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Development of Energy Sector in India- Policies and Initiatives Taken by Government of India

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Abstract: ***Energy plays key role in the socio-economic development of a country. To meet the challenges for global energy demand various acts, scheme and strong policy level initiatives with proper planning for implementation and executions to be adopted. Accordingly, Indian Government is taking initiatives from time to time by adopting various schemes, policies, awareness programmes with the aim of supplying the energy in a robust and sustainable manner that can be accessed by all at a reasonable price and to increase the per capita energy consumption and to reduce the poverty. This paper presents a basic review of the different policies adopted by Government of India from time to time bolstering the growth of energy sector significantly in recent times.***

Keywords: Energy, power, coal, renewable energy, oil and natural gas, electricity generation growth, policy

I. INTRODUCTION

Energy is contributing towards raising the standard of living of citizens of any country, as is evident from the correlation between per capita electricity (a proxy for all energy forms) consumption and Human Development Index (HDI). The rapid increasing usage of non conventional energy with increasing population creates a significant gap between demand and supply in India due to which supply side of the energy sector comes under pressure. This is a matter of concern as the non conventional energy sources being depleted with time causing uncertainty about their future. So there was an urgent need of transition from non-conventional to renewable energy in India and as India is blessed with varieties of renewable energy sources, it is expected that with proper roadmap renewable energy can provide the proper solution to the unfulfilled energy demand. To fulfil the energy need in the safest, healthiest and most efficient way and to sustain the economic growth of India which is developing at about 8%, strong energy framework with proper planning is required to remain competitive in the global market. Proper planning is required to utilize the available resources in the most effective and efficient way using proper technology to mitigate the energy gap in a sustainable manner. [1]

II. ENERGY SECTOR POLICY

A. *Power sector*

1) *Mega Power Policy:* This policy was introduced in November, 1995 to encourage the development of large size power projects and to derive the benefit. The guidelines were modified several times in 1998, 2001, 2006, 2009 to smoothen the further procedure, facilitate capacity addition and to setting up of mega power projects to generate power at lowest possible cost.
2) *Hydro Power Policy2008:* This policy has been notified by Govt. of India on 31st March 2008 with the objective of a transparent system of selecting private developers for awarding the site, developer to provide 100 units of electricity per month to each project affected family, implementing rural electrification in the surrounding area of the site. [2]

B. *Rural Electrification*

1) *National Electricity Policy 2005:* This policy was introduced in November, 1995 to encourage the development of large size power projects and to derive the benefit. The guidelines were modified several times in 1998, 2001, 2006, 2009 to smoothen the further procedure, facilitate capacity addition and to setting up of mega power projects to generate power at lowest possible cost.
2) *National Rural Electrification Policy 2005:* The National Electricity Policy 2006 notified by the Central Government in compliance with sections 4 & 5 of the Electricity act 2003 aims at availability of electricity to all household by the year 2009 by supplying power at reasonable rate and minimum lifeline consumption of 1 unit/household/day as a merit good by year 2012. Electricity will be provided to the villages where grid connectivity would not be feasible/ cost effective by off-grid systems and if off-grid is also not feasible then alternative solutions would be adopted and whether the village is eligible to be declared as electrified or not will be certified by the gram panchayat by issuing first certificate and then confirming the electrified status as on 31st March each year. State government have to prepare and notify a rural electrification plan which should map and detail the electrification delivery mechanism within 6 months. [3]

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C. Renewable Energy Sources

1) *National tariff Policy 2006:* This tariff policy was announced by Ministry of Power in continuity of National Electricity Policy of 2005 which has some important provisions regarding renewable energy and based on availability of resources the minimum percentage for purchase of renewable energy and impact on tariffs should be fixed by appropriate electricity commission. The State Electricity Regulatory Commission (SERC) is to determine the percentages for energy purchased made applicable for tariffs by 1 April 2006. [3][4][5][6]
2) *Integrated Energy Policy 2006:* The making of this policy has been continuing since 2005, but the report by the committee formed to define this policy was available in 2006 and finally received cabinet approval in the last week of December, 2008. Different energy sources can substitute each other both in production and consumption and all are having alternative technologies and to make it an efficient system policies (for conventional and non-conventional) have to be integrated so that they can meet the energy demand in all sectors in a safe, reliable, technically efficient and sustainable and integrated manner at least cost. It also aims to have a consistent tax structure for each energy sector.
3) *Semiconductor Policy 2007:* This policy was announced by Government of India on 21st March, 2007. The policy included the Special Incentive Package scheme and the guidelines to operate the scheme were notified on September 14, 2007 for the fab and eco system units. The fab unit comprising of the manufacturing of wafer , designing of chip, assembling and packaging whereas the eco systems unit included designing of semiconductor display, OLED, storage device and some of the products related to solar system. The objective is to provide capital subsidy to the investors setting up chip manufacturing units in India. [7]

