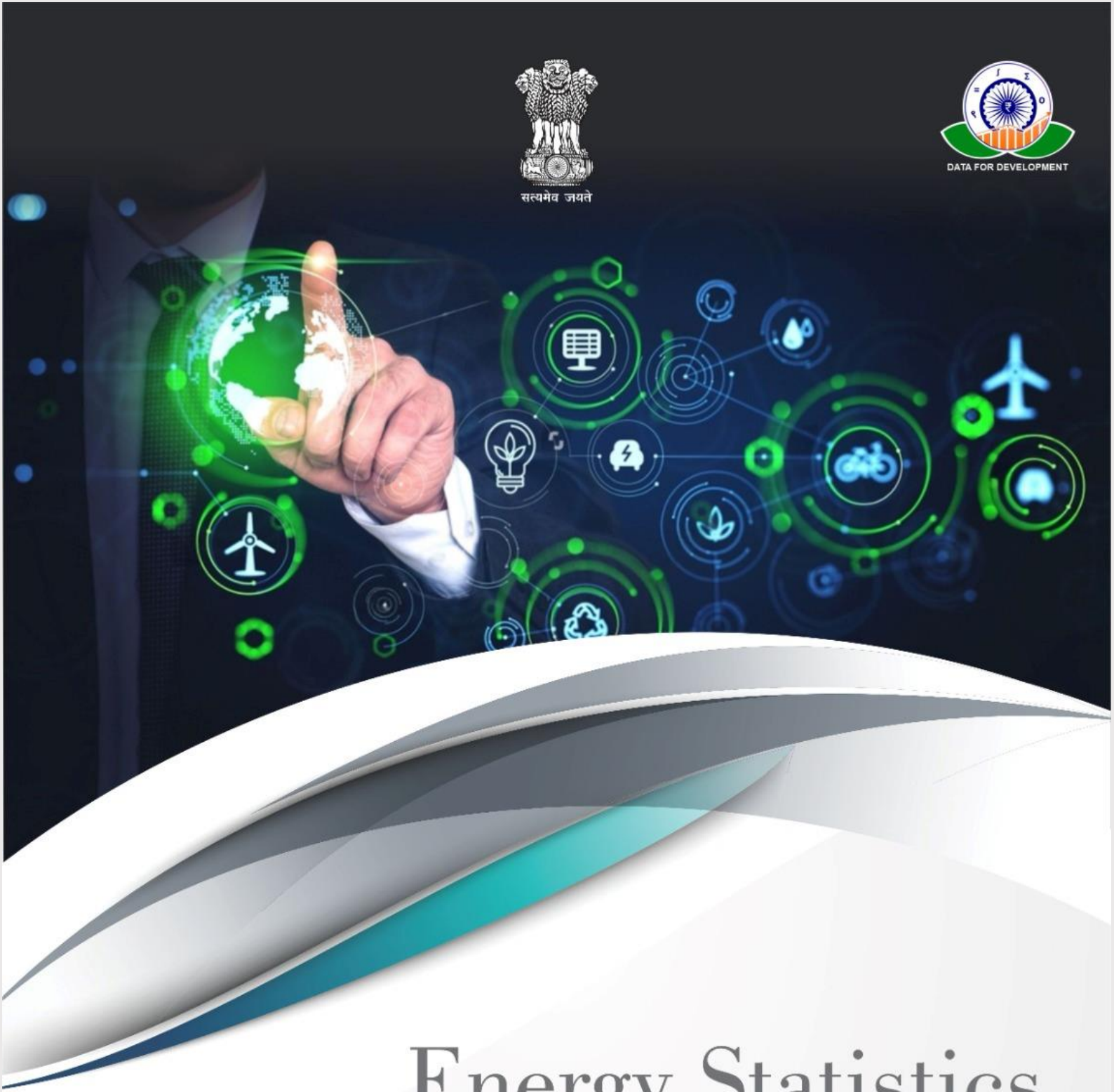
सत्यमेव जयते

DATA FOR DEVELOPMENT



Energy Statistics
India 2026

Government of India
Ministry of Statistics and Programme Implementation
Economic Statistics Division
National Statistics Office
https://www.mospi.gov.in

डॉ. सौरभ गर्ग, भा.प्र.से.
सचिव

Dr. Saurabh Garg, I.A.S.
Secretary

DATA FOR DEVELOPMENT

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भारत सरकार
सांख्यिकी एवं कार्यक्रम कार्यान्वयन मंत्रालय
Government of India
Ministry of Statistics & Programme Implementation

Message

Energy is the backbone of India's economic growth and social development. As one of the world's most populous and fastest-growing economies, India's energy demands are evolving rapidly.

The 33rd edition of the **Energy Statistics India - 2026** publication, provides valuable insights into India's energy sector. This publication offers data on energy reserves, capacity, production, trade, prices, consumption including energy-profile at national level in the form of tables like energy balance, the energy account of India and different sustainable energy efficiency parameters as per International guideline. All these intend to assists the policymakers, industry leaders and all the user-community for a better understand of energy landscape of India.

The Government of India is committed to enhancing energy access, investing in renewable sources and improving energy efficiency as part of our vision for a low-carbon economy. This publication highlights the trends and developments in the sector, offering a clear picture of how energy consumption aligns with the country's ambitions for sustainable growth, clean energy, and energy security.

I congratulate all the all the officials of MoSPI for adopting the key recommendations made by the Expert Committee under the Chairmanship of Dr. Rangan Banerjee, Director, IIT-Delhi, in this edition of the publications to make it more informative and useful for its' stakeholders.

I encourage all the stakeholders—government agencies, businesses, academia and civil society—to use the insights in this publication to contribute to the nation's goal of achieving a sustainable, secure, and affordable energy system for all.

Saurabh Garg

(Dr. Saurabh Garg)

New Delhi
March 27, 2026

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National Sample Survey
Celebrating 75 years of NSS
Data for Development

नरेन्द्र कुमार संतोषी
महानिदेशक
N.K. Santoshi
Director General

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आज़ादी का अमृत महोत्सव

भारत सरकार / Government of India
सांख्यिकी एवं कार्यक्रम कार्यान्वयन मंत्रालय
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Foreword

In 2015, 193 Member States of the United Nations, including India, committed to the Post-2015 Development Agenda, with the guiding principle of "No one left behind." This pledge aims to create a world that is more prosperous, inclusive, sustainable, and resilient. Central to this agenda is **Goal 7**, which emphasizes the importance of access to affordable, reliable and modern energy services for a sustainable path to prosperity, particularly for the most vulnerable communities.

