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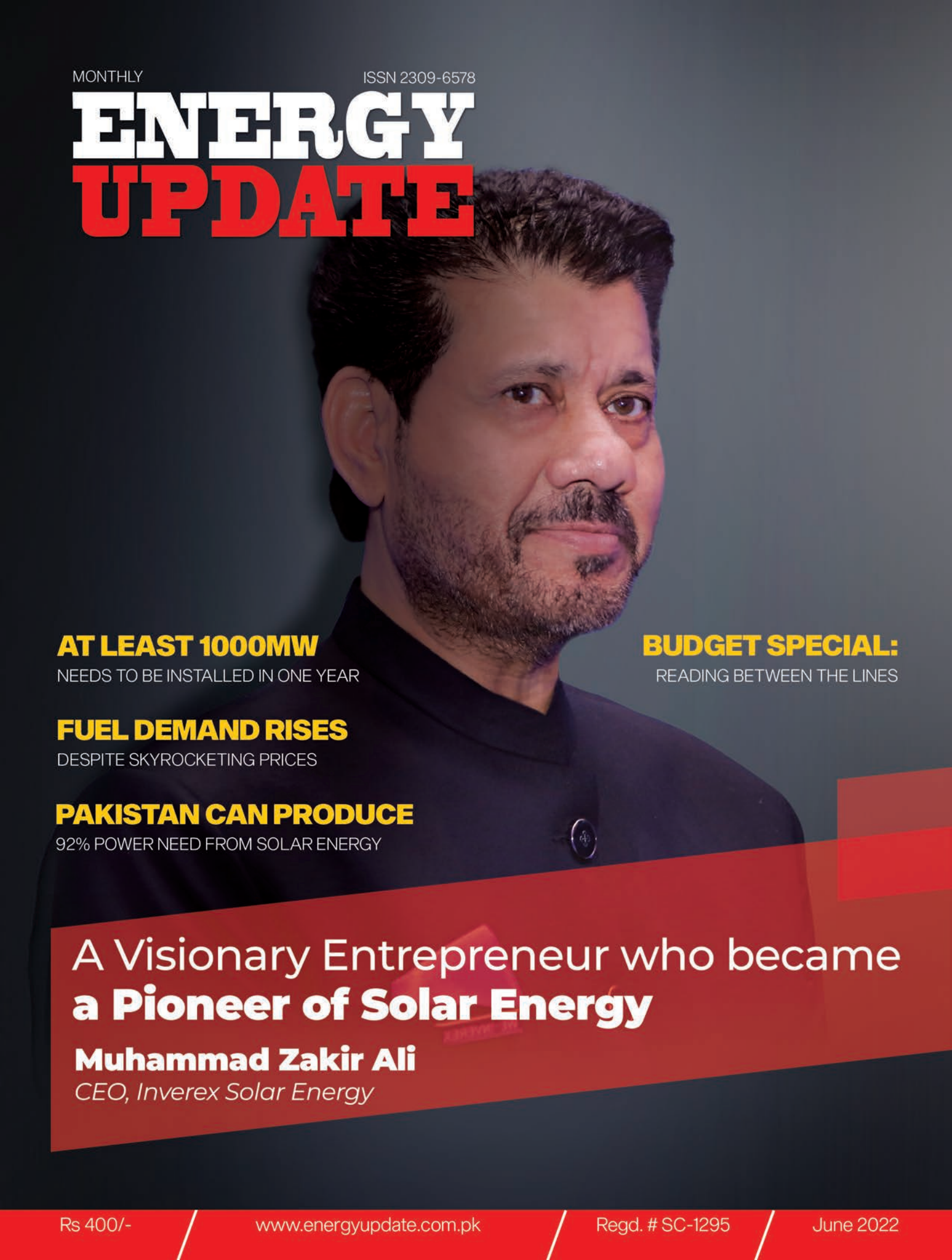
# ENERGY UPDATE



**AT LEAST 1000MW**
NEEDS TO BE INSTALLED IN ONE YEAR

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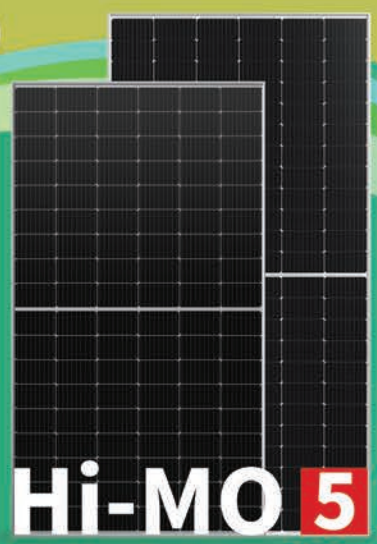

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SCAN ME

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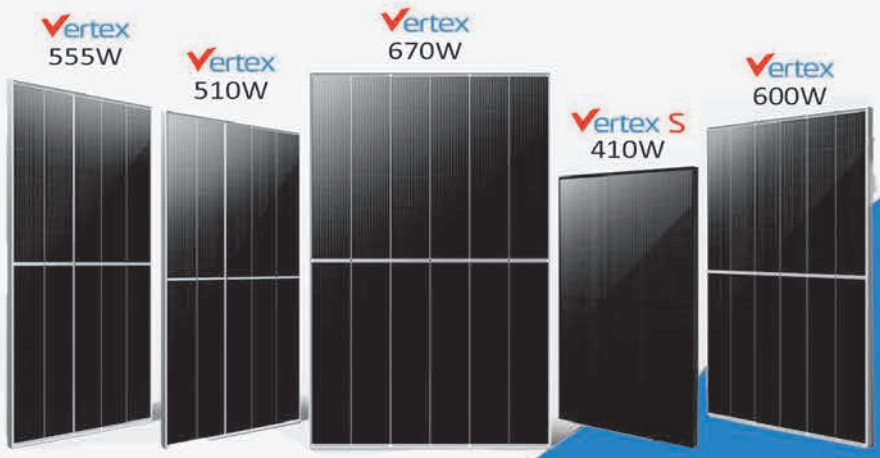


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SCAN ME

FROM THE EDITOR'S DESK...

# Budget to bring more price hikes

Finance Minister Miftah Ismail has recently presented the federal budget for the fiscal year 2022-23, with a total outlay of Rs9.502 trillion, almost a trillion rupees higher than last year's outlay.

The budget seems pleasing IMF to meet its tough loan conditions that will put more burden on business community and general public as the budget proposes raising petroleum levy to Rs750 billion in coming fiscal year from Rs610 billion of last year. This will be an additional burden on people who are already reeling from recent Rs60 per litre raise in petrol and diesel prices.

The budget is highly inflationary due to the raise in the petroleum levy, abolition of subsidies, more taxes and rise in gas prices. This all will affect the overall economic performance and will add to the hardships of people belonging to all segments of the society.

The finance minister has himself admitted that an increase in energy and fuel prices would stoke up inflation but also said that the government had no other option. He blamed this situation on previous PTI regime.

Energy sector is a key importance for people, trade and industry; therefore, there is need to provide relief in this sector. Raising energy prices again and again will ruin the economy of the middle class and the poor. Instead of raising oil prices and imposing more taxes, the government should reduce the expenses of own offices and high-ups.

Other tormenting sides of the budget are: taxes on cars on 1,600cc to be increased; advance withholding tax to be collected from those sending remittances abroad; tax on banking sector increases to 42pc; two per cent additional tax for those with Rs30 million annual income, and raising of tax on mobiles.

Though the government has raised federal employees' salaries by 15 per cent, waved tax on salary upto 1200,000 per year and abolished tax on solar panels, but this relief is not enough to tackle price hike as it is just compensation against skyrocketing inflation. The coalition government legislators were this time seen relaxed as there was no opposition during the presentation of the budget in the National Assembly because the PTI legislators had already resigned. However, people of almost all classes are unhappy due to ensuring burden from the budget as Federal Public Sector Development Programme (PSDP) got only Rs727 billion allocation, which is down 19 percent over last year while provincial PSDP allocations also came down 16 percent.

The big deficit budget shows that the country's expenditures will significantly surpass its revenue. It clearly shows that the government will fill this gap through foreign and domestic loans, particularly from IMF. The loans repayment will also rise, affecting the economy and ultimately sufferers will be masses.

The people are well-aware that the international oil prices are also on the rise but the impact must not be passed on to the public, rather it should be passed on ministers, secretaries, advisers, parliamentarians and top bureaucrats by cutting their high salaries and abolishing their hefty allowances and facilities. The inflation monster needs to be effectively controlled; otherwise, the country and nation would suffer more devastation, resultantly, the country would face Sri Lanaka-like bankruptcy.


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## Towards a fast track solar programme

# At least 1000MW needs to be installed in one year

Syed Akhtar Ali

A fast track solar programme appears to be the need of the hour for reducing electricity cost. At least 1000MW should be installed in one year from now. It is not impossible. It can be done as it had been done earlier in the case of coal power plants under CPEC. We have been and continue running from crisis to crisis; at first there was energy capacity crisis up to 2018 which was resolved by induction of mostly imported energy plants; and now since 2021, there is a fuel crisis. There is both fuel price and availability crisis. All fuels have become expensive and sometimes even unavailable internationally. Fuel prices are too high to be affordable either by consumer or government; the former in terms of consumer tariff and latter in terms of subsidies and foreign exchange. What is the lesson that we can learn from the crisis? Do not depend on imported energy as far as possible; develop local sources of energy.

Fuel prices have increased. The cost of generation has increased up to Rs 36.00 per kWh while consumer electricity tariff remains between Rs 5.00 and Rs 25.00. There is load-shedding of 5-7000MW. To top it all, hydro production is only 50% of the usual production at this time due to climate issues and the consequent water inflow problem in the dams.

Both solar and wind power have intermittency issue; sun shines in the day and at variable speed and wind blows in summers and also at variable speed giving off energy with variability. Even hydro suffers from this disadvantage that it depends on water supply and water is either not available or is reduced significantly in winters. We are suffering these days from this hydro problem as has been mentioned earlier. Fossil fuels are usually available at constant supply round the clock and 365 days a year, which has been the main reason for its attractiveness and adoption by most countries.

Solar can be useful in many other ways in agriculture, irrigation and transportation. Although, EV appears to be a bad idea when there is load-shedding and high electricity tariff, solar can be of help. Cheap rooftop solar can be produced and used in EV motorcycles. Some 40% of the petrol consumption goes to motorcycles. Rising petrol cost can be substituted by solar electricity produced by EV motorcycle users. New EV motorcycles and conversion of the existing ones can be encouraged through credit schemes. At Rs 10 per kWh, an EV bike's cost per km comes out to be Re 0.83 as opposed to Rs 5.25 for petrol bike at new petrol rates of Rs 210/litre. Even if electricity rates for EV users increase to Rs 25.0 per kWh, running cost of EV bikes would still be Rs 2.00 per km.

IGCEP (Electricity Generation Plan) has provided for the installation of 6000MW of solar energy capacity. Efforts must be made to increase this number to cover the shortfall created by some other planned capacities. It has the cheapest CAPEX and COGE (Cost of Generation). On the average, 1000MW of installation of solar power capacity may be envisaged. We would like to propose a fast track implementation of 1000-2000 solar PV; at least 50% of which may have storage capacity as well.

Storage technology has come of age and has become competitive which can provide 2-4 hours of extra hours of electricity supply for solar power plants. Solar power plants with 2-4 hours storage are being installed fervently in the US, Europe, Australia, India and elsewhere. Studies have been conducted in this respect in Pakistan as well. IGCEP may have to add storage projects in its next iteration.

Assuming 50% higher cost due to various reasons such as higher interest rates etc., solar without storage should be available at 3-4 USc per kWh and with storage it should be 6-8 USc. There is no fuel cost except some O&M costs. These days LNG-based electricity is costing Rs 25 per kWh while the imported coal-based electricity is costing the same amount. That the foreign exchange issue causing current account deficit is an extra problem.

1000MW of solar capacity without storage should cost less than one billion USD to be financed by Independent Power Producers (IPPs) under the China Pakistan Economic Corridor (CPEC) or/and others. It will produce 2 billion units which would be valued Rs 75 billion in RFO/LNG terms. It would actually cost Rs.15 billion per year. Thus, in one year it would save Rs.60 billion. Solar with storage is twice as expensive as without storage. Thus, it's real cost-saving is without storage. But peak tariff is charged higher also balancing the cost. However, these would be extraordinary savings of an extraordinary time when fuel cost are excessively high. Even under normal circumstances, solar electricity is 50% cheaper than the cheapest fossil electricity. But one cannot have all solar due to its variability and intermittency. There has to be an optimal mix.

Unfortunately, a lot of time has been lost. Cheaper and cleaner solar could have been installed several years earlier, avoiding some of the cost and hardships of today. But we suffered from excess capacity and high accumulating circular debt caused by unutilized capacity. There are unpaid IPP bills. Unfortunately, the solar indigenization objectives would again suffer in the haste that circumstances have imposed on us. It should, however, be pursued a little later. The IMF should have a considerate, flexible and programmatic approach in demanding full adjustment of energy costs. In fact, a separate programme may be conceived to deal with this issue. ■

# BUDGET SPECIAL: Reading between the lines

## Next fiscal year will be extremely tough for ordinary Pakistanis

Nasir Jamal

Next year's budget has something for everyone — from laptops for students to tax relief for the inflation-stricken salaried class, savers and small business owners to loans for youth to salary bumps for civil servants to sales tax cuts for the agriculture and industry and finally, petroleum levy as part of massive fiscal consolidation for the International Monetary Fund (IMF).

The first budget of the two-month-old coalition, which Finance Minister Miftah Ismail said a day earlier could be it's last before the next election, isn't a 'reform' budget. Nor does it seek to permanently tackle the inherent structural imbalances in the economy, which every few years lead to an economic bust following each short boom and brings Pakistan back to the IMF's doors for its bailout.

Expecting major reforms from the PML-N, or any other party for that matter, at a time when it is faced with a major political challenge from its adversary, Imran Khan's PTI, trying to force an early election in the country would be naive. Then, who said the PML-N is known for undertaking reforms? Or we might not be facing this day today.

At best, the budget targets near-term challenges facing the nation and is an attempt to steer the flagging economy out of its current crisis through the revival of the suspended IMF bailout package that would also unlock financing from the other bilateral and multilateral lenders and ease Pakistan's balance of payments difficulties.

At the same time, it should be recognised that it puts a little bit of cash in the pockets of the low to middle-income groups of society to somewhat offset the impacts of the surging fuel and power prices while shifting part of the burden of the IMF-mandated stabilisation plan on to the affluent classes.

That it still proposes to recover around Rs135 billion through taxes on real estate holdings of the rich and Rs18bn from their foreign assets, and collect Rs38bn from all persons — high-net-worth individuals and businesses — with income exceeding Rs300 million and Rs30bn from retailers should be appreciated.

Likewise, it has done well by slapping 10 per cent duty on the imports of motor spirit under the Free Trade Agreement with China. The action will yield Rs30bn. In all, the coalition has imposed new, mostly direct, taxes of Rs440bn on the wealthy while providing relief of Rs85bn to the voters to help them cope with the upcoming hefty increase in fuel, power and gas prices. "Economic stability is our foremost priority... we have to set strong foundations of economic development that are based on sustainable growth," said Mr Ismail in his budget speech and added that economic growth would be derived by boosting exports, particularly of agriculture, information technology and industrial products.

"The coalition government has taken difficult decisions and will continue taking these difficult actions to stabilise the economy. These are tough times brought upon us by the economic mismanagement of the PTI government during the last four years. "This budget is the first step to steer the country out of the challenges by taking tough decisions while minimising the impact on the vulnerable segments of society." As mentioned above, the initial impressions of the budget clearly show that Mr Ismail has tried to balance the IMF-mandated austerity with measures that basically seek to please the voters during the last year of the present term of the assemblies.

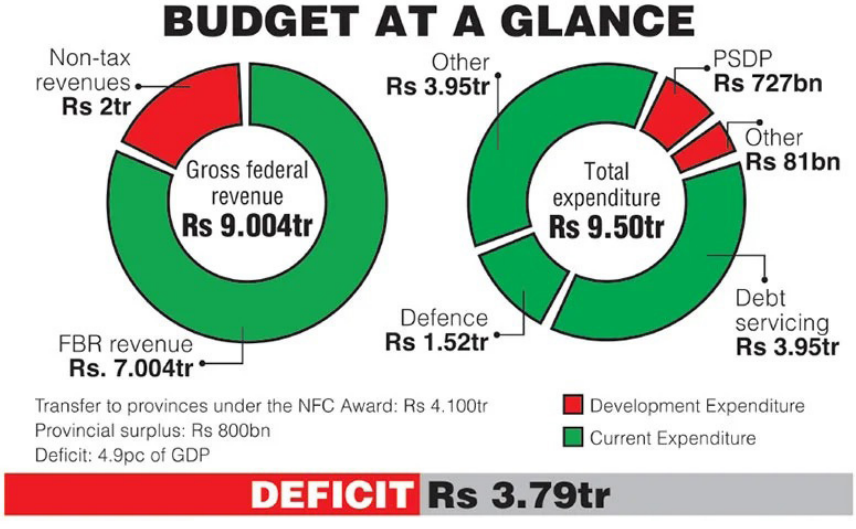
However, most analysts feel that the execution of the budget plan will be much tougher for the coalition than cobbling it together in the backdrop of elevated global oil and commodity prices, as well as expected economic slowdown due to the austere policies. The targeted economic growth rate of 5pc and inflation of 11.5pc for the next year appear quite unrealistic and unattainable. Independent forecasts project the economy to grow by 3-3.5pc and inflation to jump far above the target on the back of rising international oil and commodity prices.

Should the oil prices surge further or stay elevated, it will become more difficult for the government to recover the full amount of petroleum levy (Rs750bn) and sales tax on oil from consumers or even raise the prices further. Likewise, few believe that the Rs9 trillion — Rs7tr tax and Rs2tr non-tax — revenue target will be achieved despite higher than targeted inflation because of import compression.

Most analysts argue that the implementation of the budget largely hinges on the emerging political situation in the country over the next few weeks and months, as well as global oil and commodity prices as they will determine the outlook on Pakistan's macroeconomic targets for the next financial year and the ease with which the government can achieve them. Thus, the real challenge for the government will be the implementation of the budget. In case of a revenue shortfall, the IMF may ask for more fiscal actions to fill the gap.

The next fiscal year will be extremely tough for ordinary Pakistanis. But it is going to be tougher for the coalition government. If it survives the present challenging domestic and international economic milieu over the next quarter or two, it will be an easy sail for the PML-N and its coalition partners through to the new elections. ■

*Courtesy Dawn*




## Unrealistic targets

# Budget FY23 presented to satisfy IMF

Shahid Shah

Finance analysts showed displeasure over Budget FY23 on Friday, saying it had nothing much for capital market and was presented with unrealistic targets to satisfy International Monetary Fund (IMF).

"Budget FY23 is an attempt to satisfy IMF on key matters relating to revenue collection, subsidy reductions, and attainment of fiscal discipline," stated a report of Topline Securities, brokerage house, in its initial impressions over the budget.

Umair Naseer of Topline Research was of the view that last year's expansionary budget had resulted in industry-led gross domestic product (GDP) growth of 5.97 percent in FY22 and a huge increase in imports.The latest budget was more focused on economic stabilisation, he added. "A lot will depend on global commodity prices as they will determine outlook on Pakistan macros and ease with which government can achieve its budgetary targets in FY23."

Though FY23 revenue collection target was set at Rs7trn (+17pc from FY22), it would be a challenge to achieve the target due to the economic slowdown and lower collection from oil sales, Naseer stated. He said the tax rate on banking companies had been increased from 39 percent to 42 percent and included an additional 3 percent super tax. "This could fetch around Rs15 billion to Rs20 billion of taxes."

Narrating relief measures, he said that zero sales tax on the import of solar panels and distribution, and zero tax on agriculture machinery and inputs including tractors, wheat and rice seeds. "We estimate zero-rating on tractors can impact tax collection by Rs5-7 billion," he said. Zafar Moti, former director Pakistan Stock Exchange Limited (PSX), said it looked like a balanced budget, but the targets were not achievable, he cautioned. "Exports, FBR [Federal Board of Revenue] collectives and real estate collectives are not achievable." He said corporate tax had been increased and feasibility of the sector was already out, as its raw material had doubled in prices. "Fuel, diesel, and gas prices have increased. Besides, they need to increase prices of their staff and cater them. Direct tax collection seems impossible. Tax on 130 items has been dropped, while increased on 670 items whose details are not available yet."

