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Recent Global Energy Crisis and Governance Challenges in India

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Abstract

Energy is the basis of modern civilization. Every sector of the economy including industry, transportation, agriculture, communication, and healthcare rely heavily on energy resources. A stable and inexpensive energy supply is essential for economic growth and human development. Recently, the world is currently facing a serious energy crisis caused by increasing energy demand, geopolitical conflicts, environmental degradation, and overdependence on non-rechargeable resources.

In this context, Government role becomes extremely pertinent. Government is now working in its welfare-state approach of governance. Governance refers to the processes, institutions, laws, and policies through which public and private affairs are managed. Effective governance provides proper energy planning, regulation, resource allocation, environmental protection, and crisis management and social welfare. This research article explores the role of governance in addressing the energy crisis. It discusses the causes and impacts of the energy crisis and government response, the importance of governance in energy management, major policy initiatives, challenges faced by government, and shifting towards sustainable energy. This study highlights the importance of transparent, accountable, and technology-driven governance for achieving long-term energy sustainability.

Key-words - Governance, Energy Crisis, Energy Security, Sustainable Development, Non-rechargeable resources, Sustainable energy.

Introduction

Energy is the foundation of modern civilization. Every sector of the economy including industry, transportation, agriculture, communication, and healthcare rely heavily on energy resources. A stable and affordable energy supply is essential for economic growth and human development. Recently, the world is currently facing a serious energy crisis caused by increasing energy demand, geopolitical conflicts, environmental degradation, and dependence on non-renewable resources. An energy crisis occurs when the demand for energy exceeds supply or when energy becomes unaffordable and inaccessible. Energy crises may occur at any level like national, regional, or global levels.

Present Energy Crisis has affected both developed and developing countries. Rising oil and gas prices, electricity shortages, and obstructions in global supply chains have created economic instability and social challenges. Energy Crisis happens when the demand for energy becomes much higher than its supply which leads to problems in the economy, international relations and environmental management. Crisis of energy occurs because the natural resources used to produce energy

like fossil fuels, are limited on earth and are being used faster than they can be replaced. Since these resources take a very long time to form, their increasing consumption raises concerns about future availability. The global energy crisis has emerged as one of the most serious challenges of the modern era. Rising energy demand, geopolitical conflicts, climate change, resource depletion, and dependence on fossil fuels have created instability in global energy systems.

Reasons of Energy Crisis

- Conflict and war tensions in Middle- East

The recent conflict involving Iran versus Israel and America has disrupted the Strait of Hormuz, through which a large share of world and India's crude oil and nearly 30% of its natural gas is transported. This has created reduced shipments from key suppliers like Qatar and Abu Dhabi, forcing companies to declare force majeure, thereby creating supply shortages, price instability, and fuel scarcity in India.

- Price Rise and Economic hardship

The geopolitical tensions have caused a sharp increase in global oil prices, with fears of prices crossing \$100 per

barrel. Since India rely heavily on imports, even a small increase in crude oil prices significantly increases the import bill which leads to inflation, higher fuel costs, and pressure on the overall economy.

- Insufficient reserves alongside heavy import reliance

India imports nearabout 88% of its crude oil and a large portion of natural gas, making it highly dependent on outer sources. Our strategic reserves are limited like petrol , LPG/LNG reserves which makes the country's ability to handle sudden supply shocks.

- Barriers in infrastructure and power transmission

Despite increasing renewable energy production, India is facing challenges in transmitting power efficiently due to weak grid infrastructure and limited capacity. The renewable energy resources generated in states like Rajasthan often remains underutilized in present context which highlights the inefficiencies in energy distribution and management.

- Escalating consumption due to climatic conditions

Early heatwaves have increased electricity demand for cooling with strong industrial growth has further pushed further energy consumption in industries accounting for nearly half of total power usage. This sudden increase in demand has put additional pressure on already limited energy supplies. Depreciating Fossil Fuels and growing Global Demand has increased continued dependence on limited fossil fuels such as coal, oil, and natural gas which has led to a steady increase in energy demand, creating long-term supply concerns and intensifying the energy crisis.

- Geopolitical Uncertainties and supply route disruptions

Political instabilities, sanctions and control over major energy routes such as the Suez Canal and the Strait of Hormuz has disrupt global energy supply chains which makes countries like India vulnerable to external shocks and fluctuations in supply and prices.