This publication serves as a vital source for providing a comprehensive overview of the country's evolving energy landscape. To make the publication more responsive to the evolving needs of the users, MoSPI constitutes an Expert Committee under the Chairmanship of Dr. Rangan Banerjee, Director, IIT-Delhi with representatives across all the line-Energy Ministries. The Committee has proposed invaluable suggestions addressing major data-gaps and overall improvement in the energy-Statistics publication.

I believe that this edition will provide invaluable insights to the policymakers and other stakeholders in formulating effective strategies and making necessary course corrections to ensure sustainable and reliable energy access for all.

Date- 30-Mar-26

N.K Santoshi
Director General

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Foreword

Energy is a vital driver of India's economic and social development. As the country navigates the challenges of meeting growing energy demands, accurate and up-to-date data plays a critical role in guiding informed decision-making and policy formulation.

The 33rd edition of the publication **Energy Statistics India 2026** report, brought out by the Economic Statistics Division (ESD), provides a comprehensive overview of India's energy landscape, including key statistics on production, consumption, and trade across both traditional and renewable energy sources. The publication offers valuable insights into national energy trends along with international Indicators like *Energy commodity Balance, Energy Balance, Sankey Diagram,* all prepared in accordance with the *International Guidelines* outlined in the IRES (International Recommendation for energy Statistics).

The 33rd edition of this publication includes improvements suggested by the Expert Committee on Energy Statistics under the Chairmanship of Dr. Rangan Banerjee, Director, IIT-Delhi. Major improvements includes, plugging the data-gaps of *end-use consumption of Imported Non-Coking Coal, sub-sectoral consumption of electricity under Industry, inclusion of Bunker Data in the energy balance table, the world energy statistics, credit flow to energy sector.* I believe that these improvements will serve informed policymaking, foster economic growth in the mission towards *Vikshit Bharat 2047.*

I acknowledge the contributions of various stakeholders who have provided the data and insights that have shaped this publication. I would also like to congratulate all the officers involved in finalizing the latest edition of ES-2026.

Date - 27-Mar-26

Dalip Singh

Dr. Dalip Singh
Additional Director General

Officers associated with the publication

Dr. Dalip Singh	Additional Director General
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Abbreviations and Acronyms

ATF	Aviation Turbine Fuel
BCM	Billion Cubic Metres
BT	Billion Tonne
F.O.	Furnace Oil
GgCO2	Gigagrams of Carbon Dioxide
GW	Giga Watt
GWh	Giga Watt Hour
SHP	Small Hydro Power
HSDO	High Speed Diesel Oil
IAEA	International Atomic Energy Agency
IEA	International Energy Agency
IOC	Indian Oil Corporation
IRES	International Recommendations on Energy Statistics
KToE	Kilo Tonne of oil Equivalent
KW	Kilowatt
KWH	Kilo Watt Hour
LDO	Light Diesel Oil
LNG	Liquefied Natural Gas
LPG	Liquefied Petroleum Gas
LSHS	Low Sulphur Heavy Stock
Lubes	Lubricant
MJ	Mega-joules
MMSCM	Million Metric Standard Cubic Metres
MS/MOGAS	Motor Spirit/Motor Gasoline
MT	Million Tonne
MTBE	Methyl Tert-Butyl Ether
M.T.O.	Mineral Turpentine Oil
MTY	Million Tonne Per Year
MW	Megawatt

O.E.C.D.	Organization for Economic Cooperation & Development
O.P.E.C.	Organization of Petroleum Exporting Countries
(P)	Provisional
PJ	Peta-joules
PEC	Per Capita Energy Consumption
PET-COKE	Petroleum Coke
SBPS	Special Boiling Point Spirit
SDG	Sustainable Development Goal
SEEA	System of Environmental Economic Accounting
SKO	Superior Kerosene Oil
SNA	System of National Accounts
TEC	Total Energy Consumption
TFC	Total Final Consumption
TPES	Total Primary Energy Supply
TMT	Thousand Metric Tonne
TMTPA	Thousand Metric Tons Per Annum
VGO	Vacuum Gas Oil

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Executive Summary

Energy is an essential ingredient for all human activities, be it the power sector, the Industry, transportation or the household, the requirement of energy is indispensable and ubiquitous. In the Financial Year 2024-25, India has experienced a steady and healthy growth in both, energy supply and consumption. The Indian economy, continued to have higher quench for energy to support the rapidly expanding urbanization and industrialization and the vision of becoming the *Viksit Bharat by 2047*. The key highlights of the overall performance of the energy sector of India during FY 2024-25 are as follows:

1. As on March 31, 2025, the reserves of Coal stood at 400.72 billion tonnes of which Odisha has the highest share of 25.20% followed by Jharkhand (23.27%), Chhattisgarh (21.28%), West Bengal (8.58%) and M.P(8.38%). The Proved Reserves (i.e. economically mineable reserve) consists of around 55% of the total Coal reserve in India during FY 2024-25. The estimated Crude Oil reserves was 672.07 million tonnes of which Western Offshore accounted for around 31%, followed by Assam (21.53%), Rajasthan (20.30%) and Gujrat (18.03%). The Natural Gas reserves were recorded at 1,073.01 billion cubic meters (BCM) during FY 2024-25; which is primarily located at the Western Offshore (32.50%) followed by Eastern Offshore (25.23%) and Assam (15.22%).

2. The estimated potential for generation of energy from renewable resources have reached at 47,04,043 MW as on March 31, 2025. the *Solar Energy* has witnessed a staggering growth from 748,990 Megawatt during FY: 2023-24 to 33,43,378 Megawatt during FY: 2024-25 and is having the highest share (around 71%) followed by *Wind Power* (11,63,856 Megawatt) and *Large Hydro* (1,33,410). More than 70% of the total potential for generation of renewable energy is concentrated in the following six (6) States viz. Rajasthan (23.70%), Maharashtra (14.26%), Gujarat (9.10%), Andhra Pradesh (9.1%), Karnataka (8.59%) and Madhya Pradesh (8.09%).