Zafar Moti said taxes on the auto sector and raw materials of the cement sector would have an impact on the capital market. The capital gain tax was not touched, he added. Ahsan Mehanti, analyst at Arif Habib Corp, said banking sector would be impacted worse by super tax levy. "Higher advance tax to impact corporate earnings in auto and banking sector. Cement and pharma to benefit on PSDP outlay and free custom duties," he said.

"Overall capital markets to weaken on no special exemption to investors." Industrialist and businessmen leader Jawed Bilwani said drawback of local taxes and levy (DLTL) dues were approved last week. However, DLTL was not continued and nor notification was issued, he added. Bilwani said no load-shedding for the industry was a welcome step, and he called for announcement of the price of electricity and gas. Real impacts of the budget would be known in days to come, he stated. ■

*Courtesy The News*

## To keep economy afloat

# Pakistanis urged to drink fewer cups of tea

People in Pakistan have been asked to reduce the amount of tea they drink to keep the country's economy afloat. Sipping fewer cups a day would cut Pakistan's high import bills, senior minister Ahsan Iqbal said.

The country's low foreign currency reserves - currently enough for fewer than two months of all imports - have left it in urgent need of funds. Pakistan is the world's largest importer of tea, buying in more than $600m (£501m) worth last year. "I appeal to the nation to cut down the consumption of tea by one to two cups because we import tea on loan," Mr Iqbal said, according to Pakistani media. Business traders could also close their market stalls at 20:30 to save electricity, he suggested.

The plea came as Pakistan's foreign currency reserves continue to fall rapidly - putting pressure on the government to cut high import costs and keep funds in the country. The request to reduce tea drinking has gone viral on social media, with many doubting the country's serious financial problems can be addressed by cutting out the caffeinated beverage. Pakistan's foreign exchange reserves dropped from around $16bn (£13.4bn) in February to less than $10bn (£8.3bn) in the first week of June, barely enough to cover the cost of two months of all its imports. Last month officials in Islamabad restricted the import of dozens of non-essential luxury items as part of their bid to protect funds. The economic crisis is a major test for the government of Shehbaz Sharif, who replaced Imran Khan as Pakistan's prime minister in a parliamentary vote in April. Shortly after being sworn in, Mr Sharif accused Imran Khan's outgoing government of mismanaging the economy and said putting it back on track would be a huge challenge. Last week his cabinet unveiled a fresh $47bn (£39bn) budget aimed at convincing the International Monetary Fund (IMF) to restart a stalled $6bn (£5bn) bailout programme.

The IMF deal was negotiated in 2019 to ease an economic crisis created by low foreign currency reserve supplies and years of stagnating growth - but was later paused after lenders questioned Pakistan's finances. ■

# Govt should provide tax relief, subsidy on invertors: experts

## Subsidizing cost of invertors to promote use of clean energy

Mustafa Tahir

r

While commenting on the new federal budget, the representatives of the solar power industry have urged the government to immediately announce tax relief and subsidies on invertors to promote the use of cheaper clean energy in Pakistan.

Mian Fahad Country Manager Growatt said that the imposition of taxes on solar energy products had been relaxed to a certain extent in the new budget.

He said that there would be no general sales tax on solar cells as announced in the budget. "We need clarity from the FBR and customs about tax relief on invertors as an essential part of the solar systems," said Fahad. He said the government should announce relief on invertors as it would create a major impact. He was of the opinion that the cost of the invertors should be subsidized by the government in order to help the customers consume clean energy for overcoming electricity shortfall in the country.

Fahad said that subsidizing the cost of invertors would promote the use of clean energy and decrease the country's reliance on imported fossil fuels for raising the foreign currency reserves.

He said that Pakistan was basically a fuel importing country as its foreign exchange rate couldn't be protected untill an effort was made to promote alternative sources of power generation by subsidizing the cost of clean energy systems.

Fahad was of the opinion that the electricity consumers would be facilitated while the foreign exchange reserves would also be well protected by the adoption of such a policy.

He said the formalities and clearance procedures of the FBR and customs at the ports were very time-consuming, so the government should simplify those processes. He emphasized that transparency should also be ensured in the import process to facilitate the importers. "All these improvements should be ensured to swiftly manage the import of solar systems," he said.

He said that the tariff on air shipments of alternative energy products should be reduced besides allowing commercial flights for the transportation of those products.

Zakir Ali, CEO of Inverex Solar Energy, said the government's recent announcement lacked the clarity that the tax waiver was only for solar panels or it would also be applicable to the invertors. The local market for solar products is very uncertain these days because of the constant increase in the dollar exchange rate. The buying power of people has been diminishing with every passing day. The electricity shortfall in the country has also been increasing.

Faaz Diwan, Director Diwan International said that no doubt, the people would get relief from the government's policy of withdrawing GST. The new government has increased the electricity rates manifold. This situation has added to the miseries of common people, so it is very important that electricity consumers should get due relief if they decide to switch to the option of solar power. Lately, there has been a rapid increase in the dollar exchange rate. Despite the withdrawal of the GST, prices of solar energy products will continue to increase due to the increase in the dollar rate. There should also be no tax on the invertors.

Waqas Moosa, CEO Hadron Solar said the order had yet to be given for the removal of GST on invertors as the recent tax waiver announcement is only for solar panels.

The tax relief announced by the government should be for all items included in the solar energy system. The procedure to import solar products is very cumbersome which needs to be simplified. The financing scheme of the State Bank of Pakistan for purchasing clean energy systems should also be revitalized. This scheme shouldn't be stopped.

The bank financing scheme has been very helpful for residential and agricultural power consumers. The electricity consumers should be provided with such incentives by the government to tackle the electricity shortfall and constant increase in power tariffs.

Mr Farhan representing the Pakistan Solar Association said the government should take all the relevant stakeholders into confidence before making decisions regarding the import of the solar products.

# Oil prices and efficient buying

Syed Akhtar Ali

The government has increased petroleum prices by Rs30 per litre. The increase is uniform against all products. There was much talk about some subsidy mechanism for the poor (motorcycles and older cars) and the present finance minister spoke in its favour. This has not yet happened. Possibly it may take some time, or it may be in the second round of the increase since the minister has not negated the possibility of further increase.

The increase in petroleum prices has been made uniform. Diesel prices are kept lower universally. That affects economic competitiveness. Diesel is used by public transport and foods transport. Diesel prices should not be increased in the second round, or public transport operators should be compensated in other ways.

The increase evidently is under IMF pressure. No politician would like to increase prices and lose votes and popularity. However, it may be noted that Pakistan's gasoline prices are really low. Before the increase, Pakistan gasoline prices were $0.774 per litre as opposed to $0.621 per litre in Saudi Arabia and $0.966 in the UAE. Even in Afghanistan, gasoline prices are $0.897. In India, it is $1.452, Bangladesh $1.012, Sri-Lanka $1.036. Despite the lowest prices in comparative terms, Pakistan's pricing is unaffordable because of the heavy rupee devaluation. There is double jeopardy: international prices are at their highest in history and we face a severe rupee devaluation.

International oil prices have almost doubled from $60/bbl to $112/bbl and gas/LNG prices almost tripled or even quadrupled. Pakistan was already suffering under circular debt of Rs2.3 trillion and now it has to pay subsidies on petroleum.

Due to lower international prices earlier, there has been a lackadaisical attitude of successive governments to the issue of oil procuring efficiency. It is claimed that Pakistan oil procurement prices have not been sufficiently efficient. Lower buying cost would have a positive impact on local retail prices and obviate or reduce the need for oil price increase. Although PSO is understood to be doing good in the distribution business, improvements can be done in procuring petroleum at lower prices. To be fair, fragmentation of the procurement under the slogan of privatization and competition is also responsible. Payment of high premiums over international prices is a case in point.

In the case of diesel, there is a continuing long-term contract with Kuwait Petroleum (KP) for supply of diesel under which a modest premium of $2.5/bbl is charged. Current premium from other spot suppliers is $8.02/bbl for gasoline and $11.17/bbl for diesel.

Such premiums destroy the credibility of the international commodity exchange prices. Regulators must look into the bonafides of such high premiums. Long-term contracts on the lines of KP may be considered for gasoline as well. Base-load demand should be under long-term contracts, while variable demand may be under spot arrangements. There may be a variable component in long-term contracts as well. There is a likelihood that this may bring down the gasoline price. Also, the issue of specification variations vs price must be monitored by the regulator. PSO's inefficiency becomes a benchmark for all other companies. Is the tradition of combined buying to get better prices outdated?

If oil prices continue to remain destructively high, some unconventional ways may have to be explored. There are private-sector parties which claim that they can help bring cheaper oil and gas. There are some market peculiarities wherein oil is available under various terms and modes. Iran has been managing to sell despite sanctions. Russian oil is being sold at varied prices through various parties and trading companies. Perhaps private parties can do the magic they claim?

One has to be careful about the practices of oil suppliers and trading companies and need not be unduly impressed by the respectability due to the size of their operations. One of the leading trading companies has been fined $160 million on the charges of bribing oil SOEs in South America. Another leading company has been barred from operations by Mexico. Both companies operate here in Pakistan as well. In Pakistan, there would be no dearth of willing partners in this respect. Regulators have to keep their eyes open.

There is a controversy regarding cheaper Russian oil and gas. There are two parts of the controversy: one political and the other technical. India has been benefiting from cheaper oil, although there is great US pressure on India opposing it. China buys oil from Iran at 25 per cent less than international prices under a long-term contract. Whether there was a Russian offer to us or not, the possibility of doing so is there. It might be already happening and oil may be redirected by oil trading companies from questionable sources and the windfall being pocketed by the suppliers companies.

Some mechanism may be developed to increase informal imports from Iran by improving road transport, barter and regional markets. Let us try to be a little unconventional. In case of failure with the IMF, this option should definitely be tried. Even otherwise, the US may be flattered through diplomacy into accepting imports from Russia and even Iran. The world is reshaping in the midst of the Ukraine-Russia war. There is international political competition in Pakistan as well which should be utilized more astutely than otherwise. ■


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

# CNERGYICO accounts for 37% of total oil refining capacity

## We are just getting started and have ambitious plans for the future

**Rashid Badruddin,**
VP Operations, Cnergyico

Mustafa Tahir

Mr Rashid Badruddin is Cnergyico Pk Limited's Vice President of Operations and has been associated with the company for 20 years. He graduated from the NED University of Engineering and Technology, Karachi in 1991 with a degree in Mechanical Engineering and has worked at reputable domestic and international engineering firms, such as SEFEC Engineering and JGC Gulf International. With SEFEC, Mr Badruddin worked on PARCO's mid-country oil refinery.

**ENERGY UPDATE: You've been associated with Cnergyico for almost two decades. Can you shed a bit of light on the company's journey in this period?**

**Mr Badruddin:** Cnergyico started commercial operations in 2004. The oil refining complex was established in Hub, Balochistan. It used to be a small refinery that could process around 18,000 barrels of crude oil per day to produce petroleum products like petrol and high-speed diesel. Since then, it has seen tremendous growth. Today, the company's installed capacity is 156,000 barrels per day which makes it the largest oil refinery in Pakistan that can process a wide variety of high-value petroleum products such as jet fuel, LPG, kerosene, and furnace oil in addition to petrol and diesel.

Cnergyico alone accounts for 37% of Pakistan's total oil refining capacity. The company also operates a growing network of 450 retail outlets that are strategically located in all the main cities and highways across the country. On top of it, Cnergyico also owns the country's largest crude oil storage tanks. However, we are just getting started and have ambitious plans for the future.

I have been associated with Cnergyico since the early years and have spent 20 years at the company, witnessing its growth firsthand. The growth was driven by the vision of the company's founders Mr Parvez Abbasi (late) and his son Mr Amir Abbassciy who wanted to reduce the country's reliance on foreign fuels. Amid the expansion, Cnergyico has set numerous milestones, the likes of which we've never seen in the country's energy sector. This includes the relocation of the two oil refining plants from the US and UK to Pakistan. We not only successfully relocated facilities from abroad which in itself is a marvel of engineering but also were able to enhance its capacity.

We have been constantly updating our plant by adding new equipment, such as Distributed Control System and Crude Furnace, to improve its performance. As a result, the refinery has become more efficient. The fact that the refinery has been operating smoothly, without any major equipment failure that could cause a shutdown, for the last several years is a testament to our high standards.

**EU: Tell us about Cnergyico's Upgrade-1 project. How is it going to change the company's output?**

**Badruddin:** The oil refiners operate in a dynamic business environment and must constantly upgrade plants to improve productivity, reduce costs, and cut down carbon emissions. As mentioned earlier, we have been adding new equipment that has substantially improved our operational performance and product quality. The installation of the reformer and isomerization units, which allowed us to convert virtually all of our Naphtha into 92 Octane Motor Gasoline, are among some of the largest projects we have completed so far in recent years. But Upgrade-1 is, by far, the single biggest project we have ever undertaken that will not only allow us to expand our capacity but also transform Cnergyico into a deep-conversion refinery.

We are installing 15 new state-of-the-art plants at our oil refining complex, such as the FCC (Fluidized Catalytic Cracking) and their associated units that convert furnace oil into petrol and diesel. This will significantly increase our petrol and diesel production by enabling us to process most of our low-value furnace oil into these high-value fuels. The petrol and diesel production will get further processed to comply with Euro-V standards. Additionally, our overall crude oil processing

capabilities will also increase. Considering the large size of this project, the initial capital outlay will be around $756 million.

After we finish working on the Upgrade-1 project and the new plants come online, diesel and petrol will represent more than 80% of our production while the remainder will be furnace oil and other fuels.

**EU: Cnergyico's oil refinery has been running below its nameplate capacity. Why is that and what can be done to improve refinery utilization?**

**Badruddin:** Lately, Cnergyico hasn't been able to run its oil refining complex near the nameplate capacity of 156,000 BPD and plant utilization has been low. The weakness in utilization rate is driven by two factors – limited access to banks' credit lines and the low upliftment of furnace oil.

Currently, the oil refineries in Pakistan meet approximately 60% of the country's diesel and 30% of petrol requirements. The rest has to be imported. These imports then weigh heavily on the country's finances and hurt our economy.

However, if all of the country's refineries, including Cnergyico, were running at maximum capacity, then they would be producing significantly higher volumes of petrol and diesel and would be able to meet a vast majority of the country's demands. This could lessen the burden on imports and Pakistan could save precious foreign exchange of up to $200 million each month.

In order to improve the refinery utilization, the issues related to furnace oil demand and banks' credit facilities must be addressed. The furnace oil situation could improve if the government dedicates a small percentage of power plants for furnace oil consumption.

As for the credit lines, the banks have given a muted response to the oil industry's requests to increase their credit limits in light of the surge in international oil prices and depreciation of the Pakistani Rupee. The working capital requirements of refineries have shot up but the banks haven't made any noteworthy increase in credit facilities. This hampers the petroleum sector's ability to make timely purchases of crude oil and is having an adverse effect on refinery throughput. However, if the banks extend support by enhancing credit facilities so they align with the refining sector's requirements, then this issue will also get resolved.

**EU: Cnergyico recently received an award from President Arif Alvi for achievements in the arena of health and safety. Tell us more about that and the safety standards at the company?**

**Badruddin:** The safety and well-being of employees, customers, contractors, and the local communities that live near our oil refining complex have always been the number one priority at Cnergyico. The company has a strong and positive safety culture. Our oil refining facilities are fully compliant with the international standards of safety and environment. We have invested heavily to adopt the DuPont Safety System. Our policies are essentially based on the US Occupational Safety and Health Administration's codes while our fire safety protocols are based on the US National Fire Protection Association's guidelines.

The safety values are embedded into our corporate philosophy and all kinds of business practices. Due to our strict adherence to safety protocols, and the fact that it is considered a shared priority by everyone in the company, we have received numerous prestigious awards from reputable organizations and we have set new milestones for the industry.

For instance, we recently realized 20 million Safe Man Hours at the oil refinery without a Lost Time Injury (LTI) with an outstanding Total Recordable Incident Rate (TRIR) of 0.06. Moreover, as you mentioned, we also recently won an award from the Employer Federation of Pakistan (EFP) for securing the first position in the Occupational Safety Health and Wellbeing (OSHW) category among all oil refiners. We received this award from the honourable President of Pakistan Dr Arif Alvi.

**EU: The greenhouse gas emissions have been rising with every passing year, damaging the environment. What steps Cnergyico is taking to fight climate change?**

**Badruddin:** There is no denying the fact that global warming is one of the biggest threats to the world and humanity. Being a responsible corporate citizen, Cnergyico is playing its part in improving the environment. In fact, we have undertaken some of the biggest environmental projects in Pakistan's corporate sector that help us deliver on the United Nations Development Programme's (UNDP) Sustainable Development Goals (SDGs).

Under our award-winning afforestation campaign, we have planted thousands of trees near our refinery in Hub and have supported the development of an urban forest in Karachi. Cnergyico used the Miyawaki Method, developed by the famed Japanese botanist and plant ecology expert Akira Miyawaki, of afforestation through which trees can be grown at a rapid pace.

Pakistan suffers from a low forest cover of 5%, well below the global average of 31%. By planting trees, we seek to play a positive role in enhancing the country's forest cover and making Pakistan greener. Additionally, we are also taking measures to cut down our emissions besides making significant investments to produce more environmentally friendly fuels like petrol and diesel. ■

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# Petrol price hike

## Drastic cut in govt expenses must for subsidy

Idrees Khawaja

Pass on the increase in international oil prices to the consumers — this is the textbook solution. Prices increased due to the war in Ukraine. A war-based, rather than a textbook, solution is called for.

Most of the world did not pass on the cost of Covid vaccinations to the people. These were once-in-a-lifetime pandemic costs. Attempts were even made to protect against lay-offs through social safety nets. The IMF gave us funds, without us asking for it, to fight the Covid-imposed recession. As it was a global problem, it did not raise concerns about our subsidies meant to check poverty and amnesties meant to whiten money.

Despite the global rise in oil rates, the increase is considered a local problem because many countries are rich enough to take the hit. As there is no sympathy for a stimulus or subsidy, we must find a local solution.

How about the entire formal sector labour force contributing one day's salary to the national exchequer? The salary budget for civilian federal government employees over 10 months of FY2022 (July to April) has been around Rs245 billion. This is roughly Rs25bn per month and Rs833 million per day. The monthly subsidy on petrol before the hike of Rs60 was projected to be close to Rs150bn.

Thus, just one day's salary of federal government employees should be enough to cover subsidy expenditure of over five months. Add to it the salaries of the armed forces, employees of the provincial governments and those working in autonomous bodies, and we easily have much more than the annual expenditure on petroleum subsidy. We can even exempt low salaried employees from contributing, especially if we induce private-sector employees in the upper brackets to contribute. Giving up a day's salary may help cover subsidy costs.

The amount accumulated thus can be used to cover the subsidy on petrol. While increasing petrol price is highly inflationary, the cut in purchasing power due to loss of a day's salary would not cause any inflation.

The money contributed by the nation in rupees by way of one-day salaries would help cover the petrol subsidy but would not provide the dollars required to import fuel. To cut the import bill, proposals like a four-day week would still have to be considered.

People argue that a cut in government expenditures should be drastic to make room for the subsidy. Stopping unnecessary current and development expenditures is the ultimate solution. However, given elitist habits, this is hardly possible in the short term. But coping with petrol prices demands immediate attention.

To convince the people, the government would have to cut at least some of the wasteful expenditure in order to create positive optics. For instance, all government vehicles could be off the roads on weekends; the president, prime minister and ministers could avoid gracing inaugurations and conferences with their presence. To save money, there should be no advertisements on television and in print media praising the government or criticising the opposition. The number of people and cars in prime ministerial entourages at home and abroad should be cut. The prime minister's camp offices in Lahore should be reduced. Finally, the expenditure on the mantra of 'petrol bombs' and 'landmines' must be cut. ■

# Solarization of govt offices on the cards

EU Report

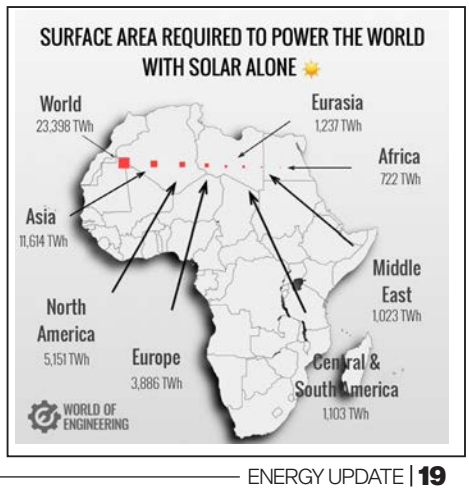
Prime Minister Shehbaz Sharif has constituted a high level taskforce to prepare short-term plan to promote use of solar energy in domestic sector and conversion of government buildings to solar power. The taskforce would present its recommendations within one week.

