarbela 5th Extension 1,510MW, Mohmand Dam 800MW, Diamer-Bhasha Dam 4,500MW, Kejal Khwar Power Project 128MW and Kurram Tangi 83.4MW to the national grid system.

Meanwhile, Pakistan Atomic Energy Commission has developed several nuclear power projects to support economic uplift in Pakistan. Total installed capacity of the nuclear power plants connected with the national grid was 3,530MW, which included 1,330MW Chashma nuclear power project and 2,200MW Karachi nuclear power project.

Govt on tightrope over diversion of RLNG to domestic sector

—◆— EU Report —◆—

Keeping in view the backlash from the masses from the impending huge gas deficit, the government's top mandarins are in a fix on what quantity of costly imported RLNG should be diverted to the domestic sector in the winter season. In the last four winters, Rs108 billion imported product was injected into the domestic sector and the said cost had not yet been recovered.

"The country's gas sector is already soaked in mammoth circular debt of Rs1,500 bn owing to which it has become unsustainable like the power sector facing Rs2,500 billion circular debt. And during this winter, the government is inclined to inject LNG of 250-350mmcf into the domestic sector to cater to the energy needs of the domestic sector. This will cost the government another Rs110 billion," a senior official of the Energy Ministry told The News.

In the last four winter seasons, LNG of Rs174 billion was injected into the domestic sector. Out of this, government paid Rs66 billion to PLL (Pakistan LNG Limited) to lay off its liabilities with the remaining amount of Rs108 billion. "Still we have Rs19 billion to finance the subsidy, which is much less if the government diverts RLNG to the domestic sector during the coming winter season."

To this effect, the Petroleum Division is in touch with the Finance Ministry for finalisation of more subsidies to pay the cost of LNG not recovered so far. The cost of LNG the domestic sector uses in the winter season cannot be charged from consumers as RLNG is a ring-fenced commodity.

The domestic sector is charged only for the sale of system gas (local natural gas). Unless the weighted average cost of gas, after blending of natural gas and imported RLNG, is implemented, the cost of RLNG cannot be recovered from the domestic gas consumers.

Line losses-corruption

Cabinet okays plan to overhaul power sector

In a bid to stem the line losses and put an end to corruption in the power sector, the federal cabinet approved drastic measures, including installation of advanced metering infrastructure and low-cost solar energy projects, to overhaul the existing electricity generation and distribution system.

According to the Prime Minister Office (PMO), the cabinet approved the expansion of the current installation of advanced meters project from Islamabad to other parts of the country to overcome the issue of line losses which stood at seven per cent. The cabinet also

approved the installation of advanced meters on power transformers.

The plan to overhaul the power sector includes appointments in Discos, action against corrupt officials in the power division, measures to reduce line losses and stem power theft, and low-cost solar energy initiatives. The prime minister said well-reputed officers should be deputed in the distribution companies to improve their functioning and reduce the line losses to ensure better public delivery.

The cabinet directed the power division to present a comprehensive report on

vacant posts for essential staffers in Discos and stressed that the recruitment process should be transparent and at par with global practices.

Expressing his dissatisfaction over the average seven per cent line losses, the prime minister set up a committee headed by Minister for Defence Khawaja Asif to devise a plan and submit recommendations for reforms in power distribution companies. The cabinet also approved the recommendation of the power division for the promotion of low-cost solar power energy initiatives.

Well-sited grid-support PVs to take care of T&D leakages

◆ EU Report ◆

Strategically sited grid-support solar photovoltaic (PV) applications have been one of the most effective tools to address the challenges of a leaky transmission and distribution system and regional disparities in power access, a study said.

According to the study carried out by the Policy Research Institute for Equitable Development (PRIED) launched on Monday, solar photovoltaic (PV) applications could provide many values to a transmission and distribution system. In addition to resource indigenisation, energy generation close to the end users was now seen as a novel solution for reducing losses.

These applications could play an instrumental role in loss reduction experienced by electric utilities—including both technical and non-technical losses by potentially deferring transformer and transmission line upgrades, equipment maintenance interval extension and distribution system reliability improvement. This, however, needs a facilitative business model solution. Pakistan is not only characterised by the absence of such emerging models, but also the current debate reflects very poorly on this ‘absence’ as the major preventing factor. Third-party

solar, and public-private partnerships between a utility and third-party investor could emerge as a potential commercial solution for solarising high-loss feeders.