3. The capacity of Coal washeries in India has displayed a staggered growth over the years from 131.24 MTY as on March 31, 2016 to 262.39 MTY as on March 31, 2025; in contrast

there is a steep rise in the volume of production of Coal over the years (an increase of 408.29 MTs from FY 2015-16 to FY: 2024-25).

4. Coal remained the backbone of India's energy supply, accounting for nearly 79% of the total energy supplied domestically in FY 2024-25. Coal production grew by 4.98%, reaching at 1047.52 million tonnes, up from 997.83 million tonnes in the previous year. The Non-Coking Coal is having the dominating share of the total production of Coal, at around 93.65% during FY: 2024-25.

5. The gross generation of electricity from the Renewable resources (both Utility and Non-Utility together) has also emerged significantly over the years. From an amount of 189,314 GWH of electricity which was generated during FY 2015-16, has increased to 416,823 GWH during FY 2024-25, which is a CAGR of 9.17% over a period of 10 years.

6. To meet the domestic demand, India relies heavily on Import of Coal, Crude Oil and Natural Gas. During FY 2024-25 the Net-Import of Coal decreased by 8.09% and reached at 241.71 million tonnes, while the Net-Import of Natural Gas surged by 12.34%, amounting to 35.72 BCM (Billion Cubic Meter) during FY 2024-25 over last year. The import of Crude Oil also grew from 234.26 Million Tonnes to 243.22 Million during FY 2024-25, over last year.

7. India's electricity availability showed a notable increase. The losses due to *Transmission and Distribution* stood at 17.52% during FY 2024-25 and the net electricity available for supply grew by 5.26%, over last FY reaching at 1,725,254 GWh during FY 2024-25.

8. India's Total Primary Energy Supply (TPES) has continued its steady growth with an increase of almost 3% during FY 2024-25, amounting to 932,816 Ktoe over the previous year. The major source of energy comes from Coal (including lignite) (59.21%) which is followed by Crude Oil (29.79%) and Natural Gas (7.12%).

9. Energy supplied from the Renewable energy resources have experienced a healthy and consistent growth over the years; from an amount of 16,281 Ktoe during FY: 2015-16 to 35,847 Ktoe during FY: 2024-25 i.e. it has registered a CAGR of 9.17% over 10 years. The energy generated from *Solar, Wind and Others (excluding Large Hydro)* has recorded a growth

from a 5,833 Ktot during 2015-16 to 23,032 Ktoe during 2024-25 i.e. close to CAGR of 16.5% over the past 10 years. The same is testament to the commitment of India to attain the net-zero emission by 2070.

10. The *Total Final Consumption (TFC)* of energy, into different end-use sectors, has also experienced a consistent rise over the years, depicting a strong demand of energy for fueling the growing economy. TFC of energy surged by around 30% since 2015-16, reaching at 608,578 Ktoe in FY 2024-25. In the year 2024-25, reflecting India's rapid urbanization the Residential sector witnessed the highest growth at 8.04 %; followed by commercial/public service sectors (5.06%), transport (4.36 %) and Industry sectors (2.67 %) as compared to previous year, all of which are the driving forces of an economy and testament to the steadfast progress of Indian economy.

11. The sector Agriculture/Forestry, has also witnessed a sound increase of energy consumption over years. From an amount of 18,855 Ktoe of energy during FY 2015-16 it rose to 27,068 Ktoe of energy during FY 2024-25, which is a CAGR of 4.10% over past 10 years.

12. The *per-capita-energy-consumption* (after excluding components like Industry Own Consumption, Losses etc.) in India has also experienced a growth over the years. From an amount of 15,296 Mega Joule/person during FY 2015-16, the same has risen by over 19% during the last 10 years and reached at 18,096 Mega Joule/person during FY 2024-25. The *per-capita-electricity-consumption* has gone up from 780 KWh/person during FY 2015-16 to 1,153 KWh/person during FY: 2024-25, i.e. an increase of around 48% over a span of 10 years.

13. The overall Energy intensity of India has witnessed a consistent improvement over the past years. A shift in the base year of GDP from 2011-12 to 2022-23 has its' direct impact upon all the figure of Energy Intensities from FY: 2022-23 onwards. Whereas the total energy intensity has become into 0.1346 Mega Joules/1 INR of GDP during FY: 2022-23, which further marginally improved to 0.1329 Mega Joules/1 INR of GDP during FY:2024-25(P). Further the Energy Intensity for Industry (164.63 Mega Joule/'000 Rs. of GDP),

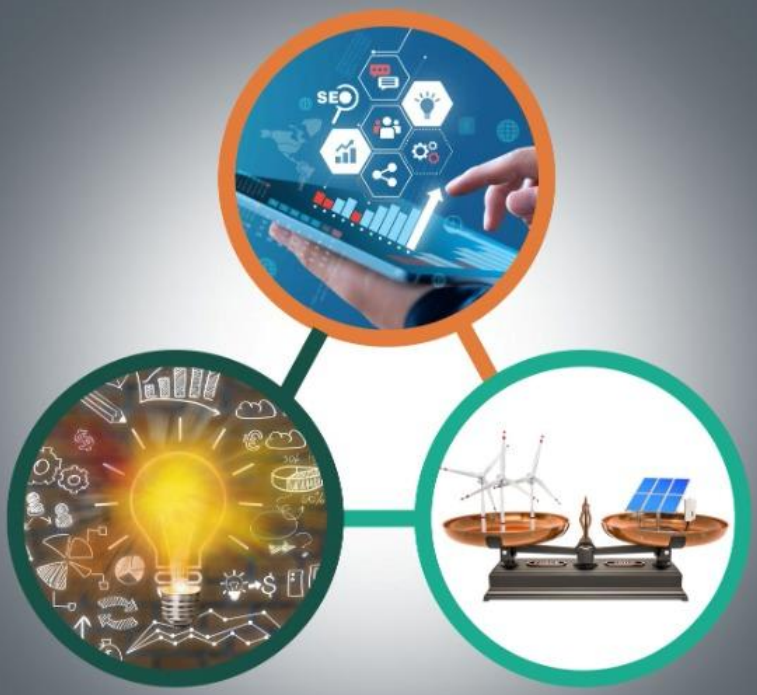
Agriculture (22.28 Mega Joule/'000 Rs. of GDP) and Transport (594.54 Mega Joule/'000 Rs. of GDP) have also been observed to have reduced significantly during 2024-25(P).