According to a notification, issued by Secretary to Prime Minister, Tauqir Shah, in line with Prime Minister's vision for promoting sustainable and green energy, the Prime Minister has constituted a taskforce on Solar Energy, comprising the following:

Shahid Khaqan Abbasi (Convener); Dr. Miftah Ismail, Minister for Finance & Revenue; Ahsan lqbal, Minister for Planning, Development & Special Initiatives; Marriyum Aurangzeb, Minister for information & Broadcasting; Khurram Dastgir Khan, Minister for Power; Musadik Masood Malik, Minister of State for Petroleum; Ahad Khan Cheema (ex-bureaucrat); Secretary Power - Secretary of the taskforce; Secretary Petroleum; Chief Secretaries of Provinces; Secretaries Energy of Provinces; (xii) Bilal Kiyani; and Omar Saleem Cheema.

The taskforce shall have the following Terms of Reference (ToRs): preparation of short term plan for shifting of Government offices to solar energy; and preparation of plan for shifting the small consumers to solar energy through subsidy or concessional loans.

The taskforce shall finalize its proposals/ recommendations and place them before the Prime Minister in the shape of a presentation within a period of one week, positively. Power Division shall provide Secretariat support to the Task Force. ■



# Covid slows progress to universal energy access

Dr Maria Netra

The COVID-19 pandemic has been a key factor in slowing progress toward universal energy access. Globally, 733 million people still have no access to electricity, and 2.4 billion people still cook using fuels detrimental to their health and the environment. At the current rate of progress, 670 million people will remain without electricity by 2030 – 10 million more than projected last year.

The 2022 edition of Tracking SDG 7: The Energy Progress Report shows that the impacts of the pandemic, including lockdowns, disruptions to global supply chains, and diversion of fiscal resources to keep food and fuel prices affordable, have affected the pace of progress toward the Sustainable Development Goal (SDG 7) of ensuring access to affordable, reliable, sustainable and modern energy by 2030. Advances have been impeded particularly in the most vulnerable countries and those already lagging in energy access. Nearly 90 million people in Asia and Africa who had previously gained access to electricity, can no longer afford to pay for their basic energy needs.

The impacts of the COVID-19 crisis on energy have been compounded in the last few months by the Russian invasion of Ukraine, which has led to uncertainty in global oil and gas markets and has sent energy prices soaring.

Africa remains the least electrified in the world with 568 million people without electricity access. Sub-Saharan Africa's share of the global population without electricity jumped to 77 percent in 2020 from 71 percent in 2018 whereas most other regions saw declines in their share of the access deficits. While 70 million people globally gained access to clean cooking fuels and technologies, this progress was not enough to keep pace with population growth, particularly in Sub-Saharan Africa.

The report finds that despite continued disruptions in economic activity and supply chains, renewable energy was the only energy source to grow through the pandemic. However, these positive global and regional trends in renewable energy have left behind many countries most in need of electricity. This was aggravated by a decrease in international financial flows for the second year in a row, falling to USD 10.9 billion in 2019.

The share of the world's population with access to electricity rose from 83 percent in 2010 to 91 percent in 2020, increasing the number of people with access by 1.3 billion globally. The number without access declined from 1.2 billion people in 2010 to 733 million in 2020.

However, the pace of progress in electrification has slowed in recent years which may be explained by the increasing complexity of reaching more remote and poorer unserved populations and the unprecedented impact of the COVID-19 pandemic. Meeting the 2030 target requires increasing the number of new connections to 100 million a year. At current rates of progress, the world will reach only 92 percent electrification by 2030.

The share of the global population with access to clean cooking fuels and technologies rose to 69% in 2020, an increase of 3 percentage points over last year. However, population growth outpaced much of the gains in access, particularly in Sub-Saharan Africa. As a result, the total number of people lacking access to clean cooking has remained relatively stagnant for decades.

A multisectoral, coordinated effort is needed to achieve the SDG 7 target of universal access to clean cooking by 2030. It is critical that the global community learns from the successes and challenges faced by countries

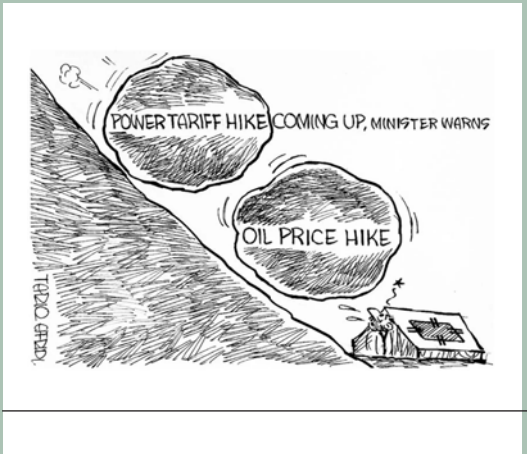
that have attempted to design and implement clean household energy policies.

Ensuring universal access to affordable, reliable, sustainable, and modern energy implies accelerated deployment of renewable energy sources for electricity, heat, and transport. Although there is no quantitative target for SDG 7.2, custodian agencies agree that the share of renewable energy in total final energy consumption (TFEC) needs to rise significantly, even though renewable energy consumption did continue to grow through the pandemic, overcoming disruptions to economic activity and supply chains. While the share of renewable capacity expansion rose by a record amount in 2021, the positive global and regional trajectories mask the fact that countries where new capacity additions lagged were those most in need of increased access.

SDG 7.3 aims to double the global rate of annual improvement in primary energy intensity—the amount of energy used per unit of wealth created—to 2.6 percent in 2010–30 versus 1990–2010. From 2010 to 2019, global annual improvements in energy intensity averaged around 1.9 percent, well below the target, and the average annual rate of improvement now has to reach 3.2 percent to make up for lost ground. This rate would need to be even higher—consistently over 4 percent for the rest of this decade—if the world is to reach net-zero emissions from the energy sector by 2050, as envisioned in the IEA's Net Zero Emissions by 2050 Scenario.

Tracking global progress for SDG 7 targets requires high-quality, reliable and comparable data for informed and effective policymaking at the global, regional, and country levels. The quality of data has been improving through national and international cooperation and solid statistical capacity. National data systems improve as countries establish legal frameworks and institutional arrangements for comprehensive data collection for energy supply and demand balances; implement end-user surveys (e.g., households, businesses, etc.); and develop quality-assurance frameworks. However, after the pandemic hit and disrupted the rate of progress toward Goal 7, more investment in quality statistics is needed to know where we stand and how to get back on track. This is especially important for developing countries, particularly Least Developed Countries, to inform their national energy policies and strategies to ensure no one is left behind. ■

*Dr Maria Neira is Director, Department of Environment, Climate Change and Health, World Health Organization*




FISCAL IMBALANCES

# Pakistan's 'bubble' economy

Farhan Bokhari

The gradual retreat in the past week from a striking fall of the rupee and Pakistan's stock market has brought a long overdue relief for the country's increasingly shrinking community of investors.

Beneath the surface, news of Islamabad's expected compliance with harsh conditions tied to an IMF loan has also renewed an oft-witnessed ugly trend – the prospective return to a bubble economy with no assurance of a sustained turnaround.

For years, successive Pakistani governments have, under pressure from ongoing economic challenges, periodically championed the 'sub achha' (all is well) spin to put a gloss on a dismal outlook. Today's Pakistan is no different. It would be unfair to stick the onus of responsibility on any one regime, given the sliding conditions over a longer period of time.

With Pakistan's next budget due in the coming days, it's likely that the nation's economic managers will successfully negotiate a return to a semblance of stability. Yet, behind the bubble lies the powerful reality of the bulk of Pakistan's population increasingly stretching their budgets. Last week's oil price increasing by roughly 20 per cent and expectation of more increases to follow, has already unleashed a volley of price hikes of essential items.

Surrounded by another meaningless 'bubble' bringing little solace to mainstream household budgets, Pakistan faces a daunting challenge in managing its economy. Though the recent slide brought back a sense of deja vu comparable to the times when similar crises were witnessed, there was clearly one major difference – that the scale of the latest crisis was significantly larger than ever before.

Going forward, Pakistan's 'bubble' is set to continue till it bursts again, an inevitable outcome in view of a recurring failure to redress the most vital challenges.

On the one hand, it is vital for Pakistan to cut down radically on unnecessary consumption that has increasingly plagued the country for at least three decades. Unless the country is able to afford a range of luxury goods, notably from luxury cars to exotic and often steeply expensive food items, space must never be created for their large-scale import without enough export income to balance the two. Meeting this objective requires a radical lift in facilitating investors to produce exportable surpluses, following significant improvements in sectors like improving skills for the workforce, and a visible improvement in the law and order environment and filling gaps in the policy environment. At the same time, tackling the international trade deficit can just not be successful unless in tandem with a large set of reforms to lift Pakistan's chronically insufficient production in the agriculture sector.

Pakistan must reconcile itself to removing its fiscal imbalances on an emergency basis. This requires a tough determination to deal with vital challenges, notably tax evasion and sizable subsidies of government-owned companies. Together, gaps in these two areas have bled Pakistan far more dangerously than any other sector in the nation's 75-year history. ■

# Fuel demand rises despite skyrocketing prices

## Higher global oil rates, rupee fall making oil more expensive; WB says energy prices will increase more than 50pc

Special Report By Mansoor

Energy sector plays a vital role in the economic development of a country. The recent decades witnessed a manifold increase in the demand for energy. The scarce natural gas reserves of the country are quickly depleting due to substantial increase in the demand for gas, putting huge pressure on the limited natural gas reserves of the country. The government is looking for both short as well as long-term alternatives solutions to respond effectively to the substantial energy requirements.

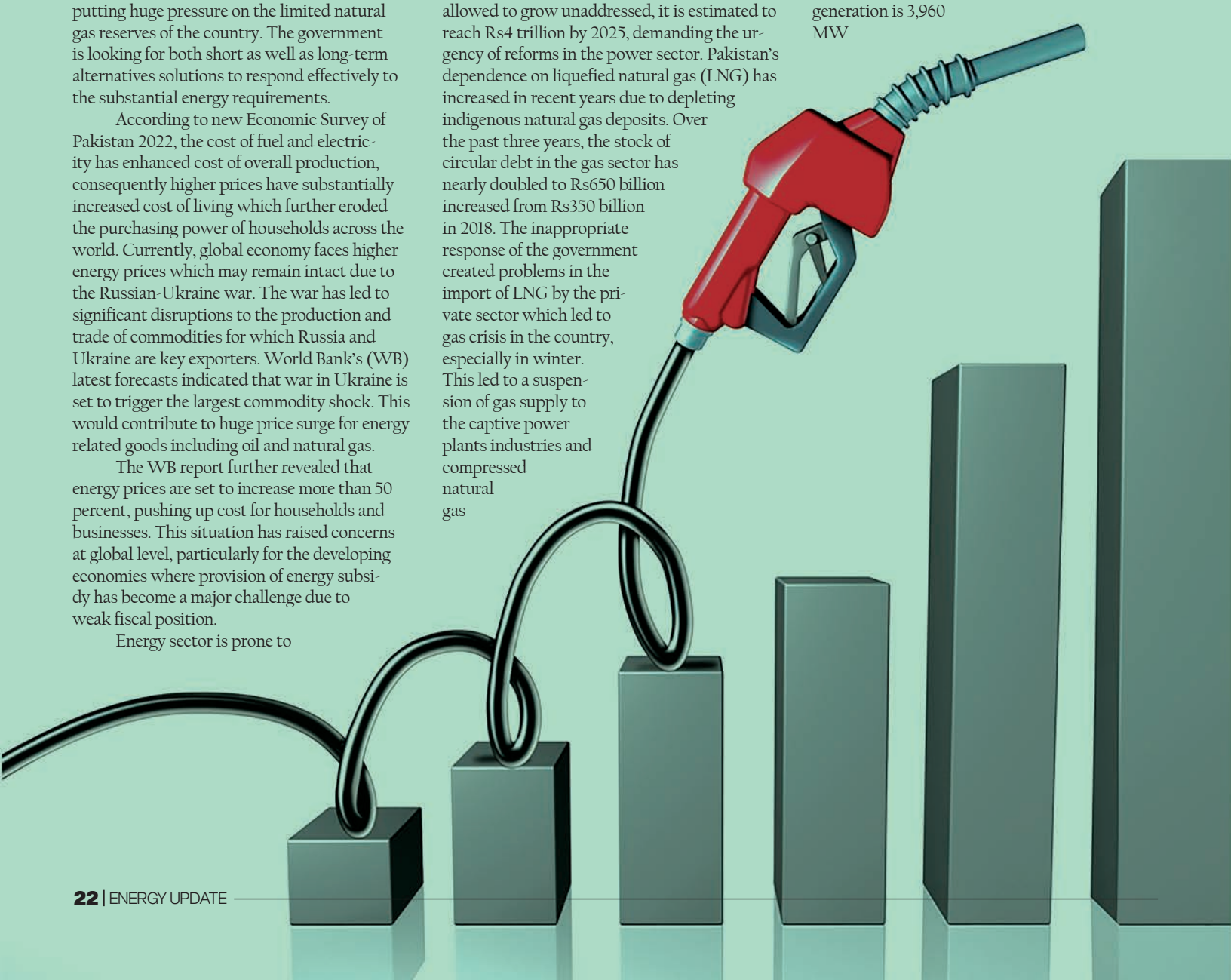
According to new Economic Survey of Pakistan 2022, the cost of fuel and electricity has enhanced cost of overall production, consequently higher prices have substantially increased cost of living which further eroded the purchasing power of households across the world. Currently, global economy faces higher energy prices which may remain intact due to the Russian-Ukraine war. The war has led to significant disruptions to the production and trade of commodities for which Russia and Ukraine are key exporters. World Bank's (WB) latest forecasts indicated that war in Ukraine is set to trigger the largest commodity shock. This would contribute to huge price surge for energy related goods including oil and natural gas.

The WB report further revealed that energy prices are set to increase more than 50 percent, pushing up cost for households and businesses. This situation has raised concerns at global level, particularly for the developing economies where provision of energy subsidy has become a major challenge due to weak fiscal position.

Energy sector is prone to certain challenges. For instance, the problem of circular debt in the energy sector is a long awaited issue. Successive governments have strived hard to bring circular debt down but the issue largely remained uncontrolled. Circular debt stood at Rs2,467 billion by March 2022. This implies that circular debt is equivalent to 3.8 percent of Pakistan's GDP and represents 5.6 percent of Pakistan's government debt.

Growing at the current pace and if it is allowed to grow unaddressed, it is estimated to reach Rs4 trillion by 2025, demanding the urgency of reforms in the power sector. Pakistan's dependence on liquefied natural gas (LNG) has increased in recent years due to depleting indigenous natural gas deposits. Over the past three years, the stock of circular debt in the gas sector has nearly doubled to Rs650 billion increased from Rs350 billion in 2018. The inappropriate response of the government created problems in the import of LNG by the private sector which led to gas crisis in the country, especially in winter. This led to a suspension of gas supply to the captive power plants industries and compressed natural gas (CNG) stations.

Coal is also used for electricity generation in Pakistan. Thar has the largest coal reserves in the country which has been actively developed in recent years. The first Thar plant, having capacity of 660 MW, became operational in the first quarter of FY2020. Currently, the overall electricity generation from coal has reached to 5280 MW. Thar coal is contributing 1,320 MW, while imported coal contribution in electricity generation is 3,960 MW



which is around 75 percent of the total electricity generation from coal in the country.

The estimated total hydropower potential of Pakistan is around 60,000 MW. The country is not utilizing full potential and using nearly 16 percent of the total hydropower potential. The high investment cost for the installation of hydro plants, development of electricity transmission network and resettlement of the affected population are few reasons for hydropower not being exploited to its full capacity. Currently, the hydro installed capacity is 10,251 MW which is around 25 percent of the total installed capacity.

Pakistan has wind corridors as well and there is huge potential to generate electricity from wind. It is estimated that Pakistan can generate 50,000 MW from wind. The contribution of Wind in the total installed capacity is 4.8 percent and currently stood at 1,985 MW. The potential for solar power in Pakistan is also high. The sunlight is available abundantly almost throughout the country. Currently, the capacity share of these renewable resources is small, but it is expected to increase sharply, as reflected in the Alternative and Renewable Energy Policy 2019. The installed capacity of solar is 600 MW which is around 1.4 percent of the total installed capacity.

Pakistan is also producing energy from the nuclear technology whose contribution is increasing gradually. The gross capacity of the nuclear power plants was 2,530 MW that supplied about 7,076 million units of electricity to the national grid during July-March FY2021. The gross capacity of nuclear power plants has increased by 39 percent and it stood at 3,530 MW that supplied 12,885 million units of electricity to the national grid during July-March FY2022.

The total electricity generation capacity during July-April 2022 has increased by 11.5 percent and it reached 41,557 MW from 37261 MW during the same period last fiscal year. The first ten months of the current fiscal year has not seen any major shift in the consumption pattern of electricity. The share of household in electricity consumption has slightly declined from 49.1 percent in FY2021 to 47.0 percent in FY2022.

Electricity consumption in the commercial sector has also witnessed a decline and stood at 7 percent in FY2022, down from 7.4 percent in FY2021. However, the share of Industry in electricity consumption has increased to 28 percent during July-April FY2022 from 26.3 percent during July-April FY2021. The use of electricity in agriculture sector has slightly increased to 9 percent from 8.9 percent. The share of electricity consumption in other sectors, including public lighting, general services and other government traction has decreased to 8 percent from 8.3 percent.


BIG BREAKING

# Pakistan all but exits grey list

## FATF acknowledges Islamabad completed action plans, covering 34 items

A global dirty money watchdog announced that Pakistan had substantially completed its two action plans, covering 34 items, as part of a bid to get off the grey list on which it has been since 2018 – a decision that would end the threat of Islamabad being put on the black list.

The Financial Action Task Force (FATF), while kicking off the process to remove Pakistan from the grey list, said an on-site visit was warranted to verify that reforms had begun and were being sustained, as well as that the necessary political commitment remained in place to sustain improvement in the future.

The FATF's decision will now require commitments from all the Pakistani stakeholders to prove to the FATF upcoming mission that no serious deficiency remains in its Anti-Money Laundering (AML) and Combating Terror Financing (CFT) regimes.

The FATF handout noted that since June 2018, Pakistan made a high-level


political commitment to work with the FATF and Asia Pacific Group to strengthen its AML/CFT regime and to address its strategic counter-terrorist financing-related deficiencies.

The FATF said that Pakistan's continued political commitment to combating both terror financing and money laundering has led to significant progress. In particular, Pakistan demonstrated that terror financing investigations and prosecutions target senior leaders and commanders of UN designated terrorist groups and that there is a positive upwards trend in the number of money laundering investigations and prosecutions being pursued in Pakistan, in line with Pakistan's risk profile.

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# For a greener FUTURE

Haaris Mahmood Choudhry

The world we live in seems to be under constant assault. From unprecedented shifts in global alliances, threats to formerly secure political hegemonies, sky-rocketing inflation across world economies to calamitous climate change, challenges abound in a magnitude previously unwitnessed.

While it is easy to be overwhelmed and subsequently defeated by all that confronts us, the hallmark of the brave has always been to never give up without a fight. Undoubtedly, there is much that lies beyond our personal spheres of influence but climate change is one area where we all, as individuals and as organizations, can contribute positively towards alleviating the threats we face. It is precisely with this mindset that the Universal Service Fund (USF) Pakistan seeks to take a lead and be an inspiring example for others to emulate.

Climate change has become a catch phrase in modern times but do we truly understand what it implies? The United Nations defines climate change as the long-term shifts in temperature and weather patterns. What these shifts have produced are record tsunamis, volcanic eruptions, landslides, deadly heat and a contribution towards seismic activity provoking earthquakes by inducing rising sea levels through glacier melting which aggravates what scientists term as the 'isostatic rebound' effect.

