

NATIONAL ELECTRICITY POLICY (NEP) - 2021



INDIAN POWER SECTOR OVERVIEW

- ✓ Total Power production per Year : 3,82,730 Billion Units
- ✓ Per Capita Power Consumption : 1,010 KWh
- ✓ Present Peak Shortage : (-) 1.2 %
- ✓ Present Peak Demand : 1,93,850 MW
- ✓ Present Energy Shortage : (-) 2,336 MW
- ✓ All India Average Peak Load Factor (PLF) : 58.64 %

Source: Central Electricity Authority

Energy consumption is forecast to grow at around **5.8 per cent annually to 2025** (up from 3.5 per cent from 2017–2025)

The nature of Indian power demand is evolving.

- ✓ Energy demand in India varies geographically
- ✓ Urban population growth is outpacing rural areas, driving demand in new sectors such as buildings, air conditioning and transportation.

EMPHASIS ON THERMAL GENERATION

- ✓ Coal would necessarily continue to remain the primary fuel for meeting future electricity demand
- ✓ Coal continues to be the cheapest source of generation, though compliance to stricter environment norms remain a challenge, particularly for older stations.
- ✓ Imported coal based thermal power stations, particularly at coastal locations, would be encouraged based on their economic viability. Use of low ash content coal would also help in reducing the problem of fly ash emissions.
- ✓ India will remain dependent on imports of traditional energy sources.
- ✓ India's domestic production of fossil fuels is the lowest among major emerging markets but India relies on fossil fuels for around 75 % of its energy demands.
- ✓ For thermal power, economics of generation and supply of electricity should be the basis for choice of fuel from among the options available. It would be economical for new generation stations to be located either near the fuel sources e.g. pithead locations or load centres.

Total Thermal Coal Imports

	Period		Capesize		Panamax		Supramax	
	CY'20	Jan-May' 21	CY'20	Jan-May' 21	CY'20	Jan-May' 21	CY'20	Jan-May' 21
Total (Million Mt)	158.80	69.15	64.10	37.25	44.80	15.30	49.90	16.60
			40%	54%	28%	22%	32%	24%
Sourced From	CY'20	Jan-May' 21						
Indonesia	60 %	57 %						
South Africa	24 %	18 %						
Australia	6 %	14 %						
United States	5 %	9 %						
Other Countries	5 %	2 %						

NATIONAL ELECTRICITY POLICY (NEP)

The forthcoming National Electricity Policy (NEP) 2021 released by Ministry of Power, Govt. of India.

Aim of Policy is to provide 24 hour x7 days “Power to All” is included in the proposal. NEP also introduced power quality, micro grids, pump hydro storage, real time power markets in the policy statement as key focus areas.

Features of NEP :

- ✓ Coal-based power to contribute to be major contributor in power supply
- ✓ The aim to produce 75 GW energy from the renewable sector till 2022.

Notable points in Proposal:

- ✓ Foresees India’s power demand shooting up over four-fold.
- ✓ The policy has made a case for higher tax on big cars, Small Utility Vehicles (SUV) and promotion of mass transport system like metro rail to improve air quality.

NEP has suggested that power distribution companies (discoms) should explore the possibility of micro grids, especially in areas prone to natural disasters.

NEP noted that the country has a potential of 96,524 MW of pump hydro storage and of that barely 4,785 MW has been out up.

POLICY DIRECTION IN POWER SECTOR

The Indian Government Budget 2021 announced a revamped reform scheme for discoms, entailing USD 40.9 Billion expenditure. The scheme would put the onus on the states to formulate their own action plans and funds would be disbursed accordingly.

National Electricity Policy also focus on challenges and how to recover from challenge and also upcoming/ongoing policies of Govt. regarding rural electrification, Clean Cooking Access, Grid Integration of Renewable Electricity and More Efficient Grid Operation.

NEP also shows the pathways of Fossil fuel based energy and also makes their marketing strategy. It also shows the base demand of coal and oil till 2040. NEP also discuss transparency for every Sector.