Naila Saleh, Project Manager at Agora EW and Technical Advisor at PRIED, said optimal placement of solar PV was not only imperative for improving economics by reducing losses in the distribution sector and ending discriminatory load-shedding in high-loss zones, but also for the net-zero decarbonisation drive.

“Pakistan has a positive advantage from starting a planning process which is more oriented toward sustainable and clean energy supply, rather than trying to use an old planning system that was made for different goals and for old technologies,” she said. Implantation of these business models would require the thoughtful application of a range of policy and regulatory levers—to stimulate efficient, sustainable investment in these new technologies.

“More thinking also needs to go into well-planned integration of this added capacity, and flexibility of customer-sited solar. Right economic signals need to be set for coupling solar with distributed energy storage—which will provide much-needed flexibility on the distribution network.”

Grid stations set up in Faisalabad, Chiniot

Federal Minister for Power Khurram Dastgir Khan inaugurated 220 kV grid station Lalian and 500 kV grid station Faisalabad West in districts Chiniot and Faisalabad respectively.

Speaking on the occasion, the federal minister said that the reliability of the power transmission network is equally important to provide an uninterrupted power supply to consumers with an improved voltage profile.

“The present government is fully cognisant of the difficulties of consumers and their issues, like low voltage and forced load shedding, which are being resolved through the addition of grid stations and transmission lines,” said Dastgir.

“A 500 kV Faisalabad West grid station and the 220 kV Lalian grid station have been completed at the cost of Rs16.9 billion and Rs4 billion respectively,” he said, adding that “The projects will help evacuate power from two LNG power projects with a cumulative capacity of 2400 MW.”

PM for exploring true potential of clean energy

Prime Minister Muhammad Shehbaz Sharif has underlined the need for combined efforts to explore the true potential of clean energy resources, coupled with utilization of modern tools and technical gadgets to fully harness the talents of young generations and explore future avenues for progress and prosperity.

Addressing ‘Future Investment Initiative’ conference, he said that clean energy potential would be the new driver of economic prosperity. As societies placed greater premium on sustainability, he said, the clean energy was the driver of the new economy.

He mentioned his administration in Punjab province which had explored solar power in 2012 and established a 1000 MW solar power park in Bahawalpur, south of Lahore. It was since producing 400 MW, with spare capacity to generate the balance.

“As Prime Minister, I am spearheading the development of 10,000MW of solar power to meet Pakistan’s peak load demand and lessen reliance on fossil fuel. It is a great opportunity for investors who are looking for attractive returns,” he added. The prime minister said that the economy of Pakistan could no longer afford the import of costly oil to generate power.

Meezan Bank donates Rs35m for solarisation

Meezan Bank, Pakistan’s leading Islamic bank, has donated Rs35 million to Indus Hospital & Health Network for installation of a solar panels system. The initiative is part of the Bank’s Corporate Social Responsibility and Sustainability initiatives for 2022 and will provide financing to cover part of the 1.2MW solar power project being installed on the hospital’s rooftop.

The system financed by the Bank will generate nearly 300KW of electricity, reducing approximately 114,000 kg of carbon dioxide emissions per annum, which is equivalent to taking over 25 gasoline-powered vehicles off the road for one year. With the proposed solar panel system installation, The Indus Hospital (TIH) would be able to reduce its rising electricity expenses while channelling those funds towards patients’ welfare.



Coal mines, power plants polluting Thar's groundwater

Study detects alarmingly high concentrations of chemicals and hazardous metals in water

—◆ EU Report —◆

Coal mining and electricity generation using coal in the region are rapidly changing quality of Thar's groundwater, according to a scientific study.

The study has detected alarmingly high concentrations of chemicals and hazardous metals in the water being consumed by local people. The study conducted by the Policy Research Institute for Equitable Development has said that coal mines and power companies operating in Thar release untreated and highly toxic water, containing metals such as arsenic, copper and lead.

Titled "Thar's Changing Hydrology: Adverse Impacts of Coal Mining and Coal-Based Power Generation on Local Water Resources", the study was launched on Wednesday by the Alliance for Climate Justice and Clean Energy.