14. India's dependency on the energy Imports has remained significant. During FY 2024-25, the Import-dependency of Crude Oil was around 89.44 %, whereas the same was 49.73 % for Natural Gas and 23.50 % for Coal.

15. In line with the commitment to transform into Net-zero emission by 2070, the Credit Flow to the energy in India has also experienced a steadfast growth over the years. A credit flow of ₹ 1,688 Cr during 2021 into the Renewable Energy sector has increased to ₹10,325 crore during 2025, which is a growth of over 6 times in a span of 5 years. The same testament to the India's efforts to become self-reliant in the field of energy.

16. At International level, the world is still heavily relied on Non-renewable energy-resources (around 90% of the total energy-consumed) like Crude Oil and Coal. During the span between 2015 to 2020 a surge of **17.3**% growth has been observed in the supply of energy from Renewable resources in the world. The growth story of renewable energy-resources continues to remain hovering around a figure of 10%-12% on Y-o-Y basis, reflecting a clear transformation of energy-consumption pattern among the countries of the world at large.

17. A quick comparison of energy-consumption pattern among some of the selected countries of the world (refer Chapter -10) suggests that, USA and China have dominated the energy-supply consumption as-well-as the per-capita electricity consumption and other parameters at International level; whereas India, with its' growing economy, still have roads to travel, as per data published by IEA.

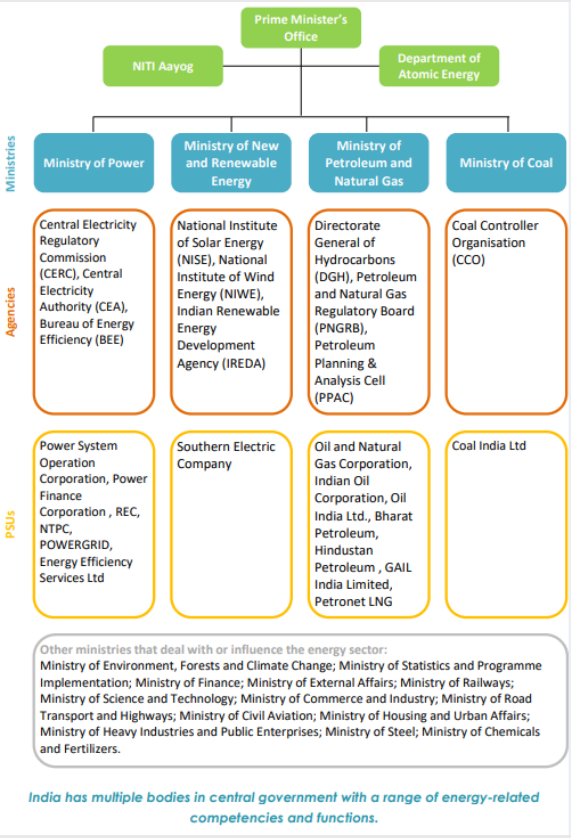


Introduction

Introduction

1. India's Energy Scenario

India is a major force in the global energy economy. There has been a rapid increase in energy consumption due to a growing population and rapid economic growth. The growing demand is met through various energy sources, such as coal, oil and solid biomass. Coal[1] has underpinned the expansion of electricity generation and industry, and remains the largest single fuel in the energy mix. Oil consumption[2] and imports have grown rapidly on account of rising vehicle ownership and road transport use. Natural gas and modern renewable sources of energy have started to gain ground, and the rise of solar photovoltaic (PV), in particular, has been spectacular. India is currently the world's 3rd largest consumer of oil, 3rd largest LPG consumer, 4th largest LNG importer, 4th largest refiner and 4th largest automobile market[3]. As far as the governance of the energy sector by the central government is concerned, the following figure provides a snapshot.



India has multiple bodies in central government with a range of energy-related competencies and functions.

India's announcement[4] that it aims to reach net-zero emissions by 2070 and to meet fifty percent of its electricity requirements from renewable energy sources by 2030 is a significant moment for the global fight against climate change. India is pioneering a new model of economic development that could avoid the carbon-intensive approaches.

India is constantly endeavoring towards sustainable and clean energy. In line with the Prime Minister's announcement at COP-26[5], M/o New and Renewable Energy is working towards achieving 500 GW of Non-Fossil based electricity generation capacity by 2030. India stands 4th globally in Renewable Energy Installed capacity, 4th in Wind Power capacity and 3rd in Solar Power capacity (as per the International Renewable Energy Agency – Renewable Capacity Statistics 2025).

[1] https://www.iea.org/countries/india
[2] https://iea.blob.core.windows.net/assets/1de6d91e-e23f-4e02-b1fb-51fdd6283b22/India_Energy_Outlook_2021.pdf
[3] https://pib.gov.in/PressReleaseIframePage.aspx?PRID=1992767
[4] https://www.iea.org/commentaries/india-s-clean-energy-transition-is-rapidly-underway-benefiting-the-entire-world
[5] https://pib.gov.in/PressReleasePage.aspx?PRID=1992732

In addition, some of other program/schemes that are also being implemented are:

i. National Green Hydrogen Mission
ii. Green Energy Corridor-Inter State Transmission System for 13 GW RE Projects in Ladakh
iii. Production Linked Incentive (PLI) Scheme for High Efficiency Solar PV Modules
iv. Offshore Wind Energy, Bioenergy
v. Solar Parks, Pradhan Mantri Kisan Urja Suraksha evam Utthaan Mahabhiyan (PM KUSUM), Rooftop Solar etc.

Energy is the most important sector for adaptation as it is responsible for 75-80% of the emissions. India has emerged as a world leader in energy transition. Solar energy contributes to more than 45% in the total renewable energy segment, making it the largest contributor amongst all RE sources (excluding large hydro projects). Installed capacity of solar energy in India has increased by more than 30 times from 2.82 GW in March 2014 to 94.17 GW in December 2024.