While some of these shifts may be natural, induced by variations in the solar cycle, most of the changes observed have human activities as the main driver behind them. Burning of fossil fuels to generate power, explosion in manufacturing and industry, cutting down of forests and excessive use of transportation are just some of the human factors that add to the greenhouse gas emissions that blanket the Earth, trapping the sun's heat which then disastrously affects climate change.

In the face of alarming scientific data and the destruction perpetrated through natural disasters brought on by climate change; measured in terms of lives lost, economic devastation and the consequent disruption of social fabric; one is forced to question whether it is even possible to achieve the sustainable development required to keep our economies and societies functioning optimally without further adding to this looming threat we face? At the risk of being termed an unreal optimist, I believe the answer to that question is a resounding yes. We can sustain and augment economic and social growth without adversely contributing to furthering harmful climate change. Is it an easy goal to aspire to? Absolutely not. Is it an achievable one? Absolutely yes.

What does aspiring to such a lofty goal actually entail in real terms beyond mere rhetoric? It necessitates a critical conversion from the dependency on consuming fossil fuel based energy sources to the usage of clean and renewable ones throughout all sectors of our economic and social activities. This will not only require a shift in physical terms but more importantly, a critical modification in our established mental paradigms.

The United Nations Sustainable Development Goal 7 (UNSDG7), one of the 17 Sustainable Development Goals established by the United Nations General Assembly in 2015, aims to "ensure access to affordable, reliable, sustainable and modern energy for all". The UNSDG7 is a precursor to Pakistan's own Clean Green Initiative and it is in conflation with both these guidelines that USF Pakistan has taken concrete measures to play its part in achieving progress without adding to the already burgeoning weight of destructive climate change.

With the goal of utilizing renewable energy wherever possible while still accomplishing its objective of providing seamless connectivity to rural and remote areas, USF Pakistan took the lead in setting up self-sustainable mobile networks with higher efficiency through solar-powered telecom towers. With 3710 cell sites installed since its inception, USF has ensured that 1842 of these are powered through solar energy. These solar-powered cell towers contribute significantly towards eliminating gas emissions in comparison to the smoke generating diesel gensets previously used in tower operations. This has additionally provided mobile operators substantial benefits from the net-metering opportunities being presented by current utility providers.

We hope to inspire others, not just in the information and communications technology industry, but across the board, to follow our lead and search for ways to minimize our carbon footprint, both at an organizational and an individual level, as much as possible. Together, we can all play a part in promoting the use of clean and renewable energy sources, making Pakistan a safer and healthier place for ourselves and our generations to come. ■

*The writer is CEO of the Universal Service Fund, established by the government of Pakistan under the Ministry of IT & Telecom.*

# Normal fans should be replaced by high-efficient fans

## Says Tamoor Fans achieved 40% market share of inverter fans in Sindh, KP

**Engr. Muhammad Ali**
Chief Executive Officer of Tamoor Fans

Engr. Nadeem Ashraf

It is imperative that normal fans in Pakistan should be replaced by high-efficiency energy-saving fans. The energy conservation so achieved could be utilised for enhancing our industrial operations to increase GDP of the country.

This was stated by Chief Executive Officer of Tamoor Fans, Engineer Muhammad Ali, in an exclusive interview with the Energy Update, in which he talked about the latest trends and advancements in the fan industry of Pakistan. Following are the important excerpts from his interview for our readers:

**Energy Update: Briefly tell us about the Tamoor Fans.**
**Engr. Muhammad Ali:** Tamoor Fans started its work in the year 1988. Some 34 years back it appeared like a little star in the sky of the fan manufacturing industry in Pakistan. In no time, it gained the reputation as the best manufacturer of fans in Pakistan through a team of dedicated, energetic, and highly trained professionals. The company has a very strong sales and dealer network in Pakistan. Now the company has also been exporting its quality products to foreign countries in Africa and the Middle East.

**EU: Tell us about the fundamental business ideology of Tamoor Fans.**
**Engr. Muhammad Ali:** Tamoor Fans is an ISO 9001 and 2000 certified company that reflects our resolve to produce high quality and high worth fans. Our customers have been very well satisfied with Tamoor Fans products. Our top most priority is to work to the full satisfaction of our customers. That is why our customers are fully satisfied and have been relying on our products.

**EU: Tell us about some distinguishing features of Tamoor Fans.**
**Engr. Muhammad Ali:** Tamoor Fans is a globally reputed firm. We are one of the few truly recognized companies with a large number of sales offices in different regions and clients in many foreign countries. The firm has a full product range for customers across all classes. We work very hard every day to provide what we believe are the finest products and services in the Fan industry. Tamoor Fans is a place where you can find both challenge and growth, and come to view yourself as a part of something exceptional and different.

**EU: Tell us about the technological advancement achieved by Tamoor Fans in producing its products.**
**Engr. Muhammad Ali:** In 2015, we established the first factory of its kind, which started manufacturing BLDC (brushless direct current) fans and

brushed pedestal fans in Pakistan. In 2017, we were the first one in the country to introduce Ac/Dc ceiling and stand fans. In 2018, we introduced the EC technology High Voltage BLDC Fans. In 2019, we achieved another milestone by introducing BLDC stand fans. In 2020, we reached the international market for selling our BLDC fans. In 2022, we introduced five-star-rated fans to the market.

Later on, we introduced the fans with IoT solutions as a Wi-fi controller is used for temperature and speeding settings. Tamoor Fans carries the specialty of designing and manufacturing high energy-efficient BLDC motors for fans.

**EU: Tell us about any unique product of Tamoor Fans.**

**Engr. Muhammad Ali:** Indeed, the 30-watt ceiling fan is a unique product of Tamoor Fans. It was first time introduced in Pakistani market. Despite the passage of four years, we are only one in the market selling this product. We have always been a step ahead of our competitors in the market.

**EU: What is the share of Tamoor Fans in Pakistan's fan market?**

**Engr. Muhammad Ali:** We have so far achieved a 40 per cent share of the inverter fans market in Sindh and Khyber Pakhtunkhwa provinces while our market share for the same appliances in Punjab is 20 per cent. Our fans have also been approved for all the World Bank-sponsored solar energy projects in Sindh.

**EU: Lately, what technological improvement has been achieved by the Tamoor Fans?**

**Engr. Muhammad Ali:** There is a higher market demand for high-efficiency energy-saving fans. The Tamoor Fans introduced HVDC (High Voltage Direct Current) fans in 30 watts and is working to improve its efficiency and power factor for the last two years. We have been using 18-slot BLDC motors and high-strength permanent magnets to make the life of the motor longer than that used in the traditional fans.

Our fans consume 70 percent less power than other traditional fans available in the market. A scientific study has found that a normal fan could consume electricity units costing up to Rs900 if it remains operational for 10 hours a day while electricity consumption by Tamoor eco-smart fans could cost only Rs295 for same duration.

The air delivery of Tamoor Fans is better than old fans above 250m3/min and the power factor is also higher. Our fans cause less noise. From 140v to 280v, it works with the same speed and efficiency.

**EU: What is your viewpoint regarding the energy problems of Pakistan?**

**Engr. Muhammad Ali:** The energy issues of Pakistan have been getting worse with eacg passing day. The electricity use has been increasing and the power production has been relatively low. The survey report issued by the World Bank's Energy Department said that up to 60 per cent of the energy utilisation in Pakistan is due to fans. It is imperative that normal fans in the country should be replaced by high-efficiency energy-saving fans.

The energy conservation so achieved could be utilized for enhancing our industrial operations to increase the GDP of the country. There should be extensive use of such energy-saving electrical appliances owing to the high cost of electricity and power shortfall, especially during summers. The government should incentivize the use of such appliances by domestic, commercial, and industrial consumers to lessen the unnecessary strain on the energy system of Pakistan. ■

WATER CRISIS

# 85% people in Balochistan without clean water

By Abuzar Salman Khan Niazi

The people of Pakistan, particularly those in southern Punjab, Sindh and Balochistan, are facing the worst kind of water crisis. Electronic and social media are inundated with images of disease-ridden children, dry agricultural land, wrecked crops and carcasses of livestock.

Research suggests that 85 per cent of people in Balochistan have no access to clean water. A few days ago, after consuming polluted water, scores were infected with cholera leading to the death of at least a dozen in Dera Bugti.

The groundwater situation in Pakistan is also alarming, having tumbled down to frightening levels. Pakistan ranks 14 among the 17 countries that are deemed extremely high water-risk regions in the world. Experts say Pakistan may become the most water-stressed nation in the region by 2040.

The constitution of Pakistan in essence is a social contract amongst the citizens. It is the supreme law of the land, envisages the fundamental rights of the citizens and imposes a corresponding duty on state institutions to preserve and advance them.

In view of our various constitutional provisions and binding judgments of the Supreme Court of Pakistan, the state is under a legal compulsion to ensure availability of clean water to its citizens, for drinking as well as other necessary purposes. The apex court has held in various rulings that availability of water and keeping the environment free from pollution is part of the fundamental right to life guaranteed under Article 9 of the constitution. The perfect way to address the adverse effects of climate change in order to preserve water resources is adoption of mitigation measures: like reduction in emission of GreenHouse Gases (GHG). Inopportunely, between 1994 and 2015, the overall increase in the emissions has been over 120 per cent in Pakistan. The Paris Agreement 2015, to which Pakistan is also a signatory, holds that each state is obligated to introduce mitigation measures to address and mitigate climate change. Pakistan's statement to the United Nations Framework Convention on Climate Change in 2016 promises a reduction of 20 per cent in GHG emissions till 2030.

Despite the fact that the energy sector contributes 47 per cent to GHG emissions, successive governments failed to focus on renewable sources of energy. Infact, the PTI-led government instead of encouraging cheaper and eco-friendly renewable energy projects, imposed a 17 per cent general sales tax on solar panels. Such lassitude in relation to implementation of renewable energy power projects is a patent violation of our international commitments.

In Pakistan, most of the work done with respect to climate and water justice is a consequence of judicial interventions; nevertheless, the same is not a viable and permanent solution. The seriousness of the state to fight a war against this looming crisis is a matter of grave concern. We saw how the recent forest fires in Sherani went on for days and the government seemed incapable of tackling them. In the end, Iran provided us with an especially modified aircraft for the firefighting operations.

The state needs to wake up from its deep slumber. The brazen violation of the fundamental rights to life, dignity and property triggered by the current water crisis reflects a breakdown in our social contract. The state cannot function under such a constitutional collapse. Like Socrates, citizens are bound to remain law abiding as long as the reciprocal arrangement under the social contract is effective. But the said contract will frustrate, breed contempt and lose its legitimacy if the reciprocity is not maintained.

*The writer is a Lahore-based advocate of the high court.*

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# Fear of oil prices

## Need stressed to also see rise in international oil prices

Riaz Riazuddin

The government has finally mustered the courage to raise oil prices in the country. The first hike was announced in May, more than a month after the new government took over, and the next raise came on Thursday night.

Our country is already in political disaster mode and is experiencing a balance-of-payments crisis. Was the government's fear of raising prices rational? Should we be more afraid of impending rises in the price of oil, or its non-availability, or both? Just before its exit, the last government had brought down oil prices, a move which the next administration was reluctant to reverse. Should we feel lucky at this purported benevolence of our leaders?

We do not live in a world of fairy tales. There is no goose laying golden eggs. Oil is extracted after monumental exploration, huge investment and the challenging work of drilling. Often there is disappointment when no oil is found. When prospectors drill 10 wells, oil or gas is struck in only one. This is the world average. We are incredibly lucky as our investors struck oil in one out of four wells. Despite this advantage, our indigenous production of crude oil was only around 77,000 barrels per day during FY20 (the yearly total was 28.1 million barrels). We imported 6.7m tons of crude oil. Both indigenous and imported crude were processed in our refineries to produce petroleum products of 9.7m tons.

Our consumption of petroleum products (diesel, petrol, hi-octane, etc) was 17.3m tons. We imported 7.5m tons in FY20 to meet our needs, according to the Pakistan Energy Yearbook 2020. This import quantum was 10.9m tons, according to the Pakistan Bureau of Statistics, and cost $4.7 billion.

The data discrepancy aside, the crucial point is that the international price of oil varied between $22 to $66 per barrel in FY20 compared to $78 to $110 per barrel in FY22 representing a rise of 67 per cent in two years. Our consumption of crude and refined petroleum products has also risen. Consequently, our import bill of petroleum group (crude, refined, LPG, LNG) has already reached $14.5bn for the period July to April (FY22) compared with $7.6bn in the corresponding period in FY21. Price effect dominates in this bill, but the import quantum that could reveal the exact price and quantum effects has yet to be compiled.

So, the government had until now been buying oil at expensive rates and selling it cheaply. One does not have to be smart to see this folly. By keeping domestic oil prices low, the government had been giving charity to the non-poor.

By keeping domestic oil prices low, the government had implicitly been doling out its borrowed resources to the comparatively rich consumers of oil. Indeed, poor consumers also benefited as they indirectly used oil by riding buses, as they owned neither cars nor motorbikes. But the non-poor were receiving needless and shameful charity. In the context of our economy, this is not just the story of subsidy through oil prices, which fuels consumption and benefits the rich; it is also about the direct and indirect subsidies to sugar barons, textile barons, rural barons, real estate barons, etc, creating a robber baron elite which has captured the real surplus value by exploiting human and other resources in Pakistan. Many ordinary Pakistanis may not have heard the term 'elite capture', but they know what it is as they are the ones who are suffering the most because of it.

How are these surplus values created? Take the example of real estate as this is the predominant system in the capture of surplus value in our country. Poor people have neither land nor money. The not so poor may have some bequeathed land if not money. Shrewd barons buy land lots cheaply and sell them at high rates, producing almost nothing in the process except exorbitant profits for themselves on which taxes are easily evaded. I need not dwell on who the real estate barons are. Suffice it to say that most of them are the worst among the robber barons because they are unproductive. Even sugar barons seem better because they produce something. The same goes for other industrial barons.

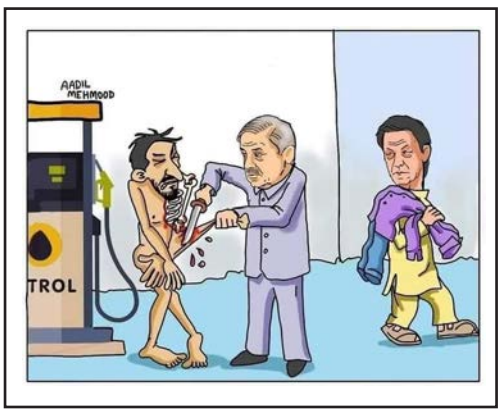
What is noteworthy here is that the prices of goods play a key role in creating value. The rise in sugar price incentivises sugar producers to produce more; the rise in sugar cane incentivises farmers to grow more sugar cane. While the consumers suffer, producers and investors gain because of the rise in prices. Irrespective of whether the price increase is market-driven or manipulated, this is a boon for producers and a bane for consumers.

We need to see the rise in international oil prices in this context also, even as we lament its impact on family and government budgets. Elevated crude oil prices increase the profitability of exploration and drilling. Not only does the likelihood of new investments in the petroleum sector rise, more extraction of oil also becomes possible. In this way, the price increase gives an opportunity to our country to incrementally move towards self-sufficiency with less dependency on imports. This analysis applies equally to wheat prices. Higher wheat prices are disliked by consumers, but growers like higher prices.

Therefore, the government has a system of support prices to persuade farmers to grow more wheat. Will international oil prices remain elevated in the near future? Had the war in Ukraine not occurred, oil prices would not have risen much. Is the conflict in Ukraine likely to end soon? The history of past conflicts tell us otherwise.

Hence, it would be better to assume elevated future prices of oil and wheat (30pc of the world trade in wheat involves Russia and Ukraine). Keeping oil or wheat prices low (through subsidies) in this situation is counterproductive and can reduce the output of oil and wheat. Moreover, the government does not have gold coins to distribute. It has, therefore, wisely though reluctantly, allowed domestic oil prices to rise. It should now focus its energies on ending the remaining subsidies, strengthening the balance-of-payments position, and shoring up its reserves. ■

*The writer is a former deputy governor of the State Bank of Pakistan*

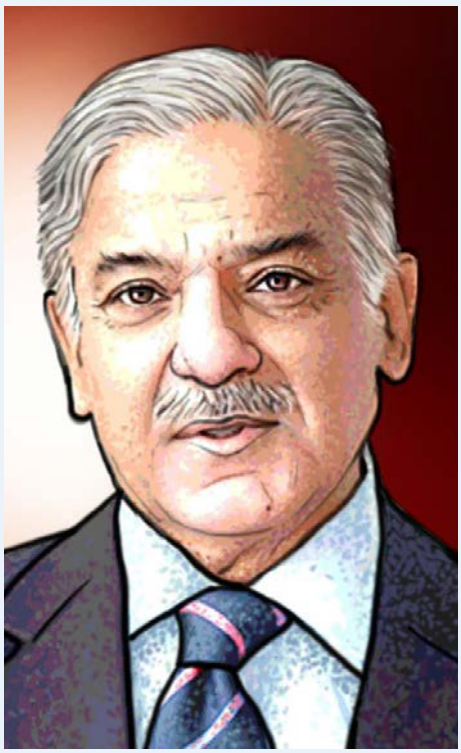



POLITICAL CHALLENGES

## Mortal political, economic challenges

# Shehbaz Sharif's political survival seems at stake

Faizaan Qayyum



With one foot on a banana peel, we are standing at an abyss. PM Shehbaz Sharif and the PML-N face mortal political and economic challenges, and the government has shown little resolve to confront them head-on. Domestic petroleum prices are up more than 40 per cent within the last few days, and energy prices have quickly followed suit.

It is morbidly satisfying that Shehbaz Sharif and the PML-N – of motorway, flyover, and underpass fame – should face rising fuel prices in their ultimate battle for political survival. For decades, our cities have facilitated private car owners at the expense of pedestrians, cyclists, and transit users. The Shehbaz Sharif model of urban development, albeit with different speeds of execution, pervades other political parties and leaders as well; large-scale gray infrastructure like signal free corridors, flyovers, underpasses, and ring roads with obscene levels of service have become the norm in cities around the country. Cities, from Islamabad to Turbat, have become sprawling sites of speculatively held vacant plots in shady housing schemes.

This is our real tragedy. Our current economic crisis is our own Frankenstein's monster staring right back at us. Consider these examples: Capital Smart City Islamabad is approximately 40 kilometres from Blue Area. DHA City Karachi is over 60kms from Frere Hall. These and other projects exclusively target car owners: only the most influential five per cent of our urban population.

The same logic has unfortunately extended to inter-city travel. We have prioritized motorways and highways over railways. Our railways network has shrunk from over 8500kms of tracks in 1950s to around 7,800kms today. This has been accompanied by a drastic drop in the railways' share of traffic: while the service carried over 86 per cent of all freight traffic in the 1950s, its current share stands at a meager 4-6 per cent. Similarly, Pakistan Railways has gone from the single largest carrier of passenger traffic in the 1970s to carrying less than 10 per cent of all passengers today.

With rising fuel prices and a crashing rupee-dollar parity, our follies have finally come full circle. PM Shehbaz Sharif's political survival is threatened by the very monster he nurtured for decades, and on which he built his legacy. It may be late, but this is also the opportunity of a generation. The way forward is clear for those who wish to see. ■

*The writer is a PhD candidate at the University of Illinois at Urbana-Champaign.*

# Pakistan can produce 92% power need from solar energy

Fatima S. Attarwala

The numbers are convincing. And misleading. If this was a comic book, a superhero (or villain) would have found a way to harness Pakistan's solar power into a suit that would put Iron Man to shame. Or at least solved the problems of sweltering nights and scorching days when the power goes off.

At one point, MIT, Stanford University and the University of California researched an atmosphere/energy programme that analysed the future energy demand of 139 countries, comparing their solar, wind and hydroelectric potential. The research indicated that Pakistan has the potential of producing a whopping 92% of its electricity requirements from solar energy; this rate is among the highest in the world. Another study conducted by the World Bank found that Pakistan has tremendous potential to generate solar power and that just utilising 0.071% of the country's area for solar photovoltaic (PV) power generation would meet its current electricity demand. The keyword here is 'potential', which is based on studies that tabulate complicated formulae on paper and not reality.

