

MONTHLY

ISSN 2309-6578

ENERGY UPDATE

May 2023



THE LIFE GIVING DAMS

SOLARIZATION PLAN OF PDM GOVERNMENT

ENERGY EFFICIENCY AND CONSERVATION INITIATIVES

SINDH'S MOVE TO ESTABLISH POWER REGULATORY AUTHORITY

ENCAP
BEYOND BATTERIES



BEYOND BATTERIES

Encapsulated Capacitor Technology
Using a hybrid of Solid State and Graphene

THE WORLD'S MOST
ADVANCE ENERGY STORAGE



DOMESTIC APPLICATION

INDUSTRIAL APPLICATION

INFRASTRUCTURE APPLICATION

MICROGRID APPLICATION

WWW.ENCAP.ENERGY

Chaos is a Ladder: Integrate Energy and Environment into Economic Policy

—◆ Dr Khalid Waleed ◆—

Petyr Baelish in 'Game of Thrones' famously defined chaos in the following way: "Chaos isn't a pit. Chaos is a ladder. Many who try to climb it fail and never get to try it again. The fall breaks them. And some are given a chance to climb".

Physics defines chaos as "the property of a complex system whose behavior is so unpredictable as to appear random, owing to great sensitivity to small changes in conditions." Chaos in Pakistan is exceedingly intricate and multifaceted. The nature of multifaceted chaos revolves around 3Es.

These 3Es are (Political) Economy, Energy, and Environment. The relationship among these 3Es is such that we are stuck in a vicious cycle, where economic turmoil refrains us from making long-term sustainable decisions, which results in inefficient planning in energy and the environment.

This ineffective planning in energy and the environment makes us vulnerable in terms of the economy, and the cycle continues. Currently, Pakistan is facing dollar outflow, rising debt, and chances of economic default as many prominent credit agencies like Finch and Moody's have downgraded our credit ratings.

Consequently, we cannot play with the Ponzi schemes anymore. The debts are expensive for us, and finding creditors is getting tougher and tougher. Thus, the time is ripe or, I would say, it is do or die for us to steer the ship out of these chaotic waters.

In Lord Baelish's words, "some are given

a chance to climb". Pakistan is also given a chance to climb the ladder and escape this chaos. This article explores two conventional ways to enhance the energy transition and increase the dollar's inflow in the economy, which is the lynchpin to the solution to our economic problems. So, that energy transition can be made part of economic policy.

One is the supply-side solution through climate diplomacy, and the second is demand-side management in the transport sector for green development and energy transition. Firstly, in climate diplomacy, our foreign corps is required to promote the global drive to address the issue of climate injustice, whereby some countries are facing disproportionate adversities due to climate change.

Pakistan has recently faced floods caused by changing weather patterns, resulting in thousands of deaths and billions of dollars in damage. Effective diplomatic efforts can leverage climate financing initiatives such as the Green Climate Fund (GCF), established by the United Nations Framework Convention on Climate (UNFCCC), Just Energy Transition Partnerships (JETPs), the Asian Development Bank's Energy Transition Mechanism (ETM), and the Bridgetown initiative.

These initiatives provide financially constrained nations with a "big push" to break the vicious cycle of energy poverty and a struggling economy. The initial JETP was established during COP 26 in Glasgow, where France, Germany, the United Kingdom, the United States, and the European Union pledged USD 8.5 billion in funding to South Africa for an energy transition to renewable sources from fossil fuels. Secondly, there is a need to understand the

long-term viability and sustainability of energy transition through the transformation of the transport sector in Pakistan in terms of changing the behavior of the public. About 86% of the total petroleum products are consumed in the transportation sector, which amounts to around \$1 billion per month. If we save about 30% each month, we can save \$300 million per month and \$3.6 billion annually.

To achieve this, we can implement the following practical steps:

Short-term Solutions: The first and foremost solution in this regard is the effective and efficient use of the Mass Transit System. Transit trains are the most efficient mode of transportation. Mass transit systems can increase efficiency by 280% compared to cars. The second one is to encourage the culture of carpooling. Carpooling calls for optimal use of seating capacity in cars, so, one person in one car is discouraged. Carpooling can increase fuel efficiency from 18 PKML for a car with a single person to 57 PKML.

The third solution to reduce the fuel demand is to comply with fuel economy standards. Simply, complying with fuel economy standards can potentially increase fuel efficiency by 10%, which needs regular and proper maintenance of engines. The fourth solution as short-run solution to effectively manage demand is to slow down the vehicles on highways. For instance, cars running at 120 km per hour consume almost 20% more fuel than cars running at 100 km per hour.