2. Energy Statistics and International Recommendations

The United Nations Statistical Commission, at its forty second session (22–25 February 2011), adopted the International Recommendations on Energy Statistics (IRES) as a statistical standard and encouraged its implementation in all countries. IRES provide a comprehensive methodological framework for the collection, compilation and dissemination of energy statistics in all countries irrespective of the level of development of their statistical system. In particular, IRES provides of a set of internationally agreed recommendations covering all aspects of the statistical production process, from the institutional and legal framework, basic concepts, definitions and classifications to data sources, data compilation strategies, energy balances, data quality issues and statistical dissemination.

Introduction

As per the IRES 2011, recommended unit of dissemination for main categories of energy products are:

Recommended units for dissemination

Energy products	Dimension	Unit
Solid fossil fuels	Mass	Thousand metric tons
Liquid fossil fuels	Mass	Thousand metric tons
(Liquid) Biofuels	Mass/Volume	Thousand metric tons/ Thousand cubic metres
Gases	Energy	Terajoules
Wastes	Energy	Terajoules
Fuelwood	Volume/ Energy	Thousand cubic metres/ Terajoules
Charcoal	Mass	Thousand metric tons
Electricity	Energy	GWh
Heat	Energy	Terajoules
Common unit (e.g., balances)	Energy	Terajoules
Electricity installed capacity	Power	MW
Refinery capacity	Mass/time	Thousand metric tons/year

Source: IRES, 2011, United Nations

3. Energy Resources and Products

Energy resources refer to "all non-renewable energy resources of both inorganic and organic origins discovered in the earth's crust in solid, liquid and gaseous form." Energy reserves are part of the resources that, based on technical, economic and other relevant (e.g., environmental) considerations, could be recovered and for which extraction is justified to some extent.

The term products are understood in the same way as in economic statistics where it refers to all goods and services that are the result of production.

As a general guideline, energy products refer to products exclusively or mainly used as a source of energy. They include forms of energy suitable for direct use (e.g., electricity and heat) and energy products that release energy while undergoing some chemical or other process (including combustion). By convention, energy products also include peat, biomass and waste if and only if they are used for energy purposes.

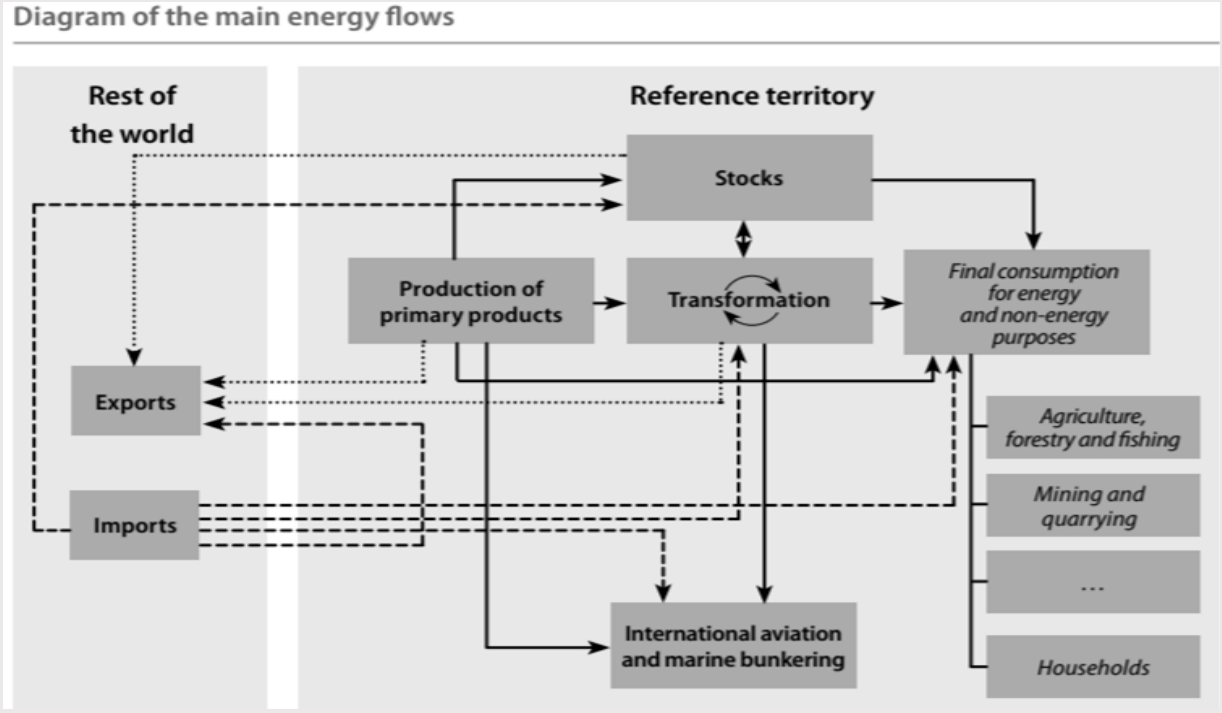
Since a number of energy products are transformed into other kinds of energy products prior to their consumption, a distinction is made between primary and secondary energy products. This distinction is necessary for various analytical purposes, including for avoiding the double-counting of energy production in cross-fuel tabulations, such as energy balances. Energy products can be obtained from both renewable (e.g., solar, biomass, etc.) and non-renewable sources (e.g., coal, crude oil, etc.).

Introduction

The description of the boundary of the universe of energy products in energy statistics is not always straightforward. For example, different forms of corn/corncobs are: (1) combusted directly to produce heat; (2) used in the production of ethanol as a biofuel, (3) consumed as food, or (4) thrown away as waste.

4. Energy Flows

As per the IRES 2011, the broad sectoral diagram representation of Energy Flow in an economy is presented below.



Source: IRES, 2011, United Nations

The term "energy flow" refers to the production, import, export, bunkering, stock changes, transformation, energy use by energy industries, losses during the transformation, and final consumption of energy products within the territory of reference for which these statistics are compiled. This territory generally corresponds to the national territory; however, it can also refer to an administrative region at the sub-national level or even to a group of countries. The term "rest of the world" is used here to denote all areas/territories outside the reference territory.

The publication, Energy Statistics India 2026, is compliant with the IRES 2011 and follows the practices prescribed therein.