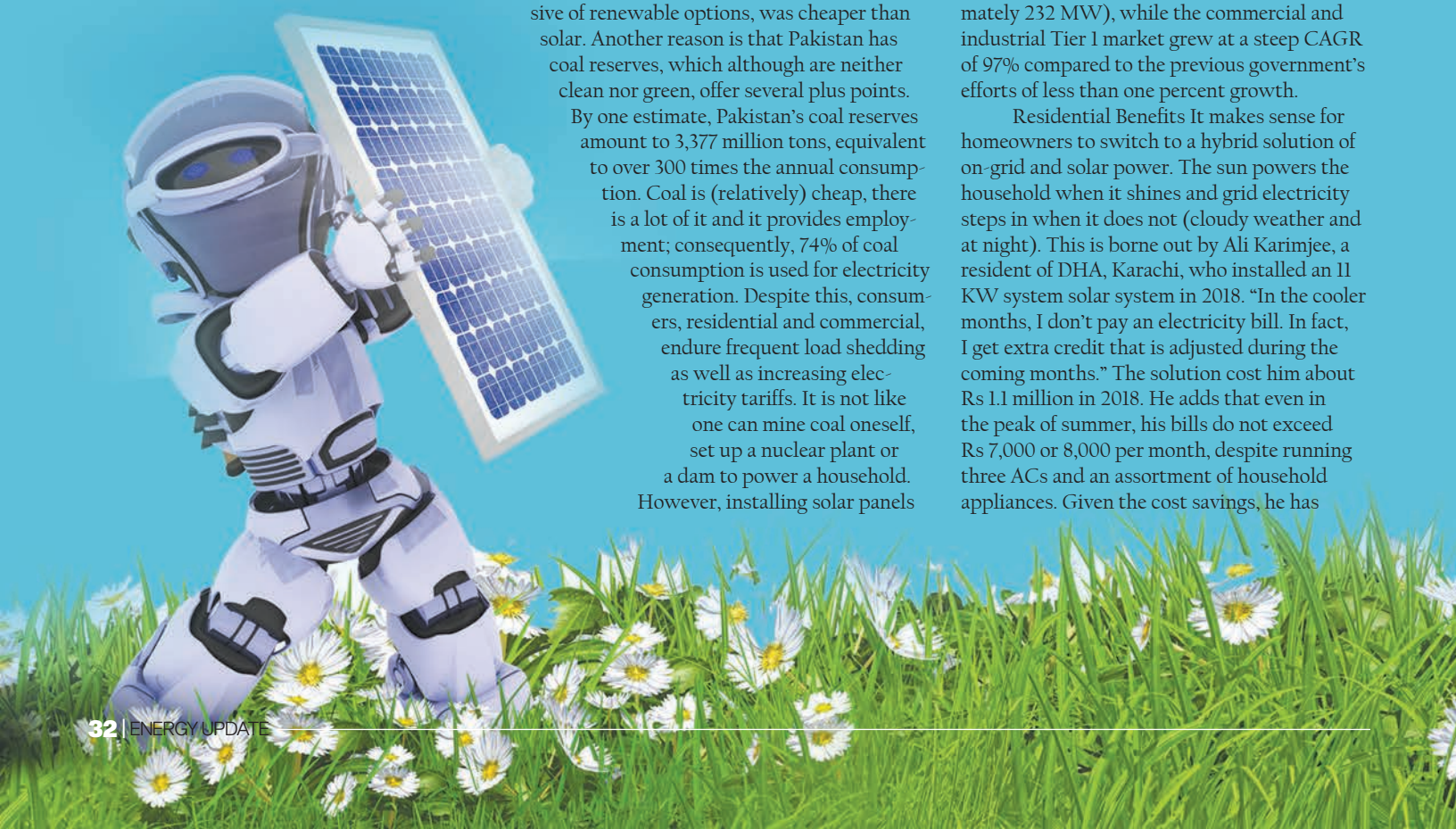
The reality is that although the sun may shine all day long, solar energy plays a rather humble role in Pakistan's energy makeup. According to the National Electric Power Regulatory Authority's (NEPRA) State of the Industry Report 2021, at 530 MW, solar constitutes less than two percent of the total installed electricity generation capacity and the amount of solar deployed in the energy mix is mostly stagnant; it increased by a measly 0.94% in FY 2020-21 compared to FY 2019-20. Currently, all solar power projects are small-scale, with individual installed capacities of 100 MW or less. While the Alternative Energy Development Board (AEDB) is pursuing 22 solar photovoltaic power projects, their combined cumulative capacity is 890.80 MW – for context, Pakistan's country-wide government efforts that are in the pipeline would power (at most and only if materialised completely) about a third of Karachi's needs in summer.

So why, despite the promising numbers, has solar such a humble position in Pakistan's energy mix? For one thing, it makes less economic sense compared to its competitors. According to energy expert Farrukh Mahmood Mian, initially, even nuclear, the most expensive of renewable options, was cheaper than solar. Another reason is that Pakistan has coal reserves, which although are neither clean nor green, offer several plus points. By one estimate, Pakistan's coal reserves amount to 3,377 million tons, equivalent to over 300 times the annual consumption. Coal is (relatively) cheap, there is a lot of it and it provides employment; consequently, 74% of coal consumption is used for electricity generation. Despite this, consumers, residential and commercial, endure frequent load shedding as well as increasing electricity tariffs. It is not like one can mine coal oneself, set up a nuclear plant or a dam to power a household. However, installing solar panels is possible and highly doable.

Therefore, while the government ignores solar power, the private sector has been quietly embracing it. According to Reon Energy, a business vertical of Dawood Hercules, the solar market potential is estimated to be 4,000 MW to 4,500 MW, which is why the private sector sees a market that is five times bigger than the PTI's Government's plans envisaged. Furthermore, solar is among the cheapest options available, as without using batteries, the levelised cost of energy (over 25 years) for a unit of solar electricity is about seven rupees compared to the grid tariff, which can be as high as Rs 24 (inclusive of tax). Factoring in batteries, the cost of solar increases by roughly five rupees to a ballpark figure of Rs 11.

In this situation, Reon Energy expect the commercial and industrial market to reach approximately 3.2 GW (3,200 MW) by 2025. Pakistan's residential net metering renewable market has grown at a compound annual growth rate (CAGR) of 164% over the last five years (net metering takes into account the units supplied to the grid and for which the owner is compensated – and as per NEPRA's State of Industry Report 2021, the total installed capacity of net-metering consumers at the end of the last fiscal year was approximately 232 MW), while the commercial and industrial Tier 1 market grew at a steep CAGR of 97% compared to the previous government's efforts of less than one percent growth.

Residential Benefits It makes sense for homeowners to switch to a hybrid solution of on-grid and solar power. The sun powers the household when it shines and grid electricity steps in when it does not (cloudy weather and at night). This is borne out by Ali Karimjee, a resident of DHA, Karachi, who installed an 11 KW system solar system in 2018. "In the cooler months, I don't pay an electricity bill. In fact, I get extra credit that is adjusted during the coming months." The solution cost him about Rs 1.1 million in 2018. He adds that even in the peak of summer, his bills do not exceed Rs 7,000 or 8,000 per month, despite running three ACs and an assortment of household appliances. Given the cost savings, he has



recouped 75% of his investment to date.

Commercial Interests Commercial tariffs are considerably higher than residential tariffs in terms of on-grid electricity and are set to spiral given the fiscal crunch.

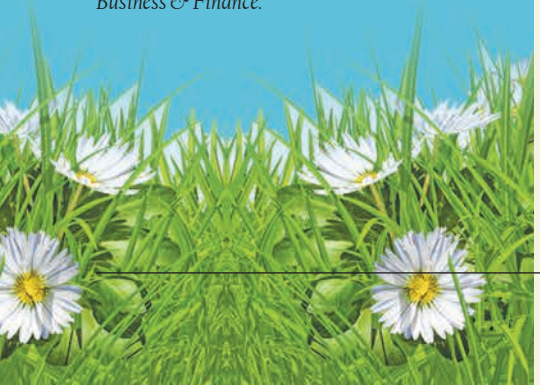
Solar solutions are not within everyone's budget. According to Musa Khan Durrani, Head of Business & Planning, SkyElectric, it costs about Rs 150,000 per KW (roughly Rs 150 per watt), with installations coming in at multiples of 5 KW. Battery storage adds a further Rs 250,000 per KW for a home solution from a reputable company. He adds that Pakistan is the only country in the world where solar installations are taxed at 17% GST and the entire industry has been derailed since the last mini-budget, added to which the global shortage of semiconductors has impacted the industry as solar solutions require a lot of chips and deliveries that took about four weeks now take 12 weeks.

"Container shipping prices have gone up seven times in the last year, and we expect this to be compounded because of the Ukraine-Russia war. The free fall of the rupee has not helped given the number of imported components in a solar solution. Thus, overall, the price of solar solutions has increased by 40 to 50%, he concludes.

Financing Green Portfolios Financing is another challenge. The State Bank of Pakistan has provided a renewable energy financing facility to encourage banks to increase their green financing portfolios, with a maximum annual mark-up rate of six percent. According to Reon Energy, this facility has been instrumental in supporting the uptake of solar by the private sector.

Solar is unique in that any house with sufficient space can generate its own electricity and therein lies its potential. However, solar did not figure significantly in the previous government's power plans. No doubt there are incentives for the private sector to move towards it, but the reality is that without government intervention, despite the outlandishly rosy numbers, solar's potential will remain in the realm of comic books. ■

*Fatima S. Attarwala is an analyst at Dawn's Business & Finance.*





# Going Nuclear

## Making the case for the nuclear option

Farrukh Mahmood Mian

Pakistan's first nuclear power plant (using Canadian technology) was set up in Karachi in 1971, with the capacity to produce 137 MW. It was, for three decades, the only nuclear power plant in the country. Although efforts were made in the seventies and eighties to import more and improved nuclear technology-based power plants, they did not bear fruit. Weapon grade nuclear fuels and those used in power generation can be used interchangeably, hence the West's reluctance to provide the technology to countries outside their own sphere. The nineties were a time when China was gaining expertise in making nuclear-based power plants and the prospects increased for Pakistan to benefit from Chinese technology.

The first Chinese plant with an installed capacity of 325 MW was completed in 2000 in Chashma, Mianwali District, and ever since, China has been Pakistan's only source for nuclear power plants. By 2017, four units of 325 MW each were in operation in Chashma, with a total capacity of 1,430 MW. (For nuclear power plants to be built economically and based on technical considerations, a 325 MW plant was no longer considered to be an optimum size.)

In 2021 and 2022, two new plants with a capacity of 1,140 MW each were commissioned near Karachi, taking the total nuclear-generating capacity to 3,430 MW. According to the Pakistan Atomic Energy Commission (PAEC), three more plants will be commissioned by 2026, increasing the total nuclear power capacity to 6,830 MW. According to the National Electric Power Regulatory Authority (NEPRA), the total share of nuclear power has increased from 10.9% (February 2021) to 12.5% (February 2022).

Nuclear-based power plants are expensive to build – in fact, the capital expenditure needed is an order of magnitude higher than required by other technologies. Roughly speaking, a typical nuclear plant needs five million dollars per megawatt to build, whereas gas-based combined cycle plants require one million dollars per megawatt and coal-based plants require two million dollars per megawatt (hydropower plants involve lesser capital costs relative to nuclear, they are still expensive to build).

Although not a typical case, the Neelum-Jhelum Hydropower Plant (HPP) was built at a cost in excess of five million dollars per megawatt. The advantage of building HPPs compared to nuclear plants is that a large portion of the former's cost is incurred in local currency. Nevertheless, nuclear plants are extremely reliable as they can typically operate at more than a 90% capacity factor – tens of percentage points more than any other technology.

Apart from their reliability, the cost of operating nuclear plants is very low as nuclear fuel has a long life and can be processed for reuse. On the other hand, fossil fuel-based plants have lower capacity factors and higher operational costs and rely on imported fuels that are subject to price fluctuations.

The question then is, if nuclear plants are so attractive, both technically and financially, why are we not building more? Firstly, because of their high capital cost (mainly in foreign currency) – and recent reports suggest that the PAEC is facing difficulties in repaying loans. Secondly, they take a long time to build (six to eight years.)

Thirdly, Pakistan's national power considerations require a mix of technologies and face several constraints in terms of where the power generation centres are located. Fourthly, developed countries are haunted by safety fears, especially in the aftermath of the Fukushima tragedy in 2011.

Added to these factors is the fact that renewable-based energy solutions, mainly solar and wind, have become more financially attractive. It is pertinent to mention here that the massive increase in LNG and imported coal in the last two years has seriously jeopardised the operation of thermal plants, whereas nuclear plants have continued to operate without interruption.

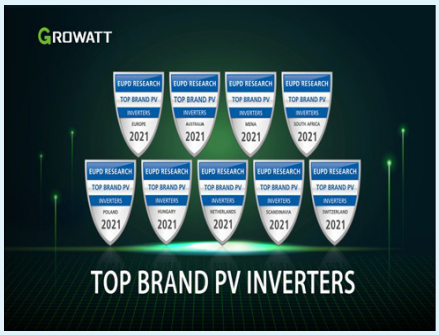
In fact, one dreads the horrible scenario of power shortages, were it not for the 3,400 MW of sustained power output that is added to the system by the nuclear plants in Chashma and Karachi. Furthermore, nuclear plants have no greenhouse gas emissions, which makes them the cleanest form of power generation. Moving forward, while developing renewable energy is important, when it comes to thermal plants, more attention should be paid to nuclear rather than imported coal or LNG as it will ensure the security of supply. ■

*Farrukh Mahmood Mian is former Group Director, Energy, Islamic Development Bank, and currently works as a consultant on sustainable energy-related matters.*

# Growatt

## provides smart energy solution

### Company ships commercial, residential inverters in Pakistan




As a global leader in smart energy solutions, Growatt provides an extensive portfolio of products and solutions including PV inverters, energy storage systems, EV chargers, and smart energy management solutions. The company is dedicated to becoming the world's largest supplier of smart energy solutions.

Growatt is one of the world's top 10 inverter brands per IHS Markit. The world's No.1 residential inverter supplier per IHS Markit. It is included in the list of Global Top 2 Storage Inverter suppliers, according to Wood Mackenzie.

Growatt is at world's No.3 single-phase inverter supplier per IHS Markit, and is at No.1 residential PV inverter brand in China, taking over 35% market share.

It also ranks among the world's top 5 suppliers of commercial inverters. It is listed as No.1 in Pakistan in 2021, according to the EUDP. Growatt has built strong and experienced local teams in key solar markets with an extensive service network of 23+ offices worldwide.

The facility covers an area of 200,000 square meters and has an annual output of three million inverters and 600,000 battery modules.


**Mian Fahad Country Manager Growatt New Energy Pakistan addressing at 2nd Pakistan Energy Reform Summit**

Advanced manufacturing plant in Huizhou began production, boosting annual production capacity to 20GW. Dedicated to technology and product innovations, Growatt invests heavily in research and development. The R&D team at Growatt has more than 600 professional engineers.

The company has received 'All Quality Matters' awards by TÜV Rheinland for its commercial and industrial (C&I) inverter - MAX series and residential storage battery – ARK series, both of which achieve first-rate performance in the organization's PVE Test Program. Growatt's hybrid inverters spotted both lithium and lead acid batteries which have a wide MPPT range and string monitoring.

Growatt is one of the leading companies that shipped and installed the C&I, commercial and residential inverters in Pakistan. The Grwowatt New Energy Pakistan has a local team to provide sales, marketing, and after-sales support.

Mian Fahad is the country manager of Growatt New Energy Pakistan. He has a visionary background in multinational companies. Growatt New Energy also has local marketing and after-sales support team. Growatt also has an official lab in I-9/2 Islamabad where it provide the after-sales support. Growatt provides direct support to their distributors, installers, and end-user.

Growatt has robustness in their products they deal in grid-tied, hybrid, off-grid, and EV chargers. The company also has in stock inverters in Pakistan. Growatt recently introduced its EV charger in Pakistan which can be operational in residential and commercial places. Growatt actively approaches Pakistan and has a brilliant potential in Karachi city. ■

# GoodWe

## creates unfailing energy, comes on road to miracle



Recently, GoodWe was awarded the title of Most Efficient Asian Storage Manufacturer by Berlin University of Applied Science through SPI efficiency test. We know technology always comes from investment and accumulation, but few people note that this is the 10th year of GoodWe's dedication to energy storage industry, experiencing accountable setbacks and honors along the way in order to achieve its mission and commitment.

### Embryonic Stage

It was an extremely hot summer in 2012, a group of people in a leased plant were under intense discussion, when the tickets were raised by local service team, which said some of the home owners and families suffered from heatwaves without stable power supply due to the weak grid. Solar energy has gradually become a realistic way to daily life but unfortunately, it incapable of generating enough power at night and under blackout.

At that time, GoodWe was like an infant just starting out, and had received preliminary recognition in the field of the on-grid inverter. After awareness of the market pain point, Chairman Daniel Huang was determined to invest in R&D of "PV+ energy storage" inverter products without any hesitation, as his original intention of establishing GoodWe was to contribute to the society and create a sustainable future by supplying cost-effective and secure clean energy to different countries and regions.

### Unlock ESS World after Accumulation

The first breakthrough came soon on May 2014, GoodWe's first energy storage inverter ES series was installed in a 400-year-old villa in Cambridge, UK, which indicated that GoodWe had gradually opened a new chapter in residential energy storage. At that time, residential energy storage was still a relatively avant-garde concept, and most of the products in the market were off-grid, while the energy storage inverter could realize the energy storage function and at the same time, it could also achieve the residual power on grid without wasting any kilowatt of electricity.

From 2012 to 2017, the market demand for energy storage systems exploded over twenty-fold, from 0.34 GW to 6 GW. In the same period, GoodWe hybrid inverters also realized the function to match with various models of LG, Tesla batteries, which indicated that GoodWe officially moved into the high-end market and become one of the most important players in the ESS industry.

### Growing & Thriving

With the gradual reduction of FIT subsidies in major markets and the declining cost of energy storage system from 2019, self-consumption was gradually becoming a trend. The development of GoodWe's energy storage machines was even more momentous in order to meet the huge requirement and ensure the electricity supply in otherwise inhospitable areas.

Opportunity always comes to those who are prepared. Since 2018, GoodWe's energy storage inverters were steadily being exported to Australia, Africa and European countries and received high recognition. After achieving a stable supply grade of annual shipments over 20,000 units, GoodWe finally became a major global manufacturer of ESS and was also ranked No.1 in the world for residential hybrid inverter shipments according to WoodMackenzie in 2020. In 2021, GoodWe launched its own Lynx battery series, including low-voltage and high-voltage batteries in order to provide customers with a more comprehensive solution. The matching solution of inverter plus battery provided a convenience to the customers. The same year, GoodWe's energy storage inverter achieved another milestone with 60,000 units' shipment and is continuing high-speed growth.

### The Future of Endless Possibilities

Today, the world is witnessing a shift in the way energy is being procured and consumed. Some recent incidents to quote is geopolitical-risk and economic recovery from Covid-19 have roiled the markets, driving oil and gas prices to their highest levels in nearly a decade and forcing many countries to reconsider their energy supplies.

According to the research of CICC, it's estimated that the theoretical scale of global home storage is about 1,300GWh in 2030, and as of 2021, the installed capacity of global home storage is only about 20GWh, thus the development potential is huge.

It's believed that factors such as the widening peak-to-valley price gap, the reduction of energy storage costs, and the expiration of FIT will drive the further improvement of the economy of home storage. It's expected that under the normal situation and the accelerated development of VPP (Virtual Power Plant ), the global installed capacity of home storage will reach 18/35GWh in 2025, corresponding to a CAGR of 29%/52% in 2021-2025, respectively.

GoodWe slogan is the need of the hour as claimed by many world leaders and governments, as people are eager for comprehensive energy solutions to help them obtain sustainable and stable green energy.

GoodWe's pipeline has also successively added photovoltaic building materials (BIPV), EV chargers and other products this year, endeavoring to be an all-round solution of "EcoSmart Home", the one-stop solution for green living also debut at Intersolar, stunning the whole Europe. ■

# Sindh Energy Conference held

EU Report

Petroleum Institute of Pakistan organized its first 'Sindh Energy Conference' recently at a local hotel in Karachi to provide valuable platform for showcasing Sindh's vast indigenous energy resources and its valuable role in securing the country's energy requirements.

The conference was fully supported by Sindh Energy Department. Abu Bakar Ahmed, Secretary Energy Department, was the keynote speaker where he spoke on the topic of 'Indicative Generation Capacity Expansion Plan (IGCEP) 2021-30 Implication & Provincial Perspective.