Total Installed Capacity as on 30.04.2021

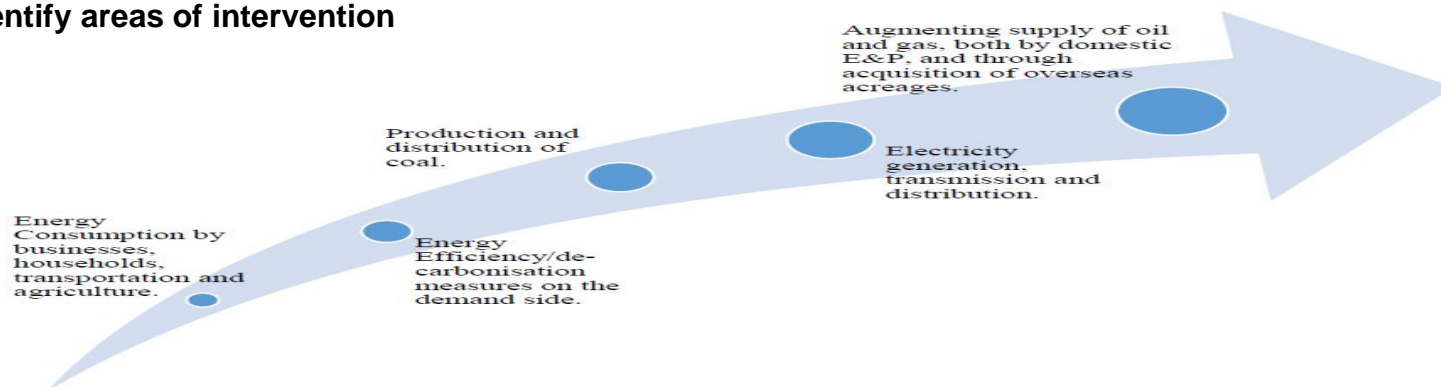
Fuel	MW	% of Total
1. Total Thermal	2,34,728	61.3 %
Coal	2,02,675	53.0 %
Lignite	6,620	1.7 %
Gas	24,924	6.5 %
Diesel	510	0.1 %
2. Hydro (Renewable)	46,209	12.2 %
3. Nuclear	6,780	1.8 %
4. Renewable Energy (MNRE)*	95,013	24.8 %
Total	3,82,730	

Source: Central Electricity Authority

MNRE- Ministry of New and Renewable Energy

CHANGING LANDSCAPE OF INDIAN POWER SECTOR

Identify areas of intervention



✓ Increasing share of private sector in

Thermal Energy Capacity Addition

- # 42 % during 2017-18
- # 44 % during 2018 -19
- # 45 % during 2019 - 20
- # 47.5 % during 2020 - 21
- # Expected to be more than 50% in 2021 - 2022

Power Generation composition as on 30.04.2021

Sector	MW	% of Total
Central Sector	97,507	25.5%
State Sector	103,870	27.1%
Private Sector	181,353	47.4%
Total	3,82,730	

Source: Central Electricity Authority

✓ Increase in demand of power due to following factors

- # Rural Electrification
- # GDP Growth Rate
- # 24x7 Power for All

✓ Fuel related issues

- # Inadequate availability of domestic coal and domestic natural gas
- # Difficulty in obtaining clearances for coal mines
- # Inadequate fuel supply agreements for coal
- # De- allocation of coal mines
- # Time, Cost over run and funding related issues
- # PPA related issues
- # Land acquisition related issues
- # Poor financial health of state distribution companies

DELIVER ENERGY TO CONSUMERS

Generation

Thermal power is predominant type of installed capacity in India, accounting for a 61.31% share of total installed capacity. Endeavour should be to adopt the most efficient technology for coal-based power stations available at any point of time. All future coal based plants should only be of super critical/ultra super critical technology or other more efficient technology.