5. Energy Statistics India 2026

The publication provides a comprehensive analysis of India's energy sector, covering the reserves and potential for energy generation, installed capacity and capacity utilization. It also provides the production of energy resources, energy imports, exports and pricing trends, as well as the total energy available from domestic production and trade. The publication highlights sector/industry-wise energy consumption patterns and presents a national energy balance. It also addresses sustainability in energy, exploring environmental impacts, renewable energy adoption and country's energy accounts. In the latest edition, a new chapter on "World Energy Statistics" has been introduced along with information on Credit flow to the domestic energy sector for capturing the accounting aspect of the energy-domain in India.

The data for this report has been sourced from various line ministries and government departments, including:

- **Ministry of Coal**
- **Ministry of Petroleum and Natural Gas**
- **Ministry of Power**
- **Ministry of New and Renewable Energy**
- **Geological Survey of India, Ministry of Mines**

Chapter One

Energy Reserves and Potential

CHAPTER 1
Energy Reserves and Potential

Introduction

Energy reserves are part of the energy resources that, based on technical, economic and other relevant (e.g. environmental) considerations, can be recovered and for which extraction is justified. The exact definition of reserves depends on the kind resources in focus.

Global Classification of Energy Reserves

The classification of energy reserves is guided by the **United Nations Framework Classification for Fossil Energy and Mineral Reserves and Resources (UNFC 2009)**. This framework evaluates resources based on:

- **Economic and Social Viability**
- **Field Project Status and Feasibility**
- **Geological Knowledge**

The **System of Environmental Economic Accounting (SEEA)-Energy** groups the detailed categories of UNFC into three aggregated classes characterizing the commercial recoverability of the resources as follows:

- **Class A**: Commercially recoverable resources.
- **Class B**: Potentially commercially recoverable resources.
- **Class C**: Non-commercial and other known deposits.

Energy Reserves in India

India has a diverse range of energy resources, with significant reserves of both fossil fuels and renewable energy potential. The country's energy mix is undergoing a transformation to reduce dependence on fossil fuels and promote the use of renewable energy sources, driven by environmental, economic, and macroeconomic consideration.

This chapter highlights the energy reserves and potential in India, focusing on both fossil fuels and renewable energy resources. It explores coal, lignite, crude oil, natural gas, and renewable energy potential, providing an overview of the country's energy landscape.

Chapter 1: Energy Reserves and Potential

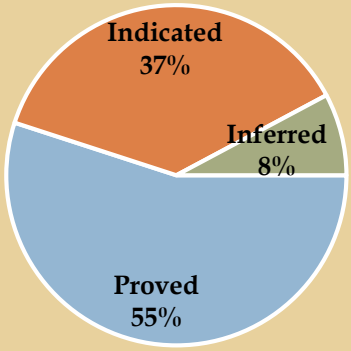
Highlights of reserves in India

1.1 Coal Reserves

India is home to one of the **largest proven coal reserves** in the world. As of **01-04-2025**, the total estimated coal reserves were **400.72 billion tonnes**, showing an addition of **11.29 billion tonnes** compared to the previous year. This marks a **growth of 2.90%** in total coal reserves during the year **2024-25(P)** over the previous year (2023-24) (Table 1.1). The distribution of coal reserves in India is concentrated in a few states like **Odisha**, **Jharkhand** and **Chhattisgarh.** These three states account for approximately **70% of the total coal reserves** in the country.

Out of the total reserves in the country, proven reserves* i.e. economically viable and geologically confirmed account for approximately 55% of the total estimated coal reserves as depicted in the **figure 1.1**.

Fig 1.1 Estimated Reserves of Coal in India as on 01.04.2025



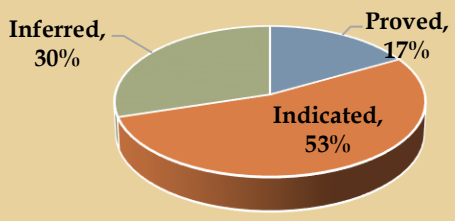
Total Estimated reserves = 400.715 Billion Tonnes

1.2 Lignite Reserves

The total estimated reserves of **lignite** as on **01-04-2025** stood at **47.37 billion tonnes**, showing an increase of **0.07 billion tonnes** over the previous year. This marks an **increase of 0.16%** in lignite reserves during the year **2024-25(P)** compared to **2023-24 (Table 1.2)**. The highest reserves of lignite are located in the state of **Tamil Nadu (79%)**.

Out of the total lignite reserves in the country, proven reserves of lignite account for approximately **17%** of the total lignite reserves in India as shown in the **figure 1.2**.

Fig 1.2 Estimated Reserves of Lignite in India as on 01.04.2025



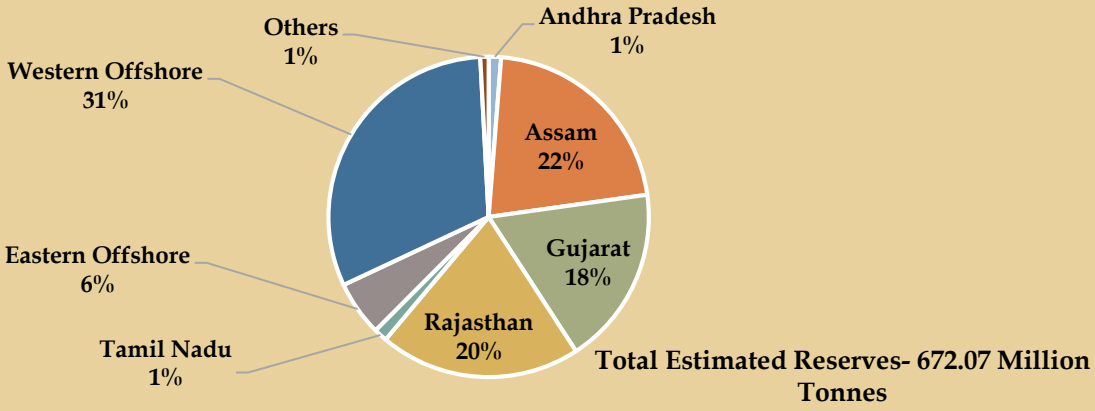
Total Estimated reserves = 47.37 Billion Tonnes

** Brief about the Proved, Inferred and Indicated has been given under Annexure-I.*

1.3 Crude Oil Reserves

As of **01-04-2025**, the estimated reserves of **crude oil** in India stood at **672.07 million tonnes**, compared to **671.40 million tonnes** in the previous year, reflecting a **0.10% increase** over the last year (Table 1.3). Geographically, the maximum crude oil reserves in India are concentrated in the **Western Offshore** region, which accounts for **31%** of the total crude oil reserves. This is followed by the **Assam** (22%) and **Rajasthan** (20%) as shown in **figure 1.3**.