Sharing the study's findings, Mustafa Talpur, who led the research, said: "Thar has a unique and fragile ecosystem. It is a lively desert. But the coal mining in Thar is affecting the region's groundwater hydrolo-

gy. These coal projects were started without considering their effects on the people and the ecology."

Talking about the global institutions' role in dubious projects, Ahsan Kamal, an academic, said that although the World Bank claims it no longer supports coal projects, it has been giving technical support to Thar's coal-based schemes.

Criticising the Land Acquisition Act, well-known town planner and social researcher Arif Hasan said that the entire process is unjust.

More than half of Thar has been handed over to coal companies, he said, adding that growing use of coal in Thar and forceful acquisition of land, especially gowchar (grazing) land, have adversely affected the livelihood of the locals and caused various socio-economic problems.

Sohail Sangi, a local journalist, pointed out that Thar's coalfield, which is spread over 9,000 square kilometres, is the "food basket" for Tharis. The land will no longer remain fertile due to the coal projects and development in the region, which will lead to food security issues in future, he added.

Power generation drops

Pakistan's power generation as well as its cost decreased during the month of September this financial year due to decline in generation from expensive fuel.

Data showed that power generation went down by 8.2 percent to 12,878 GWh (17,886MW) during the month of September 2022 compared to 14,032 GWh (19,489MW) during the corresponding month of the last financial year.

On the other hand, on month-on-month (MoM) basis, power generation also decreased by 8.4 percent. In the first quarter of the current financial year, power generation also decreased by 10.3 percent year-on-year to 41,081 GWh (18,606MW) compared to 45,790 GWh (20,738MW) during the same period in the last financial year.

The hydel power generation declined by 13.4 percent in September compared to last fiscal. Coal-based power generation also declined 39.4 percent in September this fiscal.

Among renewables, wind power generation increased by 102 percent in September 2022, and went up by 3.4 percent in Q1 of this fiscal. Solar power generation was up 34.5 percent in September, whereas it increased by 19.2 percent in the quarter under review.



NISHAT POWER LIMITED

NPL quarterly profit up 3pc

Nishat Power Limited (NPL) has posted a three percent rise in its first-quarter net profit on an increase in its sales.

In a statement to the Pakistan Stock Exchange, the company reported a net profit of Rs943.136 million for the quarter ended September 30, up from Rs915.047 million in the same period the previous year.

The company announced an interim cash dividend of Rs2 per share for the first quarter. Earnings per share came in at Rs2.664 per share, compared with Rs2.584 per share same quarter last year. NPL said its revenue for the quarter rose to Rs11.447 billion, compared with Rs5.729 billion a year earlier. The cost of sales was recorded at Rs10.333 billion from Rs4.728 billion.

—◆ EU Report —◆

Pakistan to develop fresh petroleum policy

In a bid to facilitate the potential investment of \$10 to \$12 billion from Saudi Arabia, Pakistan directed the relevant authorities to approve a fresh petroleum policy, The News reported. Earlier this week, Islamabad persuaded Riyadh to establish a \$12 billion state-of-the-art deep conversion refinery along with a petrochemical complex in Pakistan.

The petroleum policy will provide Pakistan with a way to attract multi-billion-dollar investments. On Wednesday, different ministries held consultations for finalising draft agreements, which are expected to be signed during the upcoming visit of Saudi Crown Prince Mohammad Bin Salman to Pakistan.

Finance Minister Ishaq Dar on Thursday held a virtual meeting on the First Joint

Economic Sub Committee of the Saudi-Pakistan Supreme Coordination Council with Saudi Energy Minister Prince Abdulaziz bin Salman bin Abdulaziz.

Minister for Board of Investment (BOI) Chaudhry Salik Hussain, State Minister for Petroleum Dr Musadik Masood Malik, SAPM on Finance Tariq Bajwa and other senior officers from ministries of Finance, BOI, Maritime, Aviation, IT and Telecommunication, Food Security & Research, Petroleum and Power Division attended the meeting.

Both sides discussed and reviewed areas of mutual cooperation and collaboration including energy, industry, mineral resources, commerce, finance, investment tourism, communication information and technology, agriculture, food security, transportation, logistics, maritime, and work to increase trade exchange and investment between the two countries.

Energy prices: industry begins to buckle?

