

Renewable Energy Is No Longer a Choice - It's A Global Necessity.

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Int The Essay.

"Fossil fuels are running out of road. The sun is rising on a clean energy age. Just follow the money", says UN Secretary General António Guterres. The quote not only reflects the gradual transition of the world from traditional energy sources such as fossil fuels to renewable energy sources such as sun, it also highlights the monetary benefits of these resources—indicating the ~~eq~~ forthcoming capitalistic exploitation of these resources, as the course of the world has been. With the growing population and trends set by Industrial Revolution, the ~~uppr~~ urban sprawl has been magnificent enormous. As Hego Dillner says that by 2050 the ^{global} population is expected to reach 10 billion people. We will be building cities in next 30 years, and that is like constructing the City of Vienna every week. Such growth and expansion comes with a huge demand for resources—particularly energy resources. This poses a multi-pronged challenge. While fossil fuels are continuously being exhausted due to huge consumption, integrating renewable sources into construction ~~work~~ and building work requires policy reforms and stakeholders cooperation. Considering

the recent trends and evolution of energy^{resources} landscape, it can be said that renewables are a global necessity, and one cannot afford to miss out on them. However, their consumption also comes with its own downsides and challenges, requiring rigorous strategizing for their usage.

The current global energy landscape is dominated by fossil fuels consumption. According to Statistical Review of World Energy, fossil fuels accounted for 81.5% of global primary energy in 2023. Similarly, 60% of global electricity generation is credited to the fossil fuels. Extraction of these fossil fuels and their refinement is not only costly and tedious, but also poses great environmental threats exacerbating climate change. Besides that, fossil fuels around the world are said to be ~~exa~~ being exhausted and depleting while their ~~dema~~ energy demands are continuously on the rise.

Hence, the world is looking for alternatives, shifting the arenas of their search from deep underground to right around in their neighborhood and above in the space. The energy market is gradually transitioning to the renewables from fossil fuels, with ~~governments~~ public private partnerships catalyzing the shift. In 2023, the

non-hydro renewable electricity generation rose by 13%. Hence, the current energy landscape signals a the energy future to be the future of renewables.

Also, besides depleting, depletion, another factor that is contributing to the replacement of fossil fuels by renewables is threats being posed by the former. First and foremost, fossil fuels are primarily held responsible for climate change. Carbon emissions from the burning of fossil fuels have led to the depletion of ozone layer, ultimately leading to global warming. Subsequently, the global warming is leading to the melting of glaciers, rising sea levels, and ultimately natural disasters such as floods, droughts, etc. Secondly, there is continuously growing tension and race among the countries for industrial - and hence, resources hegemonization. Connecting corridors such as Belt and Road Initiative and India Middle East Corridor are manifestations of the increasing competition. Renewable energy sources provide a peaceful, convenient, and relatively reliable alternative to the contested sources. Countries can find these sources right in their own vicinities, without any conflict or contest. Thirdly, as stated earlier, the demand for energy is

continuously on the rise whereas fossil fuels are depleting. The IEA's Fossil Fuel Supply Report projects total fossil fuel supply to fall from 511 EJ in 2022 to 237 EJ by 2035, and to 88 EJ by 2050, under certain conditions and scenarios. On the other hand, renewable energy brought in 2.7 Trillion dollars worth of investment in 2023, signifying its growing potential. Missing out on them would mean missing out on one of the most potential roads to the prosperity.

Furthermore, renewable energy sources are perceived as more environmental friendly compared to fossil fuels. They do not have carbon emissions as seen through solar panels and wind turbines. Additionally, they are recycle-able. A whole energy consumption cycle can be generated using these resources. For example, in Oslo the newly constructed buildings have insulations pre-installed in them. These insulations store heat as the form of energy and produce electricity from it. The excess electricity and heat is then transferred to other buildings in the neighborhood. Similar approach is adopted by Germany in one of its towns where forestry is the dominant industry. As timber fuels the construction industry, the ^{wood} leftovers from the construction work is burned to produce ^{heat energy} and ultimately

Electricity. Combinedly, renewable energy resources are cheaper and affordable as energy can be generated from wastes without any significant expense - and reducing the waste management cost.

Hence, renewable energy sources are significant owing to their environmental friendliness, recycle-ability, easy access, and affordability.

Additionally, In addition to the above, stated national level significance, renewable energy sources also have ~~be~~ global benefits. Owing to their environmental compatibility - requiring no mining, heavy extraction operations, and having little to no carbon emissions - they offer ~~as~~ a chance at saving and restoring the environment which is an international cause. Similarly, ~~it has~~ the increasing popularity of these resources is leading to decreasing global disparities by enhancing the energy production capabilities of underdeveloped and developing nations. For example, due to ~~increasing~~ investment in the renewables, China overproduced solar panels and then later dumped them to developing nations such as those in Africa, and Pakistan. The overproduction significantly reduced the cost of panels offering the middle class of developing countries affordable access to the amenity. According to ~~Dr. A~~ Ammar Khan, an economist, nearly

15-25 million people in Pakistan would have solar panels by now, as 4 million people had them installed by 2022.

As natural sources such as wind, sun follow their own course, shifting to renewables while respecting the nature can help reduce streamline international resources. It is mainly due to the factor that such resources are in abundance, and have not been dominated as of yet. Hence, in addition to national benefits, renewable energy sources also render international advantages.

However, despite their paramount significance, renewables have not yielded as much priority from the global leaders as they should have.

The global powers such as America and China are at the forefront of deprioritization of these resources.

