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Can Renewable Energy solve the global energy crisis and environmental pollution

1) Introduction.

2) Renewable energy is the ultimate solution to global energy crisis and environmental pollution

3) Renewable energy is fully equipped to solve global energy crisis.

a) Provides unlimited and sustainable means of energy production

b) Reduces the logistical and infrastructural cost as remote areas can access tailored and local means of production

c) Prevents transmission and distribution losses by decentralizing the grids ensuring laminar flow of energy

d) Once installed per unit cost of renewable energy is low thus provides cheap energy

e) Provides immunity from ~~extra~~ external energy shocks emerging out of geopolitical complexities

f) Reduces excessive reliance on fossil fuels by providing diversified means of production of energy

4) Renewable energy is the ultimate source to eradicate environmental pollution

a) Renewable energy sources produce negligible ~~amount~~ amount of green house gases thus mitigate global warming

b) Industrial waste emanating from the complex processes of refining and transforming fossil fuels can be eradicated

c) Exploration and drilling processes produce zero

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gases harmful for the environment

d) Excessive reliance on fossil fuels produce air pollution and fatal conditions such as smog

e) Global transport of fossil fuel have rendered aquatic ecosystems polluted due to ~~seepage~~<sup>oil spills</sup> and leakages

f) With exception to few, ~~no~~ renewable energy sources are noise free.

5) Conclusion

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Global energy crisis and environmental pollution are among the various challenges witnessed by the man of today's century. Environmental pollution has engulfed the earth and its inhabitants in totality resulting in the devastation of multiple habitats.

Air pollution, smog, fog, global warming, pollution of water bodies and dumps of industrial wastes are some of the manifestations of environmental pollution which have turned the man helpless. Despite posing challenges to environment, the traditional means of energy sources especially, the fossil fuels have failed drastically to end the global energy crisis.

A large population of the world still lives without access to electricity and other energy sources. Under such distressing situations, renewable energy sources have been an island of hope in the ocean of despair. Renewable energy sources have potential to solve global energy crisis as well as environmental pollution concurrently thus, these provide the ultimate escape from both of these catastrophes. Renewable energy sources provide unlimited means of energy production. Chinese proverb says that as far as the earth exists the sun is there. Thus, unlimited and large capacity of renewable sources paves the way to eradicate the energy crisis. Besides, renewable sources also diversify the means of production of energy by utilizing hydel,

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wind, solar, geothermal and tidal sources. These have capacity to expand the horizon of energy production. Additionally, renewable means of production provides immunity against the ~~extra~~ external shocks of energy crisis as the globalized world order has allowed deeper integration of all the system such shocks render country's helpless. In such scenarios as well, renewable energy is route to escape these geopolitical complexities. Moreover, environmental challenges are posing eminent threat to man; ~~from~~ global warming, smog, fog, water pollution all are nothing but a threat to human beings. The only escape from these is embracing the domain of renewable energy wholeheartedly. Renewable energy is the ultimate solution to global energy crisis and environmental pollution as this field of energy is fully equipped to eradicate the crisis of energy besides rooting out environmental pollution.

Renewable energy is the ultimate solution to global energy crisis and environmental pollution. There are many ways which can contribute to the eradication of global energy crisis but the most prudent and sustainable means is the materialization of renewable energy sources. World Bank estimates that 80% of the needs of energy of the world could be fulfilled by just directing 50% of investment towards the renewable means of production. Adding to this,

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According to UNEP globally 75% of the environmental pollution is attributed to fossil fuels. Thus, by opting for renewable not only crisis can be resolved but also pollution can be eradicated. Renewable energy's biggest success lies in the fact that it is beyond the needs of men and it emits negligible amount of green house gases along with other toxic pollutants. Greta Thunberg says that the only escape from the catastrophes of climate change which is attributed to utilizing fossil fuels as means of energy production, is to embracing the diversified horizons of renewable energy sources. Renewable energy sources concurrently sort out the dual challenge of crisis as well as environmental pollution by adopting these ~~technologies~~ <sup>energy</sup> sources. Multiple avenues of clean energy are open. Man is entitled to success only if he is able to materialise this opportunity.