Lastly, work-from-home policy: The COVID-19 lockdowns reduced the demand for transportation fuels, which resulted in a significant reduction in import bills. The work-



Pakistan buys its first cargo of discounted Russian crude oil

—◆ EU Report —◆

Pakistan has made its first order for discounted Russian crude oil and a shipment is scheduled to arrive at Karachi port in May, according to a new agreement between Islamabad and Moscow.

In addition China and India, Russia now has a new market for its crude this allows Moscow to divert volume from western markets where its oil has been prohibited following the crisis in Ukraine. Discounted crude provides Pakistan, which is already struggling financially due to a balance of payments problem and dangerously low foreign exchange reserves, with much-needed relief. The vast majority of the country's foreign payments are made for energy imports. According to statistics from analytics company Kpler, Pakistan imported 154,000 barrels of oil per day in 2022, which was essentially flat from the previous year. Saudi Arabia, the biggest exporter in the world, and the United Arab Emirates provided the majority of the crude.

There may be a significant decline in Middle East suppliers to Pakistan if Russian crude production were to hit 100,000 barrels per day.

Fossil fuel consumption subsidies worldwide soar

—◆ EU Report —◆

Fossil fuel consumption subsidies worldwide soared in 2022, rising above USD 1 trillion for the first time, according to new IEA estimates, as turmoil in energy markets sent fuel prices in international markets well above what was actually paid by many consumers. Last year's record subsidies – amid the global energy crisis triggered by Russia's invasion of Ukraine – were double their 2021 levels, which were already almost five times those seen in 2020.

These escalating outlays were in sharp contrast with the Glasgow Climate Pact, which in November 2021 called on countries to “phase-out inefficient fossil fuel subsidies, while providing targeted support to the poorest and most vulnerable”. Our analysis shows that many of these government measures were not well targeted, and while they may have partially protected customers from skyrocketing costs, they artificially maintained fossil fuels' competitiveness versus low-emissions alternatives.

For many years, the IEA has monitored subsidies for fossil fuels, evaluating situations in which consumers pay less than the market price of the fuel itself. According to our preliminary estimates for 2022, oil subsidies increased by around 85% while natural gas and electricity consumption subsidies more than doubled. As noted in the World Energy Outlook, high fossil fuel prices were the main reason for upward pressure on global electricity prices, accounting for 90% of the rise in the average costs of electricity generation worldwide (natural gas alone for more than 50%).

from-home policy can be a beneficial option. The short-term solution can positively provide much-needed relief to the economy and will also provide the much-needed financial space so that we can aim for long-term solutions in terms of the energy transition. These long-term initiatives include the introduction of electric vehicles (EVs). EVs can effectively replace fossil-fuel-powered vehicles and help reduce import bills.

Furthermore, alternative transportation fuels such as green hydrogen can be explored. Hydrogen is acquired by renewable electricity through the process of electrolysis of water. Globally, there is a renewed focus on the development of hydrogen-powered vehicles. Green hydrogen can be a more sustainable solution for the transportation sector. Hydrogen requires a combustion engine and provides a longer range than EVs. However, there are infrastructural limitations, technology transfer, and financial bottlenecks associated with hydrogen vehicles.

Although there are positive developments in China in terms of hydrogen vehicle production, this option seems more futuristic than EVs. There is a huge potential in Pakistan to learn from the best practices in this regard from China to develop hydrogen as a heating and transportation fuel in Pakistan. The concept of chaos is multifaceted, and while it may be defined differently by various disciplines, it remains a challenging phenomenon to deal with.

In the context of Pakistan, chaos can be defined through the 3Es - Political Economy, Energy, and Environment - and the interrelationship among them that puts the country in a vicious cycle. This cycle continues with economic turmoil

leading to inefficient planning in energy and environment, which in turn makes the economy more vulnerable. To steer out of this chaos, Pakistan needs to enhance its energy transition and increase the inflow of dollars into the economy.

Two conventional ways of achieving this are through climate diplomacy and demand-side management in the transport sector for green development and energy transition. Climate diplomacy can leverage climate financing initiatives to provide financially constrained nations with a big push for energy poverty and a bad economy.

On the other hand, demand-side management in the transport sector involves practical steps, such as the effective and efficient use of mass transit systems, encouraging the culture of carpooling, complying with fuel economy standards, and slowing down vehicles on highways.

With these steps, Pakistan can make energy transition a part of its economic policy and eventually break the vicious cycle of energy poverty and a bad economy. The current time is favorable for Pakistan to do so, given the world's increased attention to climate change and the need for a sustainable energy transition.

By taking advantage of this opportunity, Pakistan can climb the ladder out of the chaos and achieve economic recovery through an energy transition. Moreover, demand-side management may be a more effective measure than the announcement of the provision of subsidies to fuels for poor segments. Although subsidies will provide a cushion in the long run, effective demand-side management and financing of renewable energy will help us in finding a sustainable ladder to chaos in Pakistan. ■