Enrico Alfonso Ricciardi, Vice Consul, Consulate of Italy was also present at the occasion. Chairman PIP and Managing Director PARCO was the chief guest. The event was sponsored by Pakistan Petroleum Ltd as a gold and exclusive sponsor. The key takeaway of the conference was to formulate a policy on waste to energy by Sindh which will bring further investment into this important energy sector of national importance. The conference ended with closing remarks by Mr. Asim Murtaza Khan, Chief Executive Officer, Petroleum Institute of Pakistan with the distribution of souvenirs to the speakers.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# Why Pakistan must replace electricity subsidies?

Javed Younas | Ayesha Ali

Pakistan's current economic crisis has once again brought to the fore the issue of electricity subsidies. While on one end of the policy spectrum, economists argue that our fiscal position necessitates the withdrawal of subsidies, on the other end, there are strong advocates for keeping subsidies intact to keep electricity affordable and protect the masses from inflation.

The issue becomes even more dire once we realise that we cannot avoid raising electricity prices indefinitely. Over 65 per cent of Pakistan's electricity is generated using imported fossil fuels, which exposes us to international supply shocks and fuel price fluctuations, and there is no escape from that in the short term.

The costly policies on the generation side — for example capacity payments — make our electricity the most expensive in the region. Add to this mix the inefficiencies on the distribution side — high transmission and distribution losses and poor bill recoveries — further raise the cost of delivering electricity, and it is no wonder that the power sector remains stuck in a high cost-poor service equilibrium.

As economists who have been studying Pakistan's power sector for quite some time now, we present an alternative to tackle the thorny issue of electricity subsidies, which is based on keeping electricity affordable for those who truly cannot pay for it but in a fiscally prudent manner.

We first argue that the current subsidy regime fails to meet its desired objectives and imposes an unsustainable fiscal burden and, therefore, must be reformed. It is important to communicate this message to the public in an easy and accessible manner, as broad consensus must be built around rationalising the subsidy system to help us move away from populist and simplistic rhetoric. We then propose a system of revamping electricity subsidies based on targeted in-kind transfers in the form of an electricity voucher programme.

From an economic perspective, the objective of subsidies is to correct under-provision of a socially desirable good or service by the market. If we consider access to electricity a basic necessity and want to ensure a decent level of consumption for every household, we want to have a policy instrument that enables us to achieve this objective, with minimal unintended negative consequences. However, the current subsidy regime fails to deliver on the objective of ensuring access to electricity for multiple reasons.

One of the most important flaws of the current subsidy regime is that it is poorly targeted and benefits richer households disproportionately. Under the current system, residential customers are billed under an incremental block tariff structure as shown in Table 1. The tariff is increasing in consumption slabs ranging from 0-100, 101-200, 201-300, 301-700 and above 700 units. There is also a lifeline slab with less than 50 units of consumption.

The National Electric Power Regulatory Authority (Nepra) determines a tariff based on the cost of electricity generation and distribution. The Government of Pakistan (GOP) then notifies a consumer tariff which is lower than the Nepra tariff, hence subsidising the electricity price for end consumers. On each tariff slab, the subsidy rate per unit of electricity consumed declines as consumption moves up from one slab to the next.

For example, on the first 100 units, the subsidy rate is Rs6.85 per unit, for the next 100 units the subsidy rate declines to Rs6.35 per unit, and for the next 100 units, the subsidy rate further declines to Rs5.38 per unit. For the additional units consumed above 300, the subsidy is reversed and consumers pay a higher price than the Nepra tariff.

Using the nationally representative Pakistan Social And Living Standards Measurement household (PSLM-HIES) survey data, we find the share of households falling in each tariff slab. We then estimate the subsidy burden from each tariff slab using the average per unit subsidy, assuming an average consumption level per household within each slab. This exercise yields some important insights.

The largest group benefitting from the subsidy is households with consumption between 301-700 units, which accounts for 56pc of the consumers or nearly 16.8 million households. Assuming the average household in this group consumes 500 units per month, the total subsidy burden translates into Rs25.8b per month — out of a total monthly subsidy of Rs37.8b for all groups.

Under this structure, the annual subsidy burden would amount to Rs454b. This is almost twice the share of social protection programmes, which were allocated Rs255b in the 2021-22 federal budget. Thus, the current

subsidy structure means that even well-off households benefit and in absolute terms, they are the recipients of the major chunk of the power subsidy.

The electricity sector's circular debt — inter corporate debt due to outstanding receivables of firms in the energy supply chain — is presently Rs2.5 trillion or 6pc of the GDP. One of the main reasons for circular debt accumulation is not allowing electricity prices to rise in line with rising fuel prices in world markets. High operational losses and poor recoveries of distribution companies, which are linked to the demand side issues discussed above, also contribute to the circular debt. The electricity sector's poor financial health means that we cannot afford to pay generation companies for costly electricity.

Plants stay idle even while we have available capacity. As a result, load shedding continues unabated. Moreover, loss-making distribution companies are unable to undertake adequate investment in maintenance and expansion of the grid network. Around 25pc of the population (nearly 50 million people) is still living without an electricity connection. Therefore, we must recognise that the current system is failing to achieve its objectives, even without accounting for the unbearable financial burden of the subsidies.

### Thinking of alternatives

One policy option which has been advocated recently is to replace the present subsidy system with targeted cash transfers that poor households can then use for paying electricity bills.

The National Socio-Economic Registry, which covers around 85pc of the country's households, can be used to identify those below a certain eligibility cut off in terms of income or wealth. The biggest challenge of such a system could be that since cash is fungible, people might find it difficult to commit this money to pay electricity bills especially if they are due at the end of the month.

Instead of offering support through cash transfers, we propose a targeted voucher and rebate system. A voucher system offers a simple and non-distortive way to provide in-kind support to households for consuming electricity. Since the support will be applied directly to the electricity bill, it should be easier to build consensus around such a system as opposed to completely eliminating the current subsidy system.

In addition to providing financial assistance to eligible households, this targeted subsidy equivalent voucher scheme can have multiple positive cascading effects.

First, it will enhance bill payment because vouchers may only be used to pay for electricity bills, improving the utilities' revenue situation. Second, it will relieve fiscal pressure on other budgetary expenditures by reducing the government's circular debt burden. Third, it will encourage households to conserve energy according to their needs as exceeding the threshold consistently means losing the support. Fourth, richer households, who receive no subsidy, will be tempted to install solar as an additional energy source to supplement their energy consumption from the grid. Finally, given the dire state of the energy sector, a low-cost loan arrangement for installing solar systems can be proposed for middle-income households.

In a nutshell, a simplified electricity voucher and rebate system has the potential to achieve a number of goals, including improving electricity access, incentivising electricity conservation, boosting the adoption of clean energy sources and reducing CO2 emissions, while alleviating the financial burden of circular debt. ■

*Courtesy: Daily Dawn*

HUMAN RIGHT

# Clean environment: a HR right

Jamil Ahmad

The UN Human Rights Council recognised a clean environment as an independent human right in October 2021. The intersection between human rights and environmental protection had long remained unacknowledged. The Universal Declaration of Human Rights in 1948 did not touch upon environmental rights because the priority then was to protect human dignity and development after the devastation of World War II. The environmental movement was still in a nascent stage.

The UN Conference on Human Environment in Stockholm in 1972 first acknowledged this link: "Man has the fundamental right to freedom, equality and adequate conditions of life, in an environment of a quality that permits a life of dignity and well-being."

Thereafter, the UN, governments, jurists, and academia strengthened the discourse by clearly outlining that environmental degradation and climate change infringed on human rights, particularly those of the poor and society's most vulnerable segments. Recourse to a rights-based approach to the environment and sustainable development was mainstreamed.

Subsequently, the Human Rights Council adopted several resolutions on different aspects of the links, while regional human rights treaties and national legislation were approved to protect the environment and environmental rights.

So far, 156 countries have granted legal recognition to a healthy and sustainable environment. One hundred countries have enshrined the right to a healthy environment in their constitutions — 84 of them in explicit terms.

In the developed world, governments and judicial processes have ensured adherence to legal, constitutional and multilateral obligations. In developing nations, despite structural constraints, courts have handled scores of petitions involving a human rights-based approach to clean air and water.

As we endure growing environmental degradation and global warming, the recognition of environment as a human right will amplify the voices of poor and marginalised communities — who have no means of defending themselves against environmental harm — and strengthen their call for environmental justice.

The judiciary's role is key in environmental constitutionalism. But adjudicating environmental issues is complex and faces several structural obstacles in developing countries like Pakistan.

All countries, especially developing nations like Pakistan, will have to take a systemic approach to ensuring the implementation of their national and multilateral obligations. To harness the power of youth, educational curricula will have to be tailored to inculcate a sense of responsibility towards environmental conservation.

The implications of the Human Right Council's decision will go beyond national boundaries. While promoting the human rights agenda, it will support international environmental governance and policymaking, and spur collaboration for a clean and healthy environment at a time when pollution, biodiversity loss and climate change are threatening life on planet earth. ■

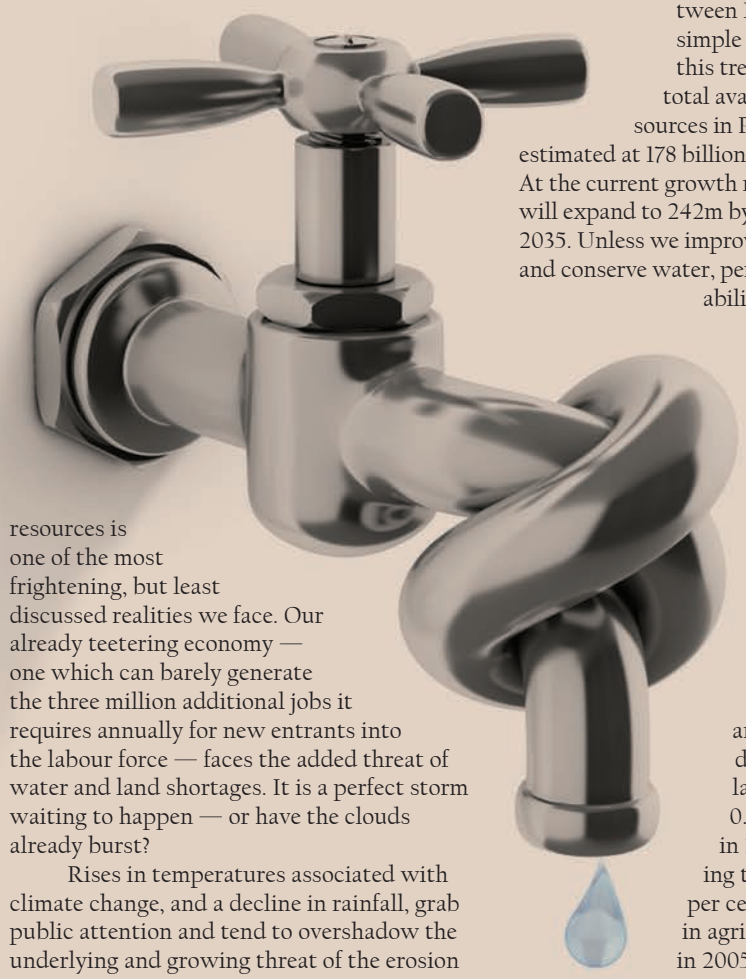
*The writer is director of intergovernmental affairs, United Nations Environment Programme.*

## Population burdening environment

# First alarm bell is shrinking water base: Report

Zeba Sathar

Pakistan's booming population is at odds with its natural endowments. Environmental stress caused by an imbalance between rapid population growth and limited natural resources is one of the most frightening, but least discussed realities we face. Our already teetering economy — one which can barely generate the three million additional jobs it requires annually for new entrants into the labour force — faces the added threat of water and land shortages. It is a perfect storm waiting to happen — or have the clouds already burst?



Rises in temperatures associated with climate change, and a decline in rainfall, grab public attention and tend to overshadow the underlying and growing threat of the erosion of the projected size of the natural resource base, which informs Pakistan's National Conservation Strategy, approved in 1992. Even though tackling a rapidly growing population was part of the strategy, policymakers did not foresee that population growth rates would continue at their high levels and that we would add another 120 million to the population between 1981 and 2017. We are expected to add at least another 120m by 2050.

The first alarm bell is the shrinking water base. One direct manifestation of the nature-population imbalance can be seen in the stark decline in per capita water availability from 2,150 cubic metres, or CM, to 860CM between 1980 and 2017. A few simple calculations confirm this trend will continue: the total availability of water resources in Pakistan is currently estimated at 178 billion cubic metres (BCM). At the current growth rate, our population will expand to 242m by 2025 and 290m by 2035. Unless we improve our ability to store and conserve water, per capita water availability will fall to further scarcity levels of 730CM in 2025 and 600CM in 2035.

The second glaring imbalance is in the shrinking land base for agriculture and increasing need for food production. Rural areas have been hit hardest by water shortages and there has been a decline in cultivated land per capita from 0.5 acres in 1980 to 0.2 in 2017. Another striking trend is that while 62 per cent of those working in agriculture owned land in 2005, the equivalent proportion was down to 49pc in 2020. These changes alone directly impact livelihoods, evidenced by the shrinking size of agriculture as a source of income. Across Pakistan, climate and population pressures will eventually lead to shortages in food.

Rural to urban migration is an immediate outcome of rural stress caused by dwindling natural resources, shrinking economic opportunities and a sharp increase in the numbers seeking work. Migration induced by decreasing agricultural opportunities and the attraction of selling rural land in response to population pressures is an adaptation strategy. However, carefully deliberated policy is required to reduce the stress on cities and towns that were not originally planned for this level of population increase. Improved public service delivery in smaller cities to reduce migratory stress on large urban centres is most definitely required.

There has been greater urban population growth than rural, which is increasing environmental challenges and causing shortages in urban areas. Rapid urban growth was a result of high urban fertility rates and rapid rural-to-urban migration until the late 1980s, when urban fertility rates finally began to decline. As a result, the rates of urban growth in 1951–1972 were close to 5pc per annum at their peak, compared to rural rates of 3.5pc. Urban growth rates have fallen since 1981, but continue to be more than 1pc to 2pc higher than rural areas due to internal migration. The urban population has already risen from 24m to 76m between 1980 and 2017 and will surpass the rural population by 2045.

Population growth is leading to massive overcrowding, high population densities and shortage of land to build upon because of the pressures of additional demand for housing. The number of housing units in urban areas has gone up from 3.6m to 12m units between 1980 and 2017. The quadrupling of housing demand is leading to steep rises in real estate costs and conversion of rural and zoned areas to housing projects.

Projecting forward to 2050, we expect 100m more Pakistanis to be living in urban areas even if there is a moderate decline in family size in the cities. But high population densities and pressures on already overstretched city municipal limits will continue to overload limited facilities, especially water for domestic use and sanitation.

Across Pakistan, climate and popu-

lation pressures will eventually lead to shortages in food due to the negative impact on our ecology and biodiversity, and possibly also livelihoods, thereby exacerbating inequalities. Already better off regions like the irrigated plains of Punjab and Khyber Pakhtunkhwa will build resilience against climate vagaries, while poorer desert and rain-fed regions in rural Sindh and Balochistan will succumb to pressures. Rising inequalities can lead to huge regional frictions based on the ever-increasing competition for largely limited resources and livelihood opportunities. The prospect of escalating water disputes is inevitable.

Can Pakistan break this cycle, following the example of several other countries in this region where breakthroughs of science, adaptation in agriculture, energy usage and governance, and economic adaptation took over? Importantly, most, if not all of them, did not also have to contend with the pernicious effect of high population growth rates. The lowering of population growth rates, which is a glaringly neglected national priority, would greatly relieve these pressures and mitigate economic and political threats.

The issue requires immediate policy attention and financing for the implementation of the 2018 Council of Common Interests-endorsed Plan of Action to tackle rapid population growth. The new national narrative on population, which has been approved by religious, political, and civil society leaders, supports maintaining a balance between resources and population numbers. What can be more critical than the need to emphasise the deleterious effects of a large, uncontrollably growing population, which is completely at odds with the natural resources we have? ■

*The writer is Country Director, Population Council, Islamabad.*

PETROL WOES

# Petrol, people and policy

Fahd Ali

The 'tough' and 'bold' decisions that this government was being urged to take are finally here. In fact, 'shock therapy' would be the more appropriate term to describe the government's recent policy decision on withdrawal of subsidies on cooking oil and fuel prices. And, by the looks of it, these will not be the only 'bold' decisions that will be taken in the weeks to come.

I am inclined to think that the announcement may come before the budget is presented in the assembly. Both petrol and diesel still carry a subsidy of around Rs9 and Rs23, respectively. This will have to go as well. Yet, the increase in fuel prices will not stop here. The government may succeed in delaying the announcement of further increases until the passage of the budget, depending on its agreement with the IMF.

The previous PTI government had promised the IMF a petroleum development levy (PDL) and a 17 per cent General Sales Tax (GST) on fuel. If these are announced in the current month, we can expect petrol and diesel prices to fall between Rs280 and Rs285 a liter. Of course, this assumes that international oil prices remain unchanged. If they register a spike in the coming weeks or months, that will have to be passed on as well.

Nepra has also revised the baseline electricity tariff by almost Rs8 per unit, more than a 45 per cent increase in the existing basic tariff. If the international oil prices increase, the tariff will go up again as it usually does under the fuel price adjustment mechanism.

Pakistan's economy is in a tough spot, and the government's standing vis-a-vis the IMF is particularly weak. The current account deficit is likely to reach $15 billion by the end of the current financial year on June 30. This has been the highest in our history and has happened largely due to a $45 billion trade deficit owing to high fuel prices and our continued reliance on importing essential food items and luxury consumer goods.

All of this necessitated going back to the IMF without whose support we would find it extremely difficult, if not impossible, to raise debts internationally. Going to the IMF will save us from a potential default but won't bring any immediate relief. If the Article IV consultations done in February 2022 are anything to go by, the Fund is most likely pushing Pakistan to drastically control both fiscal and external account deficit. On the latter, some pressure will be relieved due to the temporary imports ban, and increases in prices through removal of subsidies, and a possible increase in duties on luxury items in the upcoming budget. The fiscal front will remain a key challenge for this government, especially because FY2022-23 will be election year.

Former finance minister Dr Hafeez Sheikh, speaking at a webinar organized by the Pakistan Institute of Development Economics in May 2022 claimed that Pakistan's fiscal deficit for FY2022 at Rs5000 billion — or nine per cent of our GDP — will be the highest in our history.

Two measures for the short run are important. First, ensuring food security of a country of 230 million through imports of essential food items is a recipe for disaster. This budget must ensure that we move away from this model and provide solid policy prescriptions for making us food secure in the coming few years.

Second, reducing the fiscal deficit would not only demand a reduction in the federal government's expenditure but also a further increase in taxes. This would be challenging given that an 'overheated' economy has to be 'cooled' down.

We must shift the burden of taxation on the rich. This can be done by reintroducing the wealth tax and revising the rates for capital gains and capital value taxes. The last tax, coupled with an upward revision and proper implementation of property taxes, may be necessary to move investments away from the unproductive real estate sector to more productive uses. ■

# Shisper Glacier bursts fourth time

## It is time to increase climate change budget to avert recurring disasters

Aisha Khan

The recent disaster on Shisper Glacier in Hunza Valley should not have come as a shock to the Disaster Management Authority in Gilgit-Baltistan (GB). Rising temperature and accelerated melting go hand in hand.

Pakistan is home to the largest and densest collection of glaciers outside the polar region. This vast reservoir of frozen water is a valuable resource but it can also turn into a looming threat that can unleash hydro-meteorological disasters of mega proportions. This can range from Glacial Lake Outburst Floods (GLOF) to glacier bursts, and riverine to flash floods and landslides.

A glacier burst is different from GLOF. Under this phenomenon, water accumulates under the terminus of the glacier and is not visible. Once the glacier bursts it can fill up again and pose a recurring threat of varying intensity. This is the fourth time the Shisper Glacier has burst. The last two occurrences were in February and June 2020. The GB government has been monitoring the glacier and using its resources to take precautionary measures. But this time, the volume of water and its velocity were fierce and caused more damage than ever before. The most likely cause is the latest heatwave that triggered accelerated melting, resulting in a sudden increase in the meltwater volume.

Heatwaves, changes in precipitation and hydrological imbalances will be the new normal. Scientific modelling of cryospheric behaviour in the Himalaya, Karakoram and Hindu Kush mountains project accelerated melting till 2040 (floods) and reduced snow/glacier melt/ run-off after that (reduced water flows). Both scenarios are fraught with risks and must be addressed using the best available knowledge and science to prepare an anticipatory adaptation plan that can help mitigate losses.