—◆ Dr Gohar Ejaz —◆

The World Bank's latest Pakistan Development Update released in October 2022 highlights the rapid rise in inflation in Pakistan over the past year, and aptly identifies its key drivers that are: external factors, including rising global food and energy prices; domestic economic conditions and policy settings, including a weaker Rupee and an overheating economy; and more recently, the floods with agricultural losses and disruptions of supply chains

This unprecedented inflation has disproportionately affected the poor, given their declining real incomes and their inability to meet even basic household expenditures. Energy and food have become unaffordable, and acknowledgement of the human element is essential to recognize how immediate and dire the need for economic revival has become.

Pakistan has historically sought loans to achieve economic stability. These loans come with conditions that tend to restrict growth and affect the poor disproportionately. Meanwhile, the export-oriented industry is neglected, despite having the potential to steer sustainable economic growth as long as it is provided with basic policy support.

The high priced energy for industry is a particular case in point. The country has historically suffered from some of the highest energy tariffs in South Asia. These tariffs have not only served as a means to transfer the costs of inefficiency to consumers and industries without considering affordability, but have also given way to premature deindustrialization.

Meanwhile, the current stock of circular debt hovers around Rs 2.5 trillion (\$1.4 billion) while in the gas sector an additional Rs 1 trillion (\$4.6 billion) has accumulated – an alarming figure, which has gradually built up as a result of the poor planning that has characterized Pakistan's energy sector over the years.

For sustainable business activity, there is a need for upgraded infrastructure, a strong workforce, legal and governance support. The supply of regionally competitive energy has been emphasized time and again but the lack of policy continuity in the country results in an unstable environment for businesses to thrive.

This brings us to a notable difference between rapidly developing economies and those where growth is stagnant: those which prioritize growth set aside sums of public money and ensure policy continuity to support industries, particularly LSM and exporters.

Pakistan has consistently failed in this regard.

Meanwhile, imports have been allowed to run amok. Non-essential goods imports must be discontinued, especially where substitutes are made in Pakistan. Pakistan is a strong producer of both wheat and raw cotton so

their imports should be cut down drastically while strengthening domestic production.

Rising food and energy prices decrease the real purchasing power of households, disproportionately affecting poor and vulnerable households that spend a larger share of their budget on these items. Meanwhile, excess government borrowing from the financial sector crowds out the supply of credit to the private sector and deepens the sovereign-bank nexus.

Resolving these constraints in the medium to long term requires concerted efforts by the government, regulators, and other stakeholders, and the most sustainable way to counteract them is by building Pakistan's export-culture.

Export enhancement has proven time and again to be the only effective economic solution, as exhibited by the ability of the textile sector to achieve record numbers despite the constraints and lack of an export culture in Pakistan.

Job creation is another crucial metric for an economy in the growth stage, as yearly increases in unemployment must be catered to. The private sector provides us with a viable means to achieve this, as export-oriented sectors are highly labour intensive.

The textile sector creates jobs in every tier of the economy, as different skills are required at each stage, be it cotton picking, ginning, stitching, designing, innovating or strategic planning. The expansion and development of exporting industries thereby reduces unemployment in addition to being essential for a healthy Balance of Payments.

Value addition, competitive inputs and trade competitiveness can effectively result in sustainable economic growth; as unlike aid, these measures are free of any liability. Earnings through enhanced exports can pull Pakistan out of its current account deficit and economic stagnation.

The government needs to work in tandem with major exporters to incentivize diversification, while removing institutional roadblocks and barriers to growth that have held the exporting sectors back from realizing maximum potential. Policy continuity is crucial for any economy, and in this connection, the recent government decision to continue the provision of regionally competitive energy tariffs (RCET) is welcomed and appreciated. ■

The writer is the Patron-in-Chief & Group Leader of All Pakistan Textile Mills Association (APTMA)



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OGDCL discovers oil reserves

◆ EU Report ◆

Oil and Gas Development Company Limited (OGDCL), the largest oil and gas exploration company in Pakistan, has announced the discovery of oil reserves from its exploratory well in Punjab.

In a notice sent to the Pakistan Stock Exchange (PSX), the company announced that OGDCL "being operator of Toot Mining Lease with 100% working interest has made oil discovery from Lokhart Formation at Toot Deep-I well which is located in Attock District, Punjab Province, Pakistan".