To begin with, renewable energy sources ~~provides~~ provides unlimited and sustainable means of energy production. Fossil fuels which contribute to 85% of global energy are limited and are located in specific areas such as middle east or south America. On the contrary, ~~for~~ renewable energy sources are provided to every country although, not uniformly. This carries a huge

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Significance to escape the cycle of global energy crisis as most of the time the energy disruptions occur due to manipulations in demand and supply market ~~because~~ <sup>because</sup> of limited quantity of fossil fuels and monopolization of fewer countries. The unlimited quantities of energy provided by renewable sources can reduce these crisis paving the road for eradicating the energy crisis. In addition to being unlimited, these sources are sustainable as well. No one can fear that over utilization of solar energy would vanish it because every morning brings with it vitalized means of energy. Thus, renewable energy is not only unlimited but also sustainable which makes it fit to escape the crisis of energy. UNEP estimates that just by investing 50% in the renewable sector 80% of the global energy crisis could be dwindled.

Adding on, renewable energy reduces the logistical and infrastructural cost of energy production as remote areas can access tailored and local means of production. Far flung areas are connected to grid by investing heavily in the logistics and infrastructure; however, by utilizing tailored sources available in the area to produce energy can reduce this cost as well as ensure smooth supply of energy. Thus, renewable energy

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Sources are blessing for the remote areas which not only provides laminar flow of electricity but also reduces the cost. The area specific analysis is required to materialize the opportunity in tailored manner. Most of the coastal cities in Japan have their indigenous source of energy mostly by utilizing the wind as well as the solar means of energy.

Moving on, Renewable energy also paves the road for prevention of transmission and distribution losses by decentralizing the grids ensuring laminar flow of energy. Transmission and distribution losses are a huge threat which can escalate the energy crisis. The centralized grid system poses a lot of threats to energy supplies especially the transmission and distribution losses are the main hurdle that poses danger to the smooth supply of electricity. But, renewable energy sources and especially the recent emergence of rooftop solar systems has reduced this risk by decentralizing the grid system. Once, grids are decentralized there would be no fear of distribution or transmission losses. In Pakistan 18 to 20% of energy is lost during transmission and distribution which poses a huge threat to smooth supply of electricity especially, during peak demand.

Adding on, it is also a fact

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that once installed per unit cost of renewable energy is low as compare to fossil fuels. Thus, renewable energy proves the road for cheap energy. Fossil fuels are expensive because their exploration, drilling and transportation is an expensive process and these processes are to be carried out on daily basis to ensure the smooth supply of energy. On the other hand, renewable energy sources are installed once with little daily maintenance can be utilized for a long time. Although initial cost is high, the <sup>absence of</sup> daily waste and high maintenance protocols make them best for producing cheap energy. Solar energy is 50% cheaper than the fossil fuels.

Moving on, renewable energy sources also provide immunity from external shocks emerging out of geopolitical conflicts. The recent case study of Russia attack on Ukraine depicts the situation under discussion. Russia's invasion caused energy shocks and these waves reverberated around the world turning crisis more and more deeper and energy more and more expensive. The price hikes in energy market disrupted the smooth flow of energy and a lot of issues. Renewable sources of energy are immune to these sources as they reduce the dependence on fossil



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markets. During the crisis countries like Pakistan which import 80% of their oil were impacted badly but countries such as Scandinavian were immune to it to some extent due to their reliance on domestic renewable energy production.

Additionally, renewable energy also reduces the excessive reliance on fossil fuels by providing diversified means of production. Solar, wind, geothermal, tidal, hydro all of these are the multiple sources which provide countries diversified avenues to enrich the spectrum of energy. Based on the geographic features these sources could be materialized. For instance countries with coastal belt can utilize the wind as well as tidal energy sources to equip themselves with the production of renewable energy sources. In addition to this, countries having higher exposure to sun can utilize solar energy to ~~also~~ enhance the energy production by utilizing renewable means of energy. Pakistan is witnessing a surge in rooftop solar systems and it is the highest buyer of solar panels in the whole of south Asia. This marks a new journey to diversify the means of energy production.

Renewable energy not only ~~solves~~ solves

energy crisis but also eradicates environmental pollution.