Pakistan received $4 million from the Adaptation Fund and UNDP (2011-2015) to address GLOF-related disasters. This was utilised to address threats from glacial lakes in Bagrot (GB) and Golain (Chitral). The second funding of $37m from the Green Climate Fund (2017-2024) was designed to address nine GLOF projects in Khyber Pakhtunkhwa and 16 in Gilgit-Baltistan. In GB, seven projects were completed in the first phase and an agreement to start work on the remaining nine has just been signed. However, Shisper is not a GLOF event and its massive burst this year should ring alarm bells.

Altogether there are more than 3,000 glacial lakes in Pakistan of which 33 are ranked as high risk and can burst at any time. Similarly, we have 7,253 glaciers of varying lengths and density but have little knowledge about their behaviour and response to climate change. This means more Shisper-like events can happen.

It is not just ironic but potentially dangerous to have such a vast cryopheric space without the capacity for research and monitoring, and not possess the tools for analytical risk assessment to relate the level of risk with preparedness. This knowledge deficit and lack of scientific application in planning, result in delays and ill-conceived projects that don't always meet the technical criteria for designing effective engineering solutions for mitigation.

The National Disaster Risk Management Fund has been unable to fully utilise the $128m that was made available to it by the World Bank in 2020 for ecosystem restoration and $60m for enhancing hydro-meteorological capability. We bemoan our fate as a low emitter and being high on the vulnerability index but do little to show capacity for effective utilization and efficient service delivery when funds are made available to address priority challenges.

After the release of the IPCC's Sixth Assessment Report, it should be clear to everybody that climate change impacts are going to overtake our lives and exacerbate existing vulnerabilities manifold.

In Pakistan, hydro-met disasters will increase in frequency and intensity.

The Ministry of Climate Change needs to reset its agenda and focus on adaptation to reduce vulnerability. The best way to fast-track momentum is to operationalise the Climate Act 2017 and call for a meeting of the Council to identify priority concerns and devise a realistic action plan for implementation.

The ministry also needs to accelerate work on completing the National Adaptation Plan and prepare a strategy for coping with multidimensional threats. The climate crisis will spiral out of control as the planet continues to warm and the greenhouse gases trapped in the atmosphere play out the uncertain impact of this dangerous accumulation.

It is time to increase the budget of the Ministry of Climate Change, equip it with technical human resource and strengthen its capacity for facilitating the provinces to meet their mitigation and adaptation goals and accessing finance and technology. We are running out of time and must act now. ■

*Courtesy Dawn*

# Work resumes on Naulong Dam project

EU Report

Construction of Balochistan's biggest hydropower project, the Naulong Dam, has restarted, according to a report.

The dam will irrigate 47,000 acres of barren land and will provide 4.4MW of electricity. Issues related to the Naulong Dam have been sorted out and under the direction of the Standing Committee on Water Resources, the Federal Board of Revenue (FBR) released Rs 1,916 million for the construction of the Naulong Dam to the Water and Power Development Authority (WAPDA).

The 186-feet high dam has a total storage capacity of 242,452 AFd. Live storage is 200,000 AF. While the annual benefits to agriculture will be Rs 2.017 billion, power Rs 0.413 billion, and fisheries Rs 0.018 billion.

The Naulong Dam will create 23,500 agricultural jobs. It will help protect the catchment areas from the deluge. The dam will irrigate areas near Jhal Magsi, Gandawa, and Khuzdar, which will boost economic activities and strengthen farmer fraternity in the province. ■

# PICTORIAL GLIMPSES



The 27th Pakistan HVACR Expo organised at Lahore has been one of the biggest and most successful events in the history of HVACR Expos in Pakistan. A very positive initiative taken in the 27th Pakistan HVACR expo has been the setting up of a special Made in Pakistan pavilion where the local manufacturers working in the HVACR industry of the country have been given the opportunity to display their products. An expo of this magnitude and with this much volume is bound to attract a significant number of visitors. Exhibitors from all over Pakistan have come together on a single platform to display their latest innovations and technologies being offered in Pakistan.


Islamabad: Pak mission Society organized a seminar on world environment day , a group photo was taken on this occasion. L to R: Fayyaz Gill-Pak Mission Society, Neelam pari-SDG Academy, Jameel Asghar Bhatti, Ammar Jaffri-Founder E Pakistan, Halima Khan-GM Corporate Communication & Marketing NFEH/EU, Aimen from PMS are seen in the picture.

Team Energy Update visited Climate Change & Environment Department Government of Sindh Office. Our Marketing Manager Mr. Mustafa Tahir Presented 16th Anniversary Edition Magazine to Minister Climate Change, Coastal Development and Environment Mr. Muhammad Ismail Rahoo. Managing Editor Energy Update Mr. Naeem Qureshi also seen in the picture.

Islamabad: A ceremony of issuance license of CTBCM was held in the NEPRA HQ on June 6, 2022, to celebrate and handover the market operator licence to CPPA-G


Team Energy Update visited Inverex Head Office. Our Marketing Manager Mr. Mustafa Tahir Presented 16th Anniversary Edition Magazine to CEO Inverex Solar Energy Mr. Zakir Ali. Managing Editor Energy Update Mr. Naeem Qureshi also seen in the picture.


Islamabad: Sustainable development institute of pakistan organized workshop on development of an SDG 7 road map for pakistan

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## NFEH, Arts Council mark World Environment Day

# Wastewater recycling system needed for Karachi: moot told




Wastewater recycling systems should immediately be introduced in Karachi to increase green cover without further depleting the scarce water resource for residents of the city. This was one of the unanimous demands made by the speakers at a moot titled "Climate Change and Our Responsibilities" at the Arts Council of Pakistan (ACP), Karachi, which was organized by National Forum for Health and Environment (NFEH) in collaboration with ACP and EHS Services organised the programme to mark World Environment Day. The speakers, including environmentalists, were of the view that household wastewater could easily be recycled for its use to increase tree cover in the city.

They said that besides wastewater recycling for tree plantation, the city should have a proper mass transit system for catering to the daily commuting needs of Karachiites with minimal harm to its environment. They lamented that the proper mass transit system should have been built in Karachi after its population had exceeded three million, but the same facility was still missing despite the fact that the provincial capital would soon be home to about 30 million people.

Karachi's Administrator, Barrister Murtaza Wahab, who was the chief guest on the occasion, assured that Karachi municipality would try its best to implement all the recommendations of the moot to improve the environment of the city. He lamented that graveyards in Karachi had ample green cover but there was a very lesser number of trees for the living people in the city.

CEO EHS Saquib Ejaz Hussain stressed the need that work should be accelerated to complete the network of bus rapid transit systems in Karachi as it was the first-ever modern mass transit system to control harmful vehicular emissions. He said the wastewater from kitchens and bathrooms of houses in Karachi shouldn't go into the drain as instead it should be recycled for fulfilling water needs for tree plantations.

Senior journalist Afia Salam lamented the situation that Pakistan ranked fifth on the global vulnerability index of the countries most affected by climate change. She said the government should wake up to the situation of rising mercury levels in the urban areas as its response to tackle recurring heat waves shouldn't just be confined to measures like setting up roadside stalls of cold water as a long-term and effective strategy should be adopted to combat the issue of climate change.

NFEH President Naeem Qureshi called for implementations of environmental laws and building bylaws for environment protection and safety of human lives. He appreciated the efforts of Murtaza Wahab for parks development and beautification of the city.

NFEH Secretary-General Ruqiya Naeem briefed about progress of NFEH and reiterated the its resolve to hold more such programs to raise awareness about pressing environmental issues. CEO Medisure Dr Kaiser Waheed, Committee Member Arts of Council of Pakistan Shakil Khan, Dr Raza Gardezi, Shabina Faraz, former MPA Sindh,Mehtab Akbar Rashdi also spoke on the occasion. ■

# PIA, NFEH celebrate World Environment Day

EU REPORT

The rapid transformation of the farmlands nearby cities, particularly that in the vicinity of Karachi, into urban housing schemes has emerged as one of the biggest environmental challenges in Pakistan.

The issue of fast-shrinking farmlands nearby urban centres of the country was raised by the experts who spoke at a programme held at the PIA Model School to mark the World Environment Day being observed every year on June 5. The programme was jointly organized by the PIA and the National Forum for Environment and Health (NFEH).

The speakers lamented that there had been no check on the fast-shrinking green cover nearby the cities due to widespread tree cutting to build new housing schemes and modern civic infrastructure.

Mirza Ishtiaq Baig, the Founding President of the Make-a-Wish Foundation Pakistan, who was the chief guest at the event, said the rapid use of farmlands for building housing facilities had not just created an environmental challenge but also threatened the food security of the country.

PIA General Manager, Welfare and CSR, Shoaib Dahiri, said the national flag carrier was fully committed to the cause of environmental protection and had joined hands with leading non-governmental organisations to plant trees at its offices and establishments across the country. He said the Sindh government should take action against people cutting trees that threaten the existence of riverine and mangrove forests in the province.

Muhammad Shoaib, former Company Secretary of PIA, said that different stakeholders belonging to the government and non-governmental sector should join hands to take emergency measures to save the environment in Pakistan from an utter crash.

Ruqiya Naeem, NFEH Secretary-General, said that Pakistan should carry out developmental activities without causing harm to the environment.

NFEH President, Muhammad Naeem Qureshi, lamented that hundreds of fully grown trees had been recently cut down to make the way for building the corridor of the Red Line section of the BRTS service in Karachi. He demanded that the proponents of such projects aimed at building urban civic infrastructure in Karachi should be bound to plant 10 new saplings to compensate for the loss of every single tree due to the new construction.

He said that a criminal case should be lodged against people involved in tree cutting in the urban areas for their personal gains.

Students of the PIA Model School made speeches and presented tableaus to highlight the environmental degradation issue.

Musaddiq Aziz, Resource Mobilization Head of the non-profit Green Crescent Trust and NFEH Vice-President, Nadeem Ashra also spoke on the occasion.

Tree plantation was also conducted on the occasion.

# Trina Solar

## receives LCA Certificate for low carbon life cycle of Vertex 210 Modules


CHANGZHOU- TÜV Rheinland has awarded Trina Solar the life cycle assessment (LCA) certificate for its Vertex modules, which incorporate 210mm diameter solar cells.

It means Trina Solar has become the first solar company to receive LCA certification for modules that use 210mm diameter solar cells.

With the advantage of 210mm cells, the Vertex modules achieve industry leading low carbon emissions.

Since Trina Solar was founded 25 years ago, it has been both a promoter of green energy and a practitioner of green development. The company provides clean electricity through photovoltaic modules and is committed to making its manufacturing processes green and low-carbon.

# Matiltan power project to complete next year

Secretary Energy and Electronics Syed Imtiaz Hussain Shah has said that timely completion of energy projects was a big challenge and the 84MW Matiltan Hydropower Project would be completed in 2023. He said this during a review meeting regarding Matiltan hydropower project. He said that the Department of Energy, through its subsidiary PEDO, was working on several hydropower projects in Swat, of which 37MW Daral Khuar Power House had been successfully completed, while Matiltan Hydropower Project would complete in 2023, while 88MW Gabral Kalam Hydropower Project and 157MW Madain Hydropower Project would be completed in 2027. With the South Korean government company, 238MW Kalam Ashrait and 229MW Ashrait Kedam hydropower projects would be started soon in Swat district, he added. He was accompanied by Chief Executive PEDO Engineer Naeem Khan and other senior officers of the company. ■

# Fixing water and climate change nexus

## Pakistan among top 15 extreme water-stressed countries

Abdul Rehman Cheema

Pakistan is inherently a water-dependent country. The country's water and climate policy nexus is mired in deep, endemic and systemic challenges, most notably poor governance.

In practice, Pakistan has historically relied upon structural, infrastructural and engineering solutions. However, Pakistan's climate change and water security challenges have a much larger domain than merely technical or infrastructure issues.

Water governance involves a set of political, administrative and institutional policies, processes, and practices that enable decision making and their implementation after extensive consideration of stakeholders' concerns and holding the decision-makers accountable for water management.

Governance holds the key to addressing most of the climate-water issues though Pakistan has ignored the role of good governance in addressing most of its natural resource problems. The Indus River Basin System receives more than 70pc of its water from the melting of glaciers located in the Hindukush-Karakoram-Himalaya

The major governance challenges are political disinterest in issues like climate change and water management, absence of robust policies, lack of effective institutional frameworks, ineffective engagement of stakeholders, lack of data and poor service delivery. One of the major pathways to addressing the water and climate policy nexus is by addressing the usage of freshwater for agriculture in Pakistan. This issue must be seen from the lens of economic water security.

Agricultural water governance can significantly help in the sustainable use of economically scarce water resources to contribute to food and water security. This is easier said than done as agriculture uses around 88–92 per cent of the available water resources.

It contributes 19.5pc to the national GDP, employs over 42pc of the labour force, provides the raw material for about 30pc of its industry and is the largest source of foreign exchange earnings in Pakistan.

However, at the cost of providing fresh water to agriculture, Pakistan's rising urbanisation population faces acute issues of meeting their water demands, hygiene services, domestic water supply and sanitation facilities.

To address this trade-off, Pakistan must leverage non-tradition water management and governance pathways that involve active engagement of stakeholders through participatory development, including public and private institutions for disaster management and mitigation of extreme weather losses.

The government of Pakistan has expressed its strong commitment to adopting the global Sustainable Development Goals (SDGs) as a national agenda, both at the federal as well as provincial levels. Within this framework, the achievement of food security is emphasised as a top priority for Pakistan, with the commitment to pursue the goal of "ending hunger, achieving food security and improved nutrition and promoting sustainable agriculture" (SDG 2) and the related targets.

Despite a strong agricultural base, the country fares poorly concerning indicators of food security. Despite net food surpluses, Pakistan has been facing a paradox of widespread food insecurity and malnutrition.

Globally, Pakistan ranks among the top 15 extreme water-stressed countries in the world. Climate change has exposed the geographic, economic, social, and environmental vulnerabilities of the water sector in Pakistan.

The Indus River Basin System (IRBS) — a complex hydrologic system — receives more than 70pc of its water from the melting of glaciers located in the Hindu Kush Karakoram Himalaya (HKKH).Given the significant vulnerability of the Indus Basin to climate change, integrated river basin management by ensuring climate resilience is the most significant governance area for sustainable management of the IRBS in Pakistan.

Political leadership is pivotal to address multiple governance problems confronting integration, regulation, coordination, trust-building, transboundary collaboration and stakeholder engagement for tackling water-climate issues. Primarily, the lack of high-level political commitment and visionary leadership has remained one of the significant reasons for the poor performance of the climate and water sectors in Pakistan.

Here is a silver lining of working with the political leadership through evidence-based advocacy and active engagement with all stakeholders. With the new government in place, this should be a priority area to be worked upon. ■

*The writer is an economist and development practitioner based in Islamabad.*
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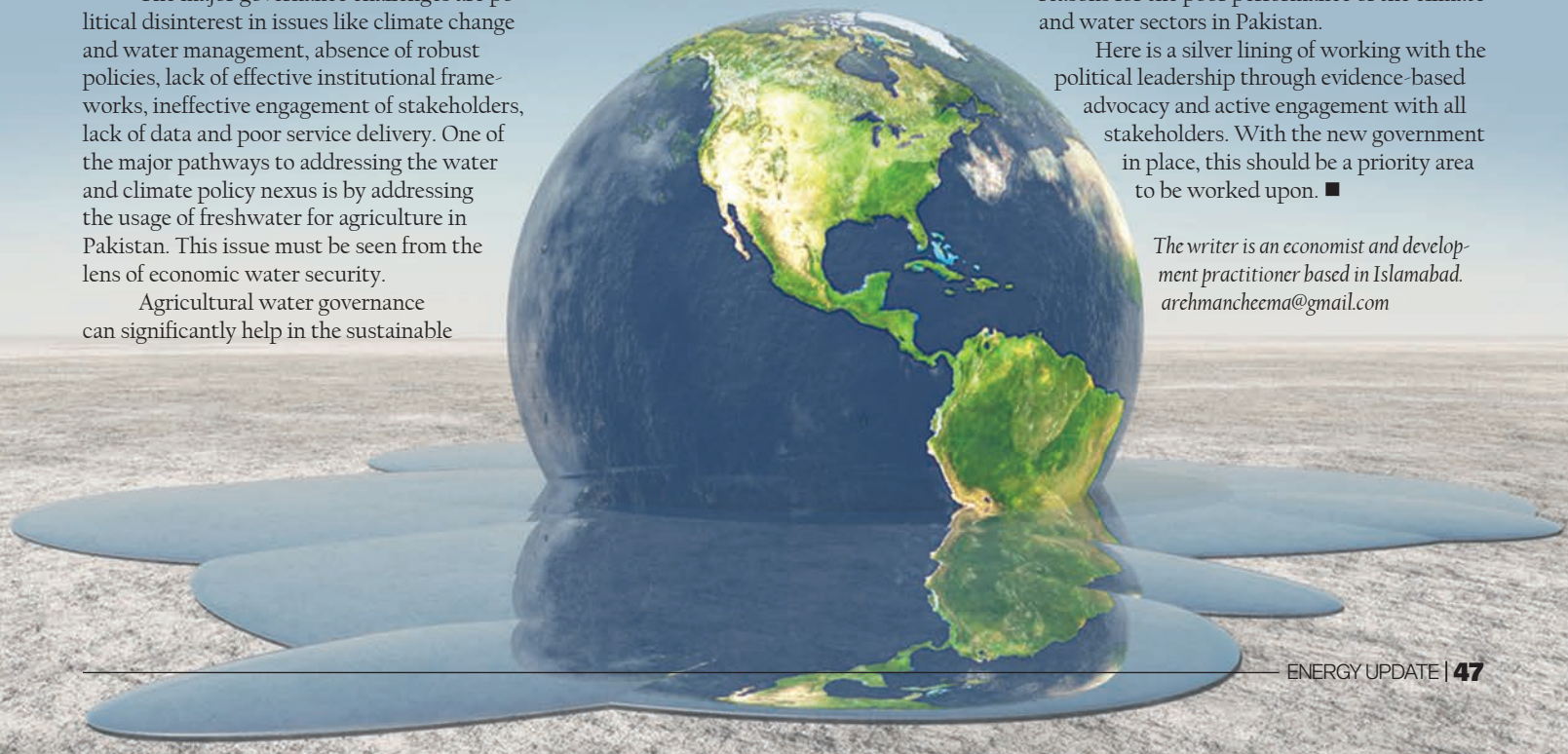
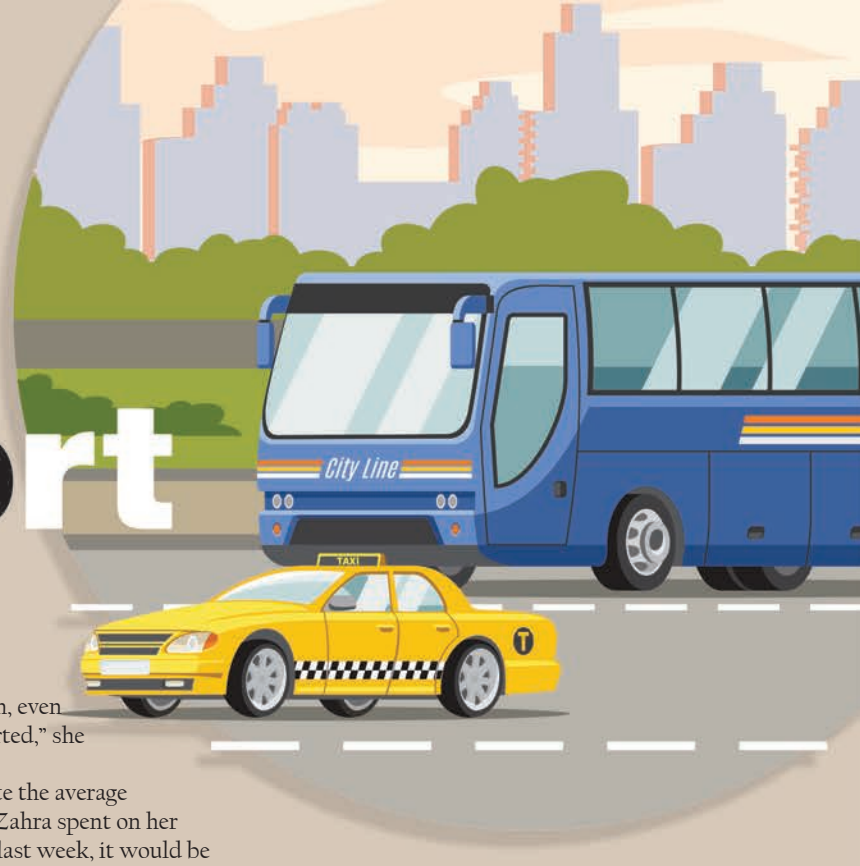


# Karachi women deprived of safe transport

## Oil price hike compels Swvl to pause daily operations




Muzhira Amin

Until a few days ago, Zahra Zulfiqar was dealing with home, work, and studies all together like a superwoman. She was helping her mother run the house, submitting all her assignments on time, and gliding towards the dream of opening her own media agency one day.