Fig 1.3: Estimated Reserves of Crude Oil in India as on 01.04.2025

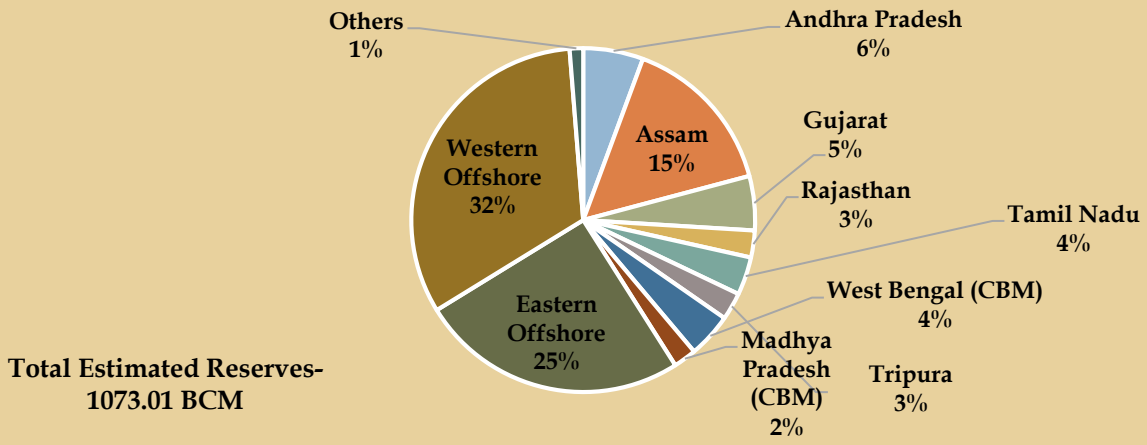


Others include Arunachal Pradesh (0.43%), Nagaland (0.35%), Tripura (0.01%), West Bengal (0.01%)

1.4 Natural Gas Reserves

The estimated reserves of **natural gas** as of **01-04-2025** were **1,073.01 Billion Cubic Meters (BCM)** compared to **1,094.19 Billion Cubic Meters (BCM)** in the previous year, reflecting a **decrease of 1.94%** over the last year (Table 1.4). The largest reserves of natural gas in India are located in the **Western Offshore** region, which holds approximately **32%** of the total natural gas reserves. This is followed by the **Eastern Offshore**, which accounts for **25%** of the reserves as shown in **figure 1.4**.

Fig 1.4 : Estimated Reserves of Natural Gas in India as on 01.04.2025



#Others include Arunachal Pradesh (0.67%), Jharkhand (CBM) (0.44%), Nagaland (0.009%)

1.5 Renewable Energy Potential in India

India is increasingly focusing on renewable energy sources as part of its sustainable development and mitigating impact on climate. As of **March 31, 2025**, the total estimated potential for renewable power generation in India stood at **47,04,043 MW**. This potential comes from a variety of renewable sources, including **wind**, **solar**, **biomass**, **small hydro**, and **cogeneration from bagasse (Table 1.4)**.

Fig 1.5: Source wise Estimated Potential of Renewable Power in India as on 31.03.2025

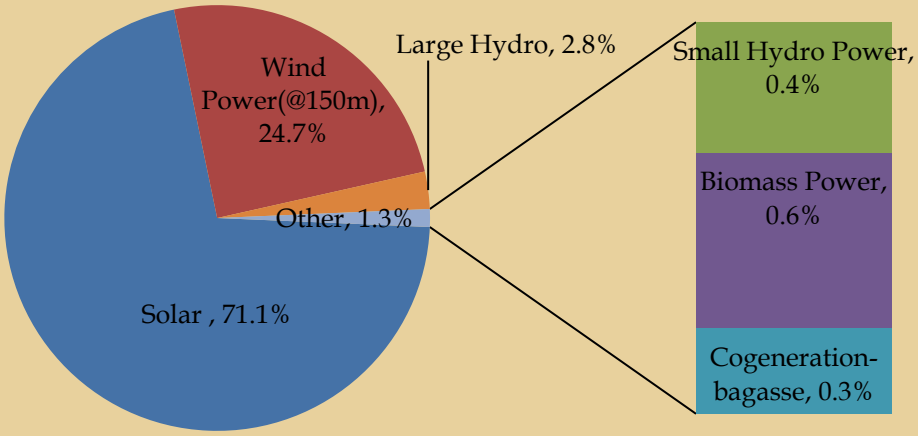


Figure 1.5 shows the potential is spread across several key renewable energy sources, as detailed below:

- **Solar Power**: India has immense potential for solar power generation which has witnessed a significant growth over a period of one year from **748,990 MW** as 31-Mar-24 to **33,43,378 MW** as on 31-Mar-25, which accounts for **71**% of the total renewable energy potential.
- **Wind Power**: With an estimated potential of **1,163,856 MW** (close to 25% of total renewable energy potential), it has the potential to contribute significantly in shaping the renewable energy-generation scenario of India.
- **Large Hydropower (Large Hydro)**: The potential for large hydropower generation is estimated at **133,410 MW**, contributing **2.84**% to the country's renewable energy potential.
- **Small Hydro Power (SHP)**: India also has a notable potential of **21,134 MW** (0.45%) from **small hydro power** projects.
- **Biomass Power**: Biomass, which includes agricultural waste, forest residues and other organic matter, has a potential of **28,447 MW**, accounting for **0.60**% of the total renewable power potential.
- **Cogeneration from Bagasse**: India has a specific potential of **13,818 MW** (0.29%) from **bagasse-based cogeneration** in sugar mills. This is a highly efficient form of energy generation, especially in regions with a robust sugar industry.