- Governance, technological and external disturbances

Challenges such as slow adoption of renewable or rechargeable energy system, lack of advanced storage technology, lack of infrastructure, and policy gaps further worsen the crisis. Additionally, factors like natural disasters, pipeline failures, labor strikes, and even terrorist attacks on energy infrastructure can disrupt supply chain. The minor disruptions can lead widespread economic impacts.

Energy Crisis Aftermath

- Economic slowdown and Unemployment

The shortage of LPG and fuel has severely affected businesses, especially small and medium enterprises. In cities like Mumbai hotels and restaurants are facing slowdown and many more are at risk. Industrial areas like Morvi in Gujarat have seen many factories shutdown , leading to job losses for nearly one lakh workers. Slower Economic Growth and high energy prices with supply disruptions are slowing down India's economic growth. Experts estimate that GDP growth could fall by around 0.15% to 0.4%, and in extreme

situations, a major rise in oil prices could reduce GDP and overall economic stability.

- Upward trend in Inflation

The increase in energy prices has raised production and transportation costs in all sectors. This leads to higher prices of goods and services, pushing inflation up by about 0.3% to 0.5%, which directly affects the cost of living for people.

- Stress on fiscal resources and Economic growth

As oil prices going upward, India's import bill rises significantly. This puts stress on government finances, increases the current account deficit, and depletion in Indian Rupee.

- Fertilizer and Agricultural related consequences

Fertilizer plants are receiving less than their required gas supply. This may affect farming, especially during important crop seasons, and could lead to lower yields and higher food prices in the future.

- Shortage of domestic LPG supply

The government is now prioritizing households in this shortage but many people are still facing LPG shortages. In some areas of our country, cylinders are being sold in the black market at very high prices, creating difficulties for daily cooking needs.

- CNG scarcity and Transportation challenges

There is a shortage of CNG and auto-LPG in cities which leads to long queues at fuel stations. In some places, the number of auto-rickshaws has dropped by nearly 30% because drivers are unable to find fuel, affecting daily transport.

- Effects on Aviation Industry

Airlines are facing higher costs due to the rise in Aviation Turbine Fuel (ATF) prices. This has led to increase in airfares, especially during peak travel seasons, making air travel more expensive for passengers India and other countries. It creates financial crisis for a country.

Immediate steps to reduce the Energy Crisis in India by Government

Governance refers to the process of decision-making and implementation of policies by governments and institutions. It involves coordination among public agencies, private organizations, and civil society. Transparency, Accountability, Participation, Efficiency, Rule of law and Responsiveness are the characteristics features of Good Governance. In the energy sector, governance ensures that energy resources are managed effectively and equitably.

Government Intervention through Essential Commodities Act (ECA), 1955 ensures that government has taken strong action steps like Natural Gas (Supply Regulation) Order, 2026 to control the situation. A priority system has been introduced where PNG for households, CNG for transport, and LPG production with full supply are given top priority while industries are facing reduced gas supply. Fertilizer plants are getting less of their usual required supply, and other industries supply gas is being diverted to essential uses. To prevent panic buying and hoarding of LPG, a rule of nearabout one month gap between cylinder bookings has

also been introduced. These immediate steps were taken by the government.

Adoption of alternative energy options: To reduce dependence on disputed routes like the Strait of Hormuz, India has started importing oil and gas from alternative countries such as Algeria, Norway, Canada, and Australia. These supplies are being transported through longer route but safer area like the Cape of Good Hope to ensure continuity of energy supply.

Expand crude oil purchase from Russia: India has increased its purchase of oil from Russia to mitigate shortage caused by conflicts in West Asia. This has been supported by a temporary relaxation in Western sanctions, allowing India to safeguard supplies and maintain energy stability.

Increasing Indigenous energy Production: The government has also focused on increasing indigenous production. Oil refineries have also been instructed to maximize their output which leads to a 10% increase in LPG production in a short time. This additional supply is mainly being directed towards households to reduce shortages and ensure basic energy needs.