But the 21-year-old's difficult yet steady pace in life screeched to a halt, dangling to the edge of sabotage, after the government announced yet another increase in the prices of petroleum products. Zahra wanted to reach her goals as soon as possible. Unfortunately, that required fuel, which is way out of the reach of the lay person now.

She is among millions of Pakistanis who have been affected by the exorbitant hike in petrol prices. She is also one of the tens of thousands of women who are now directly in the face of a financial crunch as mobility for them becomes harder and more expensive.

A day after the government decided to drop the second "petrol bomb", an increase of another Rs30 within a week, Swvl — a popular bus sharing service — decided to pause its daily operations in Karachi, Lahore, Islamabad, and Faisalabad in view of the "global economic downturn".

The move, which may seem normal for a start-up like Swvl, came as a shock to women in Karachi, many of whom had come to rely heavily on the service for their everyday commute. Zahra is one of these women who used the pink buses to travel between work, home, and college. She said the bus arrived on the road adjacent to my house ... so it just took me a five-minute pedestrian bridge walk to reach the vehicle."

The ride cost her between Rs130 and Rs145. "After my classes ended at 3pm, I would easily grab a Swvl from the university's bus stop or the Silver Jubilee gate and reach my office in time. Often, even before my shift started," she said.

If we calculate the average amount of money, Zahra spent on her daily commute till last week, it would be somewhere around Rs400. This came with the added perks of comfortable air-conditioned bus, no harassment, and security.

Laxmi, a household employee working at a bungalow in Defence, has a similar story. The 40-year-old resident of Soldier Bazaar, a locality in southern Karachi, took a 26-minute ride from her home to work every day which cost her somewhere between Rs50 and Rs150.

According to a study conducted by Shehri, an NGO focused on highlighting urban planning issues in Karachi, women are more dependent on public transport compared to men and 30 per cent more likely to use buses or wagons.

"This is in part because other options, such as riding independently on a motorcycle or bicycles (common transport modes for men), are taboo for women. Hence, men are 70pc more likely than women to travel in these private transport modes," it stated.

In another study conducted by the Institute of Business Administration (IBA) and Habib University, 58pc of women in blue-collar jobs and 83pc of students used mini-buses as their primary mode of transport, while 43pc of women in white-collar jobs reported using rickshaws for their daily travel.

Another mode of transport, the research pointed out, used by a growing number of women is the bike-rickshaws. However, despite these glaring statistics that reveal that a higher percentage of women are using public transport, no meaningful steps are being taken to improve the morbid situation of mass transit in Karachi, especially for women.

According to the Asian Development Bank, almost 40pc of women avoid traveling after dark in Pakistan, severely limiting their opportunities for further education or social life. Separately, another research by the Aurat Foundation — an NGO working against violence targeting women — revealed that of the 85pc of the women who commute for work or education, 15pc are forced to stay at home due to harassment.

Hurmat Majid, a faculty member at the NED University, said that her daily expenses were cut from Rs1,600 to Rs400 after she started using Swvl. The amount she paid for her commute through the pink buses was a quarter of the cost of alternative options, primarily Careem.

"With the announcement of the service being shut down, my budget is suddenly all over the place. My options are to either spend Rs1,600 every time I go teach or to drag my husband and two-year-old out of bed at seven in the morning to drop me, spend three hours doing God knows what somewhere near the university and then pick me back up," she said.

For working class women in Karachi, access to the city is only possible by public transport. A 2015 ADP study found that a lack of safe transport was one of the key reasons for women's lower participation in the labour force, particularly in developing countries and cities not served by efficient public transport.

"For many women, labour force participation translated into financial empowerment. Moreover, public transportation is the cheapest form of transport within the city, thus enabling women to save money," the report stated.

When women lose the ease to freely move in the city, the loss is not just incurred by them but also the economy. It also negatively affects their productive role and participation in the public sphere. ■

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ENERGY UPDATE

ENGINEERING POST

# The state of the economy

## Country facing menace of twin deficits

Dr Abid Qaiyum Suleri

The good news is that, as per the national accounts committee's numbers, the provisional GDP growth rate for the current fiscal year (2021-22) is 5.97 per cent. The bad news is that, despite this healthy growth, Pakistan is once again facing the menace of twin deficits – dollars deficit (current account deficit, CAD) and rupee deficit (fiscal deficit).

This is not the first time that Pakistan finds itself in an economic mess despite healthy growth. One may argue that economic growth (an increase of per capita income) of five-plus percentage points for 2-3 consecutive years ends up overheating Pakistan's economy. Such overheating turns its CAD unsustainable, resulting in a boom and bust cycle.

To set the context right, we should remember that 95 per cent of Pakistan's growth is consumption-led, resulting in low savings and low investment-to-GDP ratio. Eighty-six per cent of consumption comes from households, making them highly vulnerable to any shock or reduced supply of resources. And finally, more than ninety per cent of Pakistan's growth is imports based, increasing its CAD.

The above partly explains the context of the economic turmoil we face today. For the last two months, we have seen a blame game on the economic situation in Pakistan. The current government criticizes the PTI government for providing 'unfunded' subsidies on fuel, and the PTI decries incumbents' indecisiveness and economic mismanagement. This argument leads to inaction, which does not help curtail the CAD.

An increase in CAD requires export earnings, increased remittances, foreign investment, or loans to bridge the dollar gap. Our exports and remittances are already at a record high. We don't seem to be an investment hub, at least in the near future, primarily due to geostrategic reasons and our inherent flaws. Hence external financing is the only pragmatic solution in the short run to avoid CAD.


For a government entering into election mode a few months down the road, it is not easy to make unpopular decisions. Fortunately, the IMF gives a cushion to provide targeted subsidies. Availing of this cushion, the government has announced to pay 14 million households a lump sum of Rs2000 per month. This one-off payment aims to reduce the impact of oil price hikes on low and low-middle income earners. This subsidy would be disbursed through the Benazir Income Support Programme (BISP), which uses a proxy mean test (PMT) to assess households' eligibility for social safety-net benefits. The higher the PMT of a household, the more well-off it is considered. The eight million existing BISP beneficiaries have a PMT of less than 30. For petrol-related payments, that threshold is increased to 37, covering an additional six million households with an average monthly income below Rs35000. Compared to the previous government's subsidy on petrol and diesel, which cost four times more (Rs113 billion) just in the month of April, the current government's subsidy of Rs28 billion looks pretty nominal.

The UN has warned of an 'unprecedented global food shortage, famine, destabilization of nations, and migration that could last for years'. To meet any shortfall in local production, Pakistan used to import wheat from Ukraine or Russia. The wheat from Ukraine has become inaccessible and from Russia untouchable. Hence, there is not only a shortage of supply of wheat in the international market, but it has also become expensive (63 per cent increase in price during the last five months). This would turn our three million tons of imports expensive, raising the flour price in the domestic market. Low domestic prices of local produce add more incentive for wheat and wheat flour smugglers. The government needs to be mindful of it to keep the wheat flour prices stable.

Likewise, the prices of edible oil and fertilizers have increased manifold in the global markets due to the Ukraine war (Ukraine and Russia supply 75 per cent of the sunflower oil globally, and Russia is the largest exporter of phosphate and potash fertilizers worldwide). Imports of these commodities will pinch Pakistani consumers and the government for the next couple of years.

In the abovementioned context, taking fiscal consolidation measures (tough economic decisions) and winning back the trust of the IMF are important for our macroeconomic stability. The IMF will remain relevant for us until our economic growth remains import-led and consumption-based. Unfortunately, we don't have economic narratives of political parties. We have economic narratives of government and opposition. The parties in opposition come up with the same narrative against the government that the parties in government had when they were in opposition and vice-versa. To improve the quality and composition of our economic growth, this game of musical chairs of economic narratives must end as it leads to a lose-lose situation.

In the short term, a win-win situation can emerge from the current situation if all political parties (irrespective of whether they are in government or opposition) support the tough economic decisions taken by this government (or provide practical alternatives to those decisions). Any party confident of making government after the next elections should contribute to achieving macroeconomic stability today, as it would be the biggest beneficiary of such stability.

In the medium term, all political parties should start preparing an economic growth roadmap, to be part of their manifestos, which they will be pursuing to skip the boom and bust cycle. ■

*The writer heads the Sustainable Development Policy Institute.*

# Austerity begins at home


Naeem Sadiq

Pakistan is faced with a deeply disconcerting, polarised and hostile political situation. Hijacked by its own elite, it is on the brink of moral and financial bankruptcy. Devoid of all considerations for the wellbeing of ordinary citizens, Pakistan's political conflict is essentially a struggle between powerful political families to capture state resources, power and pelf. Pakistan's life-threatening political and financial affliction can be cured only by creating a more equal society, introducing exceptionally stringent austerity measures and withdrawing the disproportionate and unethical perks and privileges of our 'entitled' elite. Thus one is left with no option but to approach the Honourable Chief Justice, the highest echelon of accountability in Pakistan, to invoke Article 38 of the Constitution and order the following austerity measures.

Fuel being the biggest import burden ($20 billion a year), we ought to begin by withdrawing approximately 150,000 government cars being (mis)used by officials across Pakistan. A near bankrupt country like Pakistan can learn from the UK where only 83 cars are maintained in a central pool for all government ministries. Next we ought to withdraw entitlements of fuel allowances for every politician, judge and bureaucrat — civil or military. Currently, the fuel authorisations begin from 60 litres per month for junior bureaucrats and go up to 600 litres per month for the senior ones. This action alone translates into a saving of Rs50 billion each year. Similarly eliminating all air conditioners and TV sets in government offices could save electricity, wasted time and energy bills worth Rs10 billion per year. A four-day work week could bring additional 15% saving on all government utility expenses.

Pakistan violates Article 38(a) of the Constitution by purposely promoting extreme inequality. While it pays a salary of Rs2.5 million per month to the SBP Governor and Rs1.3 million to the top judge, it refuses to pay even the federal minimum wage of Rs25,000 to 90% of its entire workforce. Only in Pakistan will a top official receive a monthly pension of Rs700,000, while 90% workers in the country will not get a single penny, for they are not even enrolled in EOBI.

Sadly even those enrolled will get a measly pension of Rs8,500 per month. Our only option is to dismantle this cruel and discriminatory system by following the footsteps of the DG Punjab Organ Transplant Authority, who has become a role-model by voluntarily reducing his salary package of Rs1 million to half. May I be permitted to appeal to the Honourable Chief Justice to order that the salary and pension of all judges, parliamentarians, ministers and all Grade 17 and above civil and military officials be reduced to half. The honourable judiciary can be the torchbearer for a prosperous Pakistan by initiating austerity at home.

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## Presentation at IEEEP Fair 2022

# Baig Group chief suggests guidelines for energy conservation

Dr Mirza Ikhtiar Baig, Chairman Baig Group and former SVP of FPCCI, has said that the industries through due corrective measures should play their due part to achieve the goal of energy conservation in Pakistan.

For this purpose, he suggested following steps for the industries in his presentation at the IEEEP Fair 2022 held recently at a hotel in Karachi: ensure safe electricity distribution system, optimise tariff structure with utility supplier, schedule operations to maintain a high load factor, shift loads to off-peak times if possible, minimise maximum demand by tripping loads through a demand controller, stagger start-uptimes for equipment with large starting currents to minimize load peaking, and use standby electric generation equipment for on-peak high load periods.

He further suggested to correct power factor to at least 0.90 under rated load conditions; relocate transformers close to main loads, set transformer taps to optimum settings, disconnect primary power to transformers that do not serve any active loads, consider on-site electric generation or cogeneration, export power to grid if you have any surplus in your captive generation, check utility electric meter with your own meter, shut off unnecessary computers, printers, and copiers at night.

Mr Baig further said that ensure properly size to the load for optimum efficiency (high efficiency motors offer of 4 - 5% higher efficiency than standard motors). He also stressed the need to use energy-efficient motors where economical, use synchronous motors to improve power factor, check alignment, provide proper ventilation, conduct checks for under-voltage and over-voltage conditions, and balance three-phase power supply (an imbalanced voltage can reduce 3-5% in motor input power)

He advised drivers to ensure variable-speed drives for large variable loads, use high-efficiency gear sets, ensure precision alignment, check belt tension regularly, eliminate variable-pitch pulleys, use flat belts as alternatives to v-belts, use synthetic lubricants for large gearboxes, eliminate eddy current couplings and shut them off when not needed.

For fans, he suggested to use smooth, well-rounded air inlet cones for fan air intakes; avoid poor flow distribution at the fan inlet, minimize fan inlet and outlet obstructions; clean screens, filters, and fan blades regularly; use aero foil-shaped fan blades, minimize fan speed, use low-slip or flat belts, check belt tension regularly, eliminate variable pitch pulleys, use variable speed drives for large variable fan loads, use energy-efficient motors for continuous or near-continuous operation, eliminate leaks in ductwork, minimise bends in ductwork, turn fans off when not needed.

Talking about blowers, Mr Baig advised to use smooth, well-rounded air inlet ducts or cones for air intakes; minimize blower inlet and outlet obstructions, clean screens and filters regularly, minimize blower speed, use low-slip or no-slip belts, check belt tension regularly, eliminate variable pitch pulleys, use variables peed drives for large variable blower loads, use energy-efficient motors for continuous or near-continuous operation, eliminate ductwork leaks, and turn blowers off when they are not needed.

For pumps, he suggested: operate pumping near best efficiency point, modify pumping to minimize throttling, adapt to wide load variation with variable speed drives or sequenced control of smaller units, stop running both pumps -- add an auto-start for an on-line spare or add a booster pump in the problem area, use booster pumps for small loads requiring higher pressures, increase fluid temperature differentials to reduce pumping rates, repair seals and packing to minimize water waste, balance the system to minimize flows and reduce pump power requirements and use siphon effect to advantage: don't waste pumping head with a free-fall (gravity)return.

For compressors, the Chairman Baig Group said that ensure variable speed drive for variable load on positive displacement compressors, use a synthetic lubricant if the compressor manufacturer permits it, be sure lubricating oil temperature is not too high (oil degradation and lowered viscosity) and not too low (condensation contamination), change the oil filter regularly, periodically inspect compressor intercoolers for proper functioning, use waste heat from a very large compressor to power an absorption chiller or preheat process or utility feeds, establish a compressor efficiency-maintenance program, start with an energy audit and follow-up, and then make a compressor efficiency-maintenance program a part of your continuous energy management program. ■

**Federal minister for power Engr Khurram Dastgir Khan held a meeting with Minister of energy Sindh Imtiaz Sheikh**

It is decided to create a working group between federal and Sindh Government to determine modalities of provincialization of HESCO and SEPCO.It is very unfortunate that the inability of previous government to even add 1 Megawatt of electricity in the system has pushed the country into this crisis. Government has decided to shift imported coal-based plant on Thar coal. Sindh energy minister assured full cooperation in Thar power generation. Federal minister for power reiterated that Allah has blessed Pakistan with Thar coal and we must harness its potential. Reliance on imported fuel for power generation is not sustainable. Further hybrid plants on wind power will also be added. Federal Secretary power Rashid Langrial, CEO AEDB Shahjahan, Secretary power Sindh, Member Thar coal energy board were present in the meeting.


# PCI, SDPI launch green alliance for CPEC - EU Report

Pakistan-China Institute (PCI) in collaboration with Sustainable Development Policy Institute (SDPI) hosted the launching ceremony and the inception meeting of the first-of-its-kind "Green China Pakistan Economic Corridor (CPEC) Alliance". The goal of the establishment of the Green CPEC Alliance with members from both countries' governments, investors, as well as civil society, and environmental experts, is to support, accelerate and promote this transition within Pakistan and the Belt and Road Initiative (BRI).

The alliance aims to green and decarbonize CPEC by supporting a re-direction of Chinese infrastructure investments away from emission-intensive investments and towards green infrastructure projects, e.g., from coal to renewable energy, like wind, solar and hydropower.

Chairman Pakistan-China Institute Senator Mushahid Hussain Sayed, in his welcome remarks expressed great pleasure and felt it integral to press upon the urgency of the climate change situation in the world by arguing to prioritize the need for a green Pakistan, including redefining the notion of national security from a military-centric approach to human security, cantering on climate change, population planning, food security and water scarcity.

Acting Ambassador of the People's Republic of China in Pakistan Pang Chunxue emphasized Chinese initiatives like the International Green Development Coalition which have to their roots the objective of ensuring that all Chinese investments that are part of the Belt and Road Initiative are made green. She expressed China's desire to continue efforts that will help make the CPEC and the BRI green and sustainable for the country.

Muhammad Aurangzeb, CEO of Habib Bank Limited (HBL), appreciated the uniqueness of the initiative launched by the Pakistan-China Institute and Sustainable Development Policy Institute. He said that HBL is closely linked with CPEC projects in their financing as well as structuring. Commenting on CPEC Phase 2, he remarked that the second phase is all about building further on the first phase of the project which has improved transport infrastructure and alleviated the energy crisis in Pakistan.
In her closing remarks, Senator Seemin Ezdi, Chairperson of the Senate Committee on Climate Change, said that Pakistan contributes less than 1pc to climate change but is the 8th most affected country in the world. It is the need of the hour, she maintained, to plan for the future since it is the issue that affects the whole of humanity, not only the countries responsible for it. Moreover, she expressed happiness with China's desire to pursue green development through CPEC.

# Blanket removal of energy subsidies flayed

As Pakistan seeks yet another International Monetary Fund (IMF) bailout package, a civil society group has asked the global lender to support green financing solutions in Pakistan as well as debt-for-nature swaps to break the cycle of its debts that the country is trapped in over years.

In a letter written to the IMF, Alliance for Climate Justice & Clean Energy, a coalition of civil society organizations working on energy transition in Pakistan, raised their concerns about the ongoing IMF-government talks regarding the energy sector reforms and energy pricing mechanisms. ACJCE shared the details of the letter in a virtual media briefing.

Speaking to the audience, senior journalist Badar Alam said that the IMF's insistence on a blanket removal of energy subsidies would leave the poorer and marginalized sections of the society worse off. "IMF's method of removing these subsidies without first consulting the civil society, people's representatives and Pakistan-based researchers through a multi-stakeholder dialogue will only create more problems by increasing inflation and unemployment."

Badar added that the government will also face a serious credibility crisis if it agrees to the IMF's conditionalities without taking the people into confidence. "If [government] is in the interest of strengthening democracy in Pakistan, then all dealings with the IMF should be made public, discussed thoroughly and then implemented after proper safety nets have been provided to those who are at the losing end of the policies that emerge out of these dealings," he added.

# Loadshedding will continue for 2-3 months: minister

The ongoing loadshedding will continue for the next 2-3 months till the fiscal constraints of the government are done away with, Federal Minister for Power Division Khurram Dastgir Khan said.

"We have made all the power plants operational, which were non-functional for lack of maintenance and fuel in the wake of no decision making and bad governance by the ex-PTI government." However, the minister disclosed that the incumbent government is now facing fiscal constraints that have virtually forced the Power Division to scale down import of fuel for power generation. He argued that unless and until the inflows of dollars are improved, it is not possible for the government to make power plants fully operational to end the ongoing power outages.

"No doubt, we are equipped with the capacity to end the power outages, but fiscal constraints have emerged as an obstacle in the way of import of fuel required to run the power plants at their full capacity." "The government will keep passing loadshedding on the power-end consumers at a bearable level unless the foreign exchange reserves are improved to a satisfactory level."

However, the minister maintained that the government is currently focusing on running the most efficient plants in the country to reduce loadshedding, which include four RLNG based power plants. "The fourth RLNG based power plant at Trimmu is also being provided gas for testing purposes. Right now, 800mmcfd RLNG is being provided to the power sector for power generation."

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