OGDCL said that Toot Deep # 01 well was spudded-in on December 25, 2020, and successfully drilled down to a total depth of 5,545 meters in Tobra Formation.



"Based on interpretation results of open hole logs data, Lockhart Formation has successfully tested oil at the rate of 882 barrels per day (bpd) and 0.93 million standard cubic feet per day (mmscf) gas at Well Head Flowing Pressure (WHFP) of 600 pounds per square inch (psi) at 32/64" choke size," read the notice.

OGDCL discovers oil, gas reserves in Sindh and Punjab

OGDCL said the latest oil discovery further extends the hydrocarbon play area in Pothohar basin, adding that it has adopted aggressive exploration strategies which have resulted in hydrocarbon discoveries.

"This discovery will add to the hydrocarbon reserve base of OGDCL and contribute positively towards oil and natural gas production from indigenous resources of Pakistan," it stated.

Turkish firm to lift garbage in Hyderabad

The Sindh Solid Waste Management Board (SSWMB) has extended its outreach to Hyderabad, the second largest city of Sindh, through a Turkish firm under a contract.

This was stated by Sindh Local Government Minister Syed Nasir Hussain Shah while speaking at the inauguration ceremony of 'primary and secondary solid waste collection system' in Hyderabad and Kotri municipal committee at a banquet on Tuesday.

The board has started its operation through a Turkish firm that has a strong profile in the field of garbage collection and disposal. "Within the next 45 days, garbage disposal across Hyderabad will be ensured," the minister said. He said that an agreement with Hyderabad Municipal Corporation was belatedly signed, thus delay in starting the operation. The Turkish firm has a strong profile, he noted, and hoped it would perform well.

Basha Dam termed vital project for economy

◆ EU Report ◆

Federal Minister for Water Resources Syed Khursheed Ahmed Shah has said that Diamer Basha Dam is a significant project for the national economy, as this will store water for irrigated agriculture, help mitigate floods and generate environment-friendly and low-cost hydel electricity.

He expressed these views while visiting Diamer Basha Dam, being constructed by

WAPDA on River Indus, downstream of Chilas town. The Federal Minister reviewed excavation at right abutment of the dam and construction work on diversion system and permanent bridge. The Federal Minister, while assuring the full support of the Ministry, directed the project management to expedite their efforts for completion of the project as early as possible.

Earlier, CEO Diamer Basha Dam Company briefed the Federal Minister about progress on the project. It was informed that construc-

tion work is being carried out on 10 different sites, which include excavation of dam abutments from the top, diversion tunnel, diversion canal, power intake, permanent access bridge and access roads. Scheduled for completion in 2029, Diamer Basha Dam will have a gross water storage capacity of 8.1 MAF to irrigate 1.23 million acres of additional land. It will have installed power generation capacity of 4,500MW, and provide 18 billion units of green and clean hydel electricity to the National Grid per annum.

Work on Balakot power project to start this year

Construction work on Balakot Hydropower Project, the largest hydropower project of Khyber Pakhtunkhwa on Kunhar River will be started this year in District Mansehra. The project on completion will generate 300MW of electricity. The project will be completed with the joint financial support of Asian Development Bank (ADB) and Asia Infrastructure Investment Bank (AIIB).

Chief Executive Officer (CEO) Provincial Energy Development Organization (PEDO) Engineer Naeem Khan expressed these views in an extraordinary meeting held at the Balakot site with the team members of the Chinese

construction company Gazoba and the Turkish consultant company Dolsar working on the project, said an official handout issued here on Tuesday. Deputy Commissioner Mansehra, Director of the project and other concerned officials were also present in the meeting. During the meeting, important decisions were also made for initiating practical work on the project by completing the security of foreign engineers from Chinese and Turkish companies working on the project. CEO Engineer Naeem Khan said that this project is a flagship project of the current provincial government, which will be completed in the next 7 years with an estimated amount of 755 million dollars, in which 80% i.e. US\$580 million will be provided by the ADB with the Asia Infrastructure Investment Bank together and the remaining amount will be provided by the provincial government from her own resources.