Action plan for Energy Sustainability- Energy is the essential component for any country growth and development . Some of the sustainable measures taken by government are as follows-

Expand indigenous Fossil Fuel Production

India needs to decrease its high dependence on imports by increasing its own oil and gas production. Under initiatives like **Samudra Manthan** mission, the government plans to expand deep-sea exploration by increasing the number of drilling wells efficiently in the coming years. This will help tap into unexplored offshore reserves and boost domestic production over time, reducing dependence on foreign sources and improving energy supply.

Augmenting Strategic Energy Reserves capacity

India must strengthen its emergency reserves to handle sudden supply disruptions. Currently, the goal is to increase more storage capacity. Along with oil, creating a strategic gas reserve will provide an additional safety cushion during global crises or geopolitical conflicts.

Expanding Energy Storage infrastructure

Renewable energy sources like solar and wind energy are not always available (due to weather conditions), India needs to invest heavily in energy storage technologies. Large-scale deployment of battery storage systems and pumped hydro storage to store excess energy and use it when needed, ensuring a stable and reliable power supply.

Promoting Green Hydrogen for sustainable energy transition

Green hydrogen is a long-term clean energy solution for our country. India aims to produce large quantities of green hydrogen to reduce dependence on imported natural gas, especially in sectors like fertilizers and steel. This will not only improve energy security but also support climate goals and reduce carbon emissions. Advancing green hydrogen as a viable future energy is the need of the hour.

Broadening Energy Sources and Supply partners

India should broad its energy sources for energy imports. Instead, it should diversify its supply by sourcing energy from multiple countries such as Russia, Africa, the United States, and Latin America. At the same time, the country should explore alternative energy sources like tidal energy, geothermal energy, and hydrogen to build a more balanced and resilient or sustainable energy.

Enhancing Nuclear Energy infrastructure

Nuclear energy can also provide a stable and low-carbon source of power. India can take advantage of its large thorium reserves to develop long-term nuclear energy solutions. By enhancing nuclear energy infrastructure with new technologies like small modular reactors (SMRs) can be promoted as efficient and safer options for future energy needs.

Reducing energy wastage through conservation measures

Reducing energy demand is as important as increasing supply. India should focus on energy-efficient technologies in industries, buildings, and transport systems. Some measures like smart grids, energy-efficient appliances, and better urban planning can help reduce energy wastage and costs, and lower our dependence on imports.

Fostering Public- Private cooperation

A clear and stable policy framework is needed to attract investment in the energy sector. Motivating private companies and startups to participate in renewable energy, storage, and innovation can improve efficiency and accelerate growth. Public-private partnerships can play a key role in building a strong and sustainable energy systems.

Functions of Regulatory oversight

Government is known by its regulatory functions through Electricity tariff regulation, Monitoring fuel prices ,Preventing market manipulation, Ensuring fair competition, Environmental regulation etc . Regulatory bodies of our country also plays efficient role in transparency and consumer protection in the energy sector.

Crisis Response mechanism

During energy shortages or price shocks, government is implementing its emergency measures to stabilize the situation. Fuel rationing, Emergency imports, Price control mechanisms,Power demand management ,Public awareness campaigns are the part of the government crisis response mechanism. Administrative institutions are coordinating these activities efficiently.

Promoting sustainable energy resources

Renewable energy is essential for reducing dependence on fossil fuels and mitigating climate change. Government initiatives by promoting sustainable energy resources like Solar energy policies, Wind-energy projects ,Subsidies for renewable technology ,Green hydrogen missions ,International climate agreements are the futuristic plans of Government which trying to encourage investment in clean energy through incentives and regulations.

Conclusion

The global energy crisis has demonstrated the importance of effective governance in maintaining energy security, economic stability, and sustainable development. Governance plays a central role in energy planning, policy implementation, crisis management, and renewable-energy transition. Strong governance systems ensure transparency, accountability, efficiency, and environmental sustainability. Indian Government is adopting various measures such as renewable-energy expansion, digital governance, strategic reserves, and international cooperation to address the energy crisis. However, challenges such as fossil-fuel dependence, climate change, financial constraints, and infrastructure gaps continue to affect energy governance. It can be concluded that governments must strengthen institutional capacity, promote technological innovation, and encourage sustainable energy practices. Effective governance will remain the key factor in ensuring and building a resilient, sustainable, and secure global energy future.

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