SIPAT SUPER THERMAL POWER PLANT

PROJECT REPORT

As a part of

VOCATIONAL TRAINNING, NTPC SIPAT 2023

Super critical and sub critical power plant

Differences in cycle design and efficiency

JULY 2023

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POWER SECTOR IN INDIA

Power is one of the most essential components of infrastructure and development in any country. India has a large and diverse power sector, which consists of generation, transmission and distribution of electricity from various sources, such as coal, natural gas, hydro, nuclear, wind, solar and biomass. The power sector plays a vital role in the economic growth and social welfare of the country, as well as in providing access to affordable and reliable electricity to all citizens.

India has witnessed a significant increase in its power generation capacity over the last few decades, due to various reforms and initiatives by the government and the private sector. According to the Ministry of Power, the total installed power capacity of India as of January 31, 2023 was 411.64 GW, of which 40.9% was from renewable sources (including hydro). The electricity generation target for the year 2023-24 has been fixed at 1750 BU, with a growth of around 7.2% over the previous year. India is also the third-largest producer and consumer of electricity worldwide, and the only country among the G20 nations that is on track to achieve the targets under the Paris Agreement.

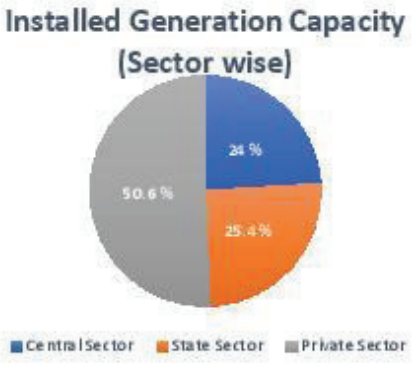
However, the power sector in India also faces several challenges and issues, such as demand-supply gap, transmission and distribution losses, financial distress of distribution companies, environmental concerns, regulatory hurdles, land acquisition problems, fuel availability and quality issues, etc. These challenges affect the performance and efficiency of the power sector and hamper its growth potential.

POWER GENERATION CAPACITY AND PERFORMANCE

The power generation capacity of India can be classified into two categories: conventional and non-conventional sources. Conventional sources include coal, natural gas, oil, hydro and nuclear power. Non-conventional sources include wind, solar, biomass, waste to energy and small hydro power.

The following table shows the Installed Generation Capacity (Sector Wise) as on 30.04.2023:

Sector	MW	% of Total
Central Sector	1,00,055	24.0%
State Sector	1,05,726	25.4%
Private Sector	2,10,810	50.6%
Total	**4,16,591**	



REGIONAL LEARNING INSTITUTE, NTPC SIPAT

क्षेत्रीय ज्ञानार्जन संस्थान,एनटीपीसी,सीपत

CERTIFICATE OF VOCATIONAL TRAINING -2023

औद्योगिक प्रशिक्षण प्रमाणपत्र-2023

Ref No. RLI/SIPAT/VT/CERT/2023/VT2023MECH-238

THE CERTIFICATE IS AWARDED TO

BASAVALA SUDARSHANA RAO

VT Roll No – NTPC-VT2023MECH-238

MECHANICAL ENGINEERING

GGU , BILASPUR

For satisfactorily completing **Vocational Training at NTPC Sipat, Bilaspur** for a period of four weeks from 10/06/2023 to 10/07/2023. The participant has successfully completed the course and has also completed the project assigned to him/her as part of this course. We wish him/her a bright and successful future.

This certificate is digitally signed.

Date: 17.07.2023

G. PRAVEEN KUMAR
Sr Manager (RLI)

A K TRIPATHI
GM & Head (RLI-Simulator)