5pc indexation on net hydel profit: Nepra under fire for breaching CCI domain

— Khalid Mustafa —

In the latest development, the Punjab government also followed the federal government in questioning the approval of five percent indexation in Net Hydel Profit by the National Electric Power Regulatory Authority (Nepra), transgressing the domain of Council Of Common Interests (CCI).

The Punjab Energy Department has also challenged the decision of Nepra arguing that it is in violation of the CCI decisions taken in 2016 and 2017. In its review petition, the Punjab government asked Nepra to suspend the impugned determination, refrain from noting it in the official gazette, hold its operations in the larger interest of the people of Pakistan and maintain its earlier decision dated August 23, 2021, till an unequivocal decision by the CCI

on the subject and any other relief, deemed necessary for the equitable and legal disposal of the review motion may be granted.

With respect to the modification petition filed by the government of Khyber Pakhtunkhwa in Nepra Decision dated August 23, 2021, regarding the WAPDA Hydroelectric Tariff Petition for FY 2020-21, Nepra on September 9, 2022, approved a 5% annual indexation of Net Hydel Profit (NHP) over the rate of Rs. 1.10/Kwh to the Government of Khyber Pakhtunkhwa and Government of Punjab with effect from FY 2015-16 and FY 2016-17 respectively subject to its adjustment, if any, in light of the CCI decision. And the government of Khyber Pakhtunkhwa will move its summary before CCI in order to secure explicit approval, in the matter, and till receipt of any CCI decision in the matter, the 5% annual indexation of NHP shall be continued. The decision taken by the power regulatory signed by KPK and Sindh

Member in the Authority and with conditional signature by Chairman has not only irked the federal government but also the Punjab government.

Earlier the Federal government has shown its grave concern over the controversial decision taken by Nepra. The power division in its letter said that the power regulator has committed a flagrant breach of the CCI domain. Nepra chairman in its dissenting note over the approval of 5 percent indexation of NHP wrote that the government of KPK is to bring the summary in the next CCI meeting for their explicit approval as agreed in the regulatory meeting and Nepra reserves the right to see CCI approval on its own. The Power Division earlier in its letter to Nepra that CCI has not approved a 5 percent annual indexation in NHP, however, CCI has approved NHP at the rate of Rs1.10 per unit. ■

Courtesy: The News

US opposition to oil supply cut Pakistan sides with Saudi Arabia

In a significant move, Pakistan put its weight behind Saudi Arabia, which has locked horns with the United States over the cut in oil supply in international market.

Saudi Arabia and Russia, which lead the OPEC + cartel, recently decided to cut crude oil supply by 2 million barrels a day in order to avoid a plunge in the oil prices in the international markets because of fear of global economic recession.

The United States, however, strongly reacted to the OPEC + decision with President Joe Biden announcing a review of bilateral ties with Saudi Arabia. Biden visited Saudi Arabia in July to meet leaders of oil rich Gulf countries including Saudi de facto ruler Muhammad bin Salman as part of his efforts to push for increase in oil supplies. He met MBS despite promising in the election campaign to make him a pariah because of his alleged role in the murder of a Saudi American journalist.

The Ukraine conflict has disrupted the supply chain and led to the increase in crude oil prices, something that also affected the Americans with a hike in petrol prices. Biden wanted Saudi Arabia to increase the oil supply in order to lower the prices at home ahead of the crucial midterm elections. The Saudi crown prince instead backed a move to cut oil supplies. Western commentators believe that Saudi Arabia clearly sided with Russia as increase in oil prices would only benefit Russian President Vladimir Putin.

Interestingly, Pakistan was too hoping for decrease in the international crude oil prices because that would have given the beleaguered government some cushion to provide relief to the inflation-hit people.

“Pakistan encourages a constructive approach on such issues



based on engagement and mutual respect. We reaffirm our long-standing, abiding and fraternal ties with the Kingdom of Saudi Arabia,” the foreign office said. ■

Courtesy Express Tribune

Dr Waqar Qureshi appointed to senior position in Wellington Electricity

Dr Waqar Qureshi, a Pakistani New Zealander, been appointed as General Manager Asset Management for Wellington Electricity, the 4th largest New Zealand's electricity utility company. This involves managing 0.8 billion dollars in assets of the utility which is expected to grow to a billion-dollar value in a few years.

