

Pakistan's Energy Vision- Adil Sultan



As a developing country with limited resources Pakistan needs cheap and alternative sources of energy to meet its fast-growing demand. The uncertainty in global oil supply that has been exacerbated by the ongoing crisis in the international market has made it further difficult for countries like Pakistan to achieve their developmental goals. Pakistan is also one of the most affected countries from the ongoing climate change thus making it imperative to reduce its reliance on hydrocarbons and explore other options that are less costly and environmentally friendly.

As present Pakistan relies heavily on imported oil to meet its energy demands. It has significant potential to generate hydropower and other alternative sources of energy such as wind and

solar, but these remain less exploited due to technical and political impediments. Limited indigenous oil production capacity and depleting gas reserves have increased Pakistan's reliance on the imported fuel which now accounts for almost 80% of the country's requirement. Pakistan is also importing liquefied natural gas (LNG) and has installed several coal-based power plants over the past few years which make significant contribution to the overall energy mix of the country. However, most coal power plants are environmentally inefficient and would have to be abandoned in the long run due to their adverse impact on climate.

Currently, Pakistan has a potential to produce 60,000 MW of electricity through hydro sources. Yet the construction of Hydropower plants and connecting them to the national grid requires significant investment and time. Wind is another important source that could help generate 50,000 MW of electricity. Due to long summers in most parts of the country, Pakistan also has significant potential to benefit from solar energy, but these alternative renewable sources of energy have remained under-exploited due to lack of interest and monopoly of the oil giants that continue to influence the decision-making process. Building on its experience of safely and efficiently running nuclear power plants for the past decades, Pakistan has embarked on an ambitious nuclear power vision in collaboration with China, which would take considerable time and resources, but once completed would offer cheap and clean energy in the long run.

Pakistan's Energy Policy

The Government of Pakistan formulated several policies for the development of the power sector to improve efficiency of existing power generation capacity. Some of the initiatives included developing of new dams, improving transmission and distribution systems, as well as diversification of the energy generation mix by adding nuclear and coal-fired power plants. Efforts are ongoing for the

maximum utilization of indigenous energy resources through exploitation of solar and wind sources so as to supply reliable, affordable and clean electricity to the general public.

In 2019, the Alternative and Renewable Energy Policy was introduced to assist the development of renewable resources in the country. The main objective of the policy was to produce a conducive development environment for renewable power projects and increase the share of 'green' energy capacity by 20% by 2025 and 30% by 2030 and introduce private capital in the area. These efforts led to a positive outcome and was instrumental in an impressive economic growth of the country during this period.

The Future is of Nuclear Energy

Due to depleting reserves and rising cost of fossil fuels many countries are switching to alternative sources of energy. Nuclear energy, despite being cost intensive is one of the most efficient and clean sources of energy that offers better dividends in the long run with negligible impact on the [environment](#).

Pakistan started the construction of its first nuclear power plant, KANUPP, in 1966 in Karachi, which had the capacity of 137 MW. Subsequently, Pakistan was placed under sanctions due to concerns that Pakistan might follow the Indian route and misuse peaceful nuclear technology for conducting a nuclear weapon test, which India did in 1974. These sanctions pushed energy program for at least two more decades.

In 1993, Pakistan started construction of its second nuclear power plant with the help of China. Subsequently three more plants were added at Chashma site with a total installed capacity of 1330 MW. Two more nuclear power plants with 1100 MW capacity each

have been constructed near Karachi, which have made significant contribution in Pakistan's overall energy mix. Pakistan is planning to have a total of 11 nuclear power plants with a combined capacity of 8900 MW by 2030, and under its

2050 Nuclear Energy Vision it aims to complete 32 nuclear power plants with a total capacity of 48000 MW which would be almost one-fourth of the total energy requirement.

Due to depleting global reserves, rising cost, and adverse impact of using oil for producing electricity many countries are switching to alternative and renewable sources of energy. Nuclear energy is likely to be one of the most attractive sources due to its reliability and relatively less production cost when spread over its complete life cycle.

Potential for Nuclear Collaboration

Pakistan has vast experience of running several nuclear power plants over the past few decades. Earlier it had indicated its willingness to enter collaboration with other countries for building and operating nuclear power plants and regional nuclear fuel cycle services under the aegis of International Atomic Energy Agency (IAEA). This offer could be useful for countries that are embarking on nuclear energy to meet their energy demands in the era of depleting global fossil fuel reserves.

Conclusion

Climate change has emerged as an existential threat for the humanity and one of the principal causes is the excessive use of fossil fuels mainly by the industrialized countries with global consequences. To deal with this challenge alternate sources of energy must be explored that are sustainable, eco-friendly, and affordable for most developing countries.

Countries

like Pakistan that have limited indigenous sources and remains largely dependent on external fuel supplies are forced to spend excessive amount of foreign reserves every year on the purchase of oil to meet its growing energy demands.

The rising cost of oil in the international market has added further stress on Pakistan's economy making it more vulnerable to the external influences. The ongoing conflict between Russia and Ukraine, and the continued sanctions on Iran has added to Pakistan's problems.

In view of

the uncertain future, Pakistan's energy vision should focus on building indigenous capacity while exploring alternate sources that may help meet Pakistan's future energy needs. For this purpose, Pakistan can opt to enhance its indigenous energy production by investing in nuclear, wind and solar sources that are the most reliable sources of energy and have negligible impact on global climate change.



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