For the context, environmental preservation is central to the adoption of the renewables, reinforced through international conventions such as Paris Agreements and COPs. However, America has not only opted out of the agreement, it has also reinitiated the mining activities which were previously closed down due to environmental concerns.

Similarly, the USA had fined a fine on the vehicles in proportion to their vehicle size to carbon emission ratio.

The fine has been dropped by the

Trump administration. Similarly, China consumes the ~~70%~~ 86% produces 86% of its energy from fossil fuels. It is also the largest consumer of coal and the largest emitter of carbon-di-oxide.

Such tendencies of the global leaders not only illustrate the deprioritization of renewables by them, but also their capitalistic approach towards the resources as seen through China's fossil fuel consumption and overproduction of solar panels, creating a paradox.

While the world is transi

Also, it is not a child's play to transit to the renewables at once. There are many challenges in doing so. The most significant challenge is posed by structural policy loopholes and hurdles, and in bringing about a shift in the public attitude. For example, Rex Parris, the Mayor of Lancaster State of California states that it would require upto 6 months for the public to get only approval for solar panel installation, illustrating weak policy and difficulties in adopting renewables by the public. However, as the approval time has now been reduced to 45 minutes, the city is globally renowned for its adaptability of the renewables. Similarly, adopting renewables in

Individual capacity is quite expensive. For example, electricity from rooftop solar costs twice as much as electricity from solar farms. This requires a greater, collective adaptation of resources renewables for their efficient usage. However, politicization of resources such as water poses another issue, while China is building the world's largest dam, India is leveraging it for political and diplomatic gains, Pakistan is navigating its water arena, ~~at~~ simultaneously Iran is going through water crisis. Such politicization of water resources may lead to enhanced conflicts and disparities instead of reducing them - a hallmark of renewables. The ~~issue~~ limitation of leveraging renewables is further juxtaposed by geographical and natural restraints. For example, sun does not shine 24/7 or with same intensity in all seasons. Similarly, winds follow their own pattern. ~~So~~ Exploiting the nature has brought us to this stage, experimenting further with it can only aggravate the risks and not reduce it.

It is also a point to ponder whether the renewables can be rendered as savior of earth? or do they have capability to save the planet from its environmental threats. Criticisms on initiatives such as electric cars arise

making even the notions of environmental friendly initiatives such as renewables contested. For example, for electric vehicles lithium is used. For extracting one tonne of lithium via Brine extraction/mining, 5 lacs gallon of water is used which further jeopardizes the water issue. Similarly, in terms of solar, efficient solar energy harnessing requires 47 times more area than a nuclear energy plant, which raises concerns for agriculture and forestry, and ultimately environmental degradation. Hence, while renewables provide an alternative to traditional energy sources, they themselves are harnessed by fossil fuels as their primary engines. Therefore, renewables cannot be deemed truly as alternative to fossil fuels or ultimate saviour of the environment, unless they become self-sufficient in fulfilling the global energy requirements.

In this regard, Pakistan presents an interesting case study for understanding policy barriers. With a significant population shifting to solar panels, the facility is being leveraged by the masses to evade taxation and bills. The elites install more solar panels than their requirement owing to the net-zero

metering system paying almost nothing in bills. Whereas, the government has to make payments to IPPs regardless of the extent of electricity consumption. This burdenizes the lower segment of the society, which cannot afford solar installation, which givesome bills. This highlights Similarly, affluent people who live in big cities - particularly Karachi - in apartments have not sufficient space to install solars. This highlights not only a new kind of disparity being created in the country, but also the need for updating and adapting policies to the evolving trends.

If the renewables are to be harnessed effectively, this would need a series of strategic and cooperative steps to be taken. Firstly, the natural resources are to be depoliticized and treated as neutral, with mutual respect towards nature. Countries - irrespective of their global positioning - must adhere to international conventions such as Paris Agreement and cooperate with each other to overcome the causes that have led us to the adoption of renewable resources. As countries are targeting for zero carbon emission by 2030 -

Such as Norway - they must realize this must not stay exclusive to them. More env - impact all countries must adopt the same resolution. However, being realistic is also important as Zero carbon footprint might not be practically possible given the global scale of growth and expansion. The states referred previously: Lancaster in California, Germany, and Norway presents us with a model in this regard. The model is of continuously experimenting to seek innovation and adapting the current and commonly available resources for modern wants.

Nuclear energy in this regard may prove to be a ray of hope in this context. Nuclear plants ~~have~~ need 47 times less space than solar plants; their wastes is contained and not so casually disposed, posing much less threats to the environment than any other source. However, this would again necessitate the depoliticization of international affairs with much stronger mechanisms for transparency and accountability, so as to avoid its misuse.

As we are facing the aftermaths of mining and other activities initiated centuries ago,

we might be increasing the dilemma by disrupting the nature to a much greater extent. While only the earthly resources have been exploited till now, the human intervention is extending beyond to space. This has raised another debate of what impacts it will have. However, the renewables can only be deemed sufficiently reliable if their dependency on fossil fuels is eliminated. Also, ^{the world} ~~we~~ ought to have a complete understanding of the ~~our~~ environment, as the world has been greener than ever, despite global warming. Renewable fuels can lead to zero emission if produced through renewable resources and not fossil fuels. However, it would need global cooperation and compromise, respect for nature, and a thorough understanding of how the world operates.

Conclusively, renewable energy has become a global necessity and a nation cannot afford to miss out on it. Renewables are our immediate and comparatively reliable shot at environmental preservation, but come with their own downsides and challenges. Structural policy reforms, strengthening research and development, and public ~~onboard~~ cooperation are

Some of the necessities to be fulfilled for efficient renewables' usage.