Dr Qureshi is the leading Pakistani professional and executive in New Zealand energy sector. Before this appointment, he served as General Manager Electricity Network for Horizon Networks, and General Manager of Information Technology for Horizon Energy Group in New Zealand. Before this role, he held the role of Head of Asset Management and Innovation for Horizon Networks. Dr Qureshi has also worked for electricity generation and retail sector for several years as Senior Advisor before his senior management appointments.

He is an engineer by background. He is originally from Pakistan and relocated to

New Zealand in 2008 for more education. He is very well qualified with a Bachelor of Engineering (Electrical) from the NED University of Engineering and Technology in Pakistan and a Master of Engineering (Demand Side & Electrical Markets) degree from the University of Auckland. He then continued his education and, in 2013, obtained a PhD degree in renewable energy from the University of Auckland where his research topic was "Large Scale Wind Integration".



15,000 professionals attend ADIPEC exhibition

As many as 15,000 industry professionals attended ADIPEC 2022 exhibition which was held under the theme of 'The future of energy: secure, affordable and sustainable'. ADIPEC brought together global leaders to discuss critical issues facing energy security.

Abu Dhabi National Oil Company (ADNOC) hosted the four-day exhibition at the Abu Dhabi National Exhibition Centre (ADNEC).

At the opening ceremony, Dr Sultan bin Ahmed Al Jaber, Minister of Industry and Advanced Technology, MD and group CEO of ADNOC, called for maximum energy, minimum emissions and stressed that the world needs all the energy solutions it can get.

Suhail bin Mohammed Al Mazrouei, Minister of Energy and Infrastructure, highlighted the importance of diversifying energy sources, as well as reducing emissions when discussing the ongoing work that the UAE is doing to achieve net zero by 2050.

UAE President Sheikh Mohamed bin Zayed Al Nahyan visited the pavilion of ADNOC. During his visit, Sheikh Mohamed was briefed about ADNOC's projects.

Climate change termed a real disaster to Pakistan

Federal minister for Power Engr Khuram Dastgir Khan held a meeting with a delegation of European Parliamentarians.

He briefed the delegation about the rehabilitation efforts made in flood affected areas. The tireless efforts of Ministry of Energy enabled early restoration of electricity in the worst hit areas, he said.

The minister highlighted that climate change is no more a theory but a real disaster for Pakistan. Despite minimum share in world pollution, Pakistan had to face the brunt of climate change.

Mr Dastgir apprised the delegation of the present government's solar policy. He stressed that every new generation capacity would be based on indigenous resources. In this regard, Pakistan hopes to benefit from European expertise particularly in replacing fuel plants.

Pakistan agree with UAE for oil import

In a major development, Pakistan and the UAE have decided to enter into a GtG long-term agreement for the import of petrol, jet fuel and crude oil to ensure sustainable availability of petroleum products in the country and both countries would soon sign an IGA (Inter-governmental agreement).

Pakistan would import 1.5 million tons of Motor Spirit (Mogas) i.e. 30 cargoes in one year under a 5-year deal, which means that PSO would import two and a half to three cargoes a month.

To this effect, on behalf of Pakistan, the public state-owned company, Pakistan State Oil (PSO) and on behalf of the UAE, ADNOC (Abu Dhabi National Oil Company) will sign a business pact on a GtG basis, and the import of petrol from the UAE's ADNOC is most likely to begin from January 2023 under the GtG deal.

"This has been decided in recent talks held in Abu Dhabi wherein Pakistan's delegation was headed by Musadik Masood Malik,

Minister of State, comprising the secretary of petroleum, secretary of the Board of Investment, MD PSO, MD PARCO and other officials of the Petroleum Division," a senior official who was also a part of the talks told The News.

"We are sending PSO's commercial team to the UAE on November 8-9 for precise talks on the structure of the commercial agreement and finalise the specifications of petrol, jet fuel and crude oil for the country's existing refineries."

PSO gets diesel from KPC (Kuwait Petroleum Company) under the GtG deal and purchases petrol from the open market with high premiums depending upon the prices of products in the international market. Now under the GtG deal, PSO would get petrol from ADNOC at a negotiated price. In addition, PSO would also import jet fuel on a need basis as the country's refineries most of the time cater for the jet fuel needs. The refineries such as PARCO would also import crude oil from ADNOC under the GtG deal.

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