Use of natural gas as a fuel for power generation would depend upon its availability at reasonable prices. At present, about 6.74% of total installed capacity is through gas based plants and the average PLF of such plants is about 22.15% only.

There are delays in construction of Hydro projects primarily due to environmental and forest clearances

Transmission

Transmission system requires adequate and timely investments. Also efficient and coordinated action to develop a robust and integrated power system for country. Planning new generation capacities, requirement of associated transmission capacity would need to be worked out simultaneously in order to avoid mismatch between generation capacity and transmission facilities.

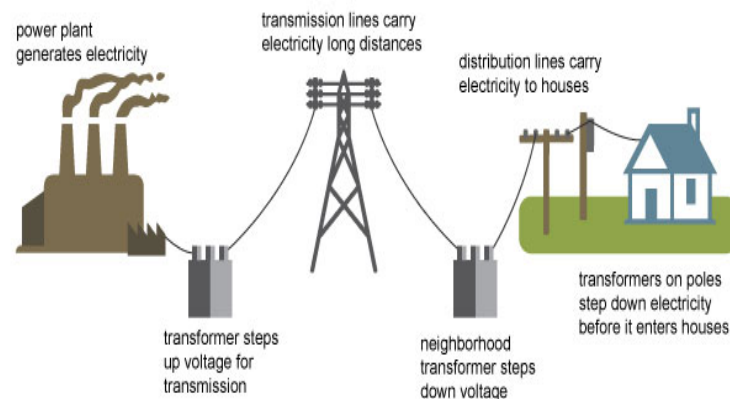
The Government would facilitate the continued development of the National Grid for providing adequate infrastructure for inter-state transmission of power and to ensure that underutilized generation capacity is facilitated to generate electricity for its transmission from surplus regions to deficit regions.

Distribution

Distribution is most critical segment of the electricity business chain. The real challenge of reforms in the power sector lies in efficient management of the distribution sector. However, this sector is marred with many inefficiencies like high AT&C losses, inadequate system planning, poor upkeep & maintenance of equipment etc. which have affected the financial health of the distribution companies and leading to poor consumer satisfaction. Hence, distribution sector should be the focus area in the power sector.

Feeder separation is carried out in many states resulted in better load management and increased supply to the rural households. Differential tariffs between peak and off-peak hours for consumers and generating stations should be introduced expeditiously.

Electricity generation, transmission, and distribution



SCOPE OF IMPROVEMENT - SUGGESTIONS

As per the energy modelling exercise undertaken by the Government planning think tank (NITI Aayog) — India Energy Security Scenarios (IESS), 2040, Energy demand of India is likely to go up by 2.7-3.2 times between 2012 and 2040, with the electricity component itself rising 4.5 fold.

Focus Areas

- ✓ Coal based generation capacity may still be required to be added in the country, as it continues to be the cheapest source of generation, though compliance to stricter environmental norms remain a challenge, particularly for the older stations.
Endeavour should be to adopt the most efficient technology for coal-based power stations available at any point of time.
All future coal based plants should only be of super critical/ultra super critical technology or other more efficient technology
- ✓ Commissioning of various Ultra Mega Power Projects (UMPPs) based on thermal power attributed to the largest share of thermal power in the country's energy mix
- ✓ Significant Lignite resources in the country are located in Tamilnadu, Gujarat and Rajasthan and these should be increasingly utilized for power generation. Lignite mining technology needs to be improved to reduce costs.
- ✓ New power generation capacity could come up based on indigenous gas findings, which can emerge as a major source of power generation if prices are reasonable. A national gas grid covering various parts of the country could facilitate development of such capacities.
- ✓ Imported LNG based power plants also are potential source of electricity and the pace of development depend on their commercial viability



WAY AHEAD !!

The NEP aims at supporting the Indian ambition to emerge as a well-developed and resilient economy with high level of human development. Additionally, it helps prepare the nation to anticipate the technological and market related changes in the energy sector.

The Proposal needs to be addressed as more specific with steps for implement with framewoark vision document.



THANK YOU