D. Coal Sector

1) *Coal Linkage Policy 2005:* Coal contributes almost 56% of total electricity generated in the country. But coal's availability is not adequate and international price is high compared to domestic price. The indigenous resource, rising imports and high import price made the government to think and approve a new policy for allocation of future coal linkages among thermal power firms. The Central Electricity Authority is to design the coal linkage methodology.
2) *New Coal Distribution Policy:* The Government approved this policy in suppression to the other existing coal distribution policy for core and non-core sector and the different guidelines issued from time to time. The coal distribution under Fuel supply agreement (FSA) for all sectors of consumers are guided by new coal distribution policy circulated by Government in October, 2007. There was also provision for supply of coal to the consumers not covered under FSA by means of e auction of only 10% of annual production coal. [8]
3) *E-Auction Policy:* The purpose of this policy is to make the system totally transparent and to provide equal opportunity to all categories of customers to procure coal anywhere in India with their choices for their own consumption or trading through a simple consumer friendly single window service who are not able to procure through institutional method. This policy introduced by the Government became effective from November, 2007
4) *New Coal Linkage Policy:* This policy is the revival of thermal power also named as SHAKTI (scheme for harnessing and allocating Koyala transparently in India), approved by the Government of India in May, 2017 aimed to transparent coal distribution to the consumers through auction of linkages or through power purchase agreement based on bidding and to provide optimal allocation of the resource across the power sectors. This policy will also benefit the companies not having coal linkages presently as in auction they can get domestic fuel supply at competitive rate and thus provide solution to the lack of coal linkage which is one of the key challenge of the power sector. [9][10]
5) *Import Policy of Coal:* As per the present import policy coal can be freely imported by the consumer themselves under open general license (OGL) from the sources of their choices based on their commercial requirement. Cocking coal is imported by Steel Authority of India and other steel manufacturing units whereas coke is imported by Pig-iron manufacturers and iron and steel sector consumers using mini-blast furnace mainly to reduce the gap of demand of the indigenous resource and to improve the quality of their products. [11]
6) *Pricing Policy of Coal:* This new pricing policy introduced by the Government became effective from April, 2018 with to make the system transparent, accurate, consumer friendly, streamlined and to provide heavy discount to the long term consumers as it was expected to reduce the cost of power generation. This policy is dependent on the total available energy content in each consignment. [12]

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E. Oil and Natural Gas Sector

1) *Coal Bed Methane Policy:* The Government approved the CBM policy on July 1997. India has the third largest coal reserves in the world and there is a scope for high potential CBM which is to be exploited as CBS is cleaner and more efficient than coal. The objectives of this policy are to offer the CBM blocks for exploitation through open bidding system. The 33 CBM blocks awarded under this policy of 1997 hold 64 trillion cubic feet of methane.
2) The Government of India approved this policy in 1997 and became effective in February 1999. Since then *New Exploration Licensing Policy (NELP):* ONGC and OIL companies can obtain the petroleum exploration licenses (PEL) on a competitive basis rather than existing system nomination basis. This policy was introduced to explore the oil and gas resources in the country and to boost their production to meet the rising demand of gas and oil. The New Exploration Licensing Policy (NELP) was replaced by Hydrocarbon Exploration and Licensing policy (HELP) in March 2016.
3) *Foreign Direct Investment (FDI) Policy:* The economic growth of any country is related to the energy demand and in Government of India is adopting many policies to meet the energy demand. Oil and gas sector being one of the top core industries in India, is quite conductive for investment. In many segments of the sectors including refineries, natural gas, petroleum products Foreign Direct Investment is permitted upto 100% and attracts both foreign and domestic investment. [13][14]
4) *Bio-Fuel Policy:* National policy on biofuels was announced in December 2009 with the objective of meeting the increasing energy need of the country by producing second generation ethanol units by investing on unconventional raw materials such as agro waste. The major goals of the policy are to provide energy security by utilization of agro waste products to produce biofuels and a blending mandate of 20% ethanol and bio-diesel through proper technology and processing by 2017. [3]