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Green house gases are the threats which endanger not only human life but also the environment. Renewable energy sources produce negligible amount of green house gases thus, mitigate the biggest challenge of Global warming. Fossil fuels emit 75% of the (GHG) to the atmosphere. These gases in turn give rise to the global warming. Global warming itself is a catastrophe as it ensues a cycle of destructions such as melting of ice-sheets, rising sea level, desertification and floods. However, Renewable energy sources have the potential to sort out the problem of global warming by limiting the emissions of GHG. Renewable energy sources produce negligible amount of green house gases consequently, contribute to environmental friendly ecosystems. Thus, Renewable energy sources are the ultimate source to eradicate the emission of green house gases to negligible levels. Average temperature in the year 2021 crossed  $1.5^{\circ}\text{C}$  rising the bells of alarming catastrophes in the coming years, global coordination for adopting renewable energy source is required now, these were the words of UN secretary general after analyzing the climate change's impacts.

Heading on, Industrial waste emanating from the complex processes of refining and transforming fossil fuels can be reduced by opting for renewable energy sources. Fossil fuels transformation and

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refining releases harmful pollutants such as methane, sulphur dioxide, carbon monoxide etc. This waste from industries is either directly thrown to water or atmosphere or are released with minimum purification. This hurts the environmental sanctity by polluting air as well as water bodies. Renewable energy sources do not release such pollutants while producing energy as they are the most environmental friendly sources. Thus, by utilizing renewable energy sources the industrial waste emanating from complex processes of refining and transporting fossil fuels could be eradicated. ~~Green~~ Renewable energy sources remove the burden of industrial waste from the environment according to UNEP.

Furthermore, the exploration and drilling processes produce toxic gases harmful for the environment rendering humans in danger. The exploration process and drilling not only disturbs the patterns of land but also produce hazards for environmental sustainability. Methane is the most dangerous gas emitted during drilling. Besides, coal and natural gas drilling enhances the risk of polluting the underground water resources and aquifers. This poses another threat to men. Thus, opting for renewable sources eradicated all these possible and practical dangers emanating from the complex processes of fossil fuels.

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There are no such processes in materializing renewable energy as a result it is the most suitable form of energy for the environment.

~~Excessive~~ Additionally, excessive reliance on fossil fuels produce air pollution which in turn causes conditions such as smog. Smog has endangered many of lives in world especially in some Asian countries like Pakistan and India. Recently AQI of Lahore ifeislabeled crossed 1000 which is alarming as health specialist consider AQI above 300 as hazardous but Pakistan witnessed more than that. The only way forward is to opt for renewable energy especially for sectors such as transport which are major contributors of pollutants. Smog is far more dangerous than any threat to life as it not only harms the existing people but also poses threat to future generations, climate activists at a campaign said.

Adding on, Global transport of fossil fuels have rendered aquatic ecosystems polluted due to oil spills and leakages. The transportation of fossil fuels by largely by sea routes, In fact 80% of transportation takes place by sea. This transportation is marked by oil spills and leakages

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endanger the lives existing in these waters. Ecologists believe that the oil spills and leakages have changed the pH of water consequently, species living there have been dying due to lack of resistance for this change in environment. As a result multiple aquatic species have been extinct. If the countries opt for renewable energy then there would be no need of this transport as a result water bodies could be saved.

Furthermore, with exception to few such as hydel power most of the renewable energy sources are noise free thus, paving the road for eradicating noise pollution. Noise pollution has been one of the unaddressed pillars of environment which has harmed men a lot ~~and~~ psychological conditions and mental health problems are one of the products of ~~water~~ noise pollution. Renewable energies such as solar or tidal are devoid of noise thus pave the way for noise free environment. Rabia Zakarya says that environmental sustainability reduces the psychological conditions emanating from noise pollution. ~~and water~~

To sum up, it would not be incorrect to mention that ~~renewable~~ <sup>issues of</sup> energy crisis and environmental pollution can be sorted out by opting for

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renewable energy sources. As these sources are equipped to eradicate energy sources by providing unlimited energy and by diversifying the sources of production beyond the traditional means. Besides, renewable sources can be accessed by far flung areas through tailored processes according to the available resources of the specific region. Thus, renewable energy <sup>provide</sup> ~~provide~~ the <sup>provide</sup> ~~provide~~ region with sources of energy. ~~Also~~ Additionally, the cost of production and per unit cost renewable energy is low as compared to energy produced by fossil which further ~~strains~~ <sup>strains</sup> the smooth flow of energy. Moreover, renewable energy sources also eradicate environmental pollution as energy produced by renewable sources produces negligible amount of  $\text{CO}_2$ . Besides, all other pollutants released during exploration, drilling, refining and transportation of fossil fuels can also be eradicated by opting for renewables. Thus, renewable energy is the ultimate solution to global energy crisis and environmental pollution.