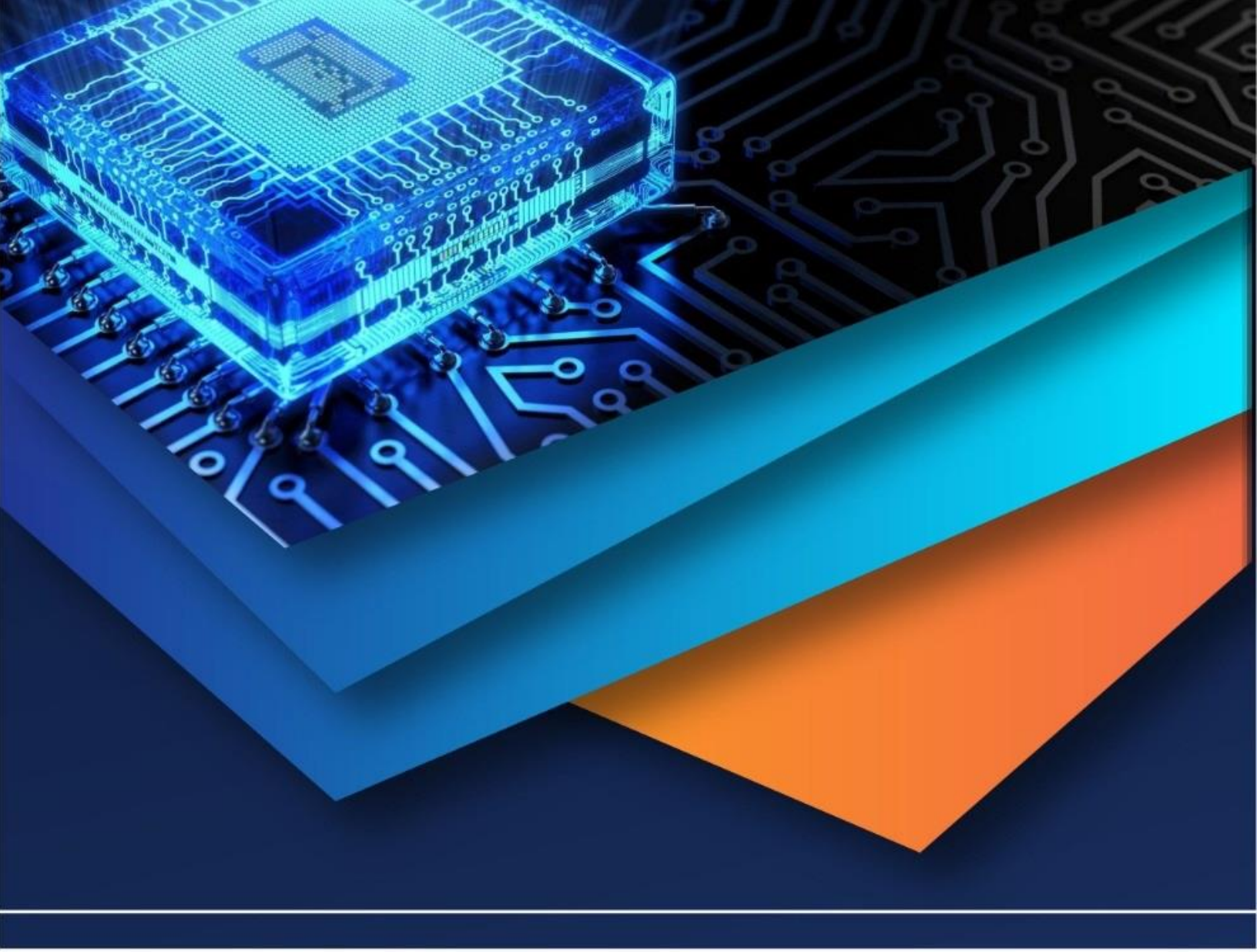
III. CONCLUSION

India has had a negative Energy Balance for decades. Transition from conventional to renewable energy generation can fulfil the energy demand which will also meet the agenda of providing power to all in a safe, clean and sustainable way. But only technology will not help to attain this goal and some proper roadmap/planning are required. So this paper focused on different policies and initiatives taken by the Government of India from time to time which also undergoes tremendous changes for the benefit of consumers. While summing up all the discussions, this paper has highlighted some of the policies adopted for fostering the generation of electricity in different power sectors. Thus the legislatives and the institutional framework while working in synchronization can overcome all the obstacles and improve the development of energy sector in India.

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