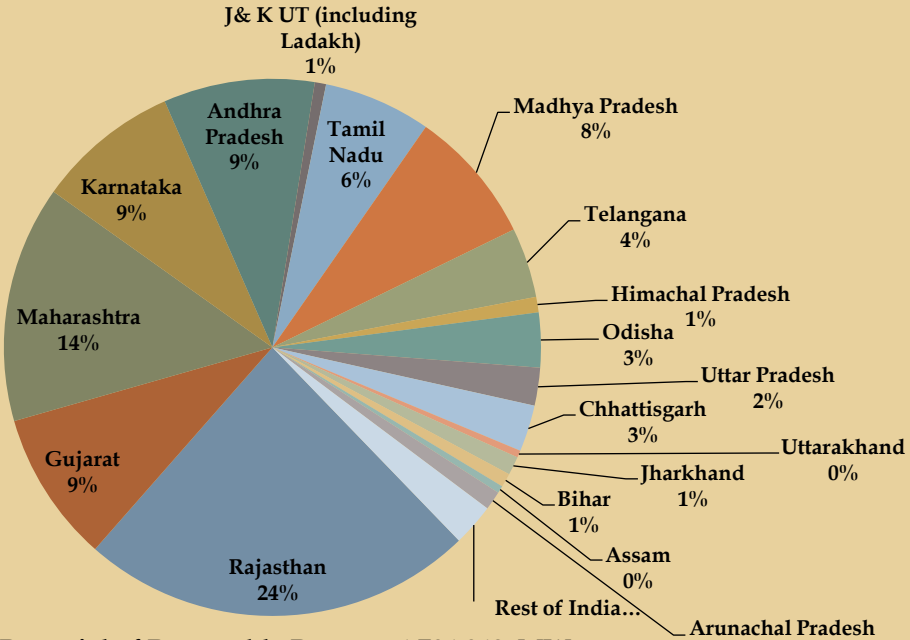
Geographical Distribution of Renewable Energy Potential

The geographical distribution of renewable energy potential in India (**Figure 1.6**) shows significant regional variations. The states with the highest renewable energy potential, as of **March 31, 2025**, are:

- **Rajasthan**: **24**% of total potential (11,14,794 MW)
- **Maharashtra**: **14**% of total potential (6,71,024 MW)
- **Gujarat**: **9**% of total potential (4,27,954 MW)
- **Andhra Pradesh: 9**% of total potential (4,27,933 MW)
- **Karnataka**: **8.6** % of total potential (4,04,227 MW)
- **Madhya Pradesh: 8.09** % of total potential (3,80,551 MW)

Together, these six states account for over 70% of India's total renewable energy potential, highlighting their critical role in India's pathway towards the renewable energy future.

Fig 1.6: Statewise Estimated Potential of Renewable Power (in percentage) in India as on 31.03.2025



Total Estimated Potential of Renewable Power = 4,704,043 MW

Table 1.1: Statewise Estimated Reserves of Coal (As on 1st April 2025)

(in Million Tonnes)

States/ UTs	Proved		Indicated		Inferred		Total		Distribution (%)	
	2024	2025	2024	2025	2024	2025	2024	2025	2024	2025
Andhra Pradesh	1,025	1,025	2,369	2,369	778	778	4,172	4,172	1.07	1.04
Arunachal Pradesh	31	62	40	23	19	6	90	91	0.02	0.02
Assam	465	465	57	57	3	3	525	525	0.13	0.13
Bihar	2,346	2,346	3,015	6,970	37	37	5,398	9,353	1.39	2.33
Chhattisgarh	40,078	45,463	41,093	38,340	1,495	1,460	82,666	85,263	21.23	21.28
Jharkhand	59,877	60,290	27,135	27,122	4,799	5,842	91,812	93,254	23.58	23.27
Madhya Pradesh	15,425	16,414	12,379	11,796	5,011	5,354	32,815	33,564	8.43	8.38
Maharashtra	8,163	8,339	3,372	3,265	1,817	1,984	13,352	13,587	3.43	3.39
Meghalaya	96	97	17	17	471	470	583	583	0.15	0.15
Nagaland	9	9	22	22	448	480	478	510	0.12	0.13
Odisha	53,799	55,010	39,053	38,781	6,351	7,186	99,204	100,976	25.47	25.20
Sikkim	0	0	58	58	43	43	101	101	0.03	0.03
Telangana	11,257	11,257	8,497	8,627	3,452	3,405	23,206	23,289	5.96	5.81
Uttar Pradesh	884	884	178	178	0	0	1,062	1,062	0.27	0.26
West Bengal	18,752	18,752	11,433	11,425	3,773	4,209	33,958	34,386	8.72	8.58
All India Total	**212,207**	**220,412**	**148,716**	**149,048**	**28,498**	**31,255**	**389,421**	**400,715**	**100**	**100**
Distribution (%)	**54.49**	**55.00**	**38.19**	**37.20**	**7.32**	**7.80**	**100**	**100**		

Total may not tally due to rounding off
Source: Ministry of Coal

Table 1.2: Statewise Estimated Reserves of Lignite (As on 1st April 2025)

(in Million Tonnes)

States/ UTs	Proved		Indicated		Inferred		Total		Distribution (%)	
	2024	2025	2024	2025	2024	2025	2024	2025	2024	2025
Gujarat	1,279	1,279	284	284	1,160	1,160	2,722	2,722	5.76	5.75
Jammu & Kashmir	0	0	20	20	7	7	28	28	0.06	0.06
Kerala	0	0	0	0	10	10	10	10	0.02	0.02
Odisha	6	6	0	0	0	0	6	6	0.01	0.01
Puducherry	0	0	406	406	11	11	417	417	0.88	0.88
Rajasthan	1,204	1,204	3,109	3,183	2,274	2,274	6,586	6,661	13.93	14.06
Tamil Nadu	5,476	5,476	21,412	21,412	10,635	10,635	37,524	37,524	79.34	79.21
West Bengal	0	0	1	1	3	3	4	4	0.01	0.01
All India	**7,964**	**7,964**	**25,231**	**25,306**	**14,100**	**14,100**	**47,296**	**47,371**	**100**	**100**
Distribution (%)	**16.84**	**16.81**	**53.35**	**53.42**	**29.81**	**29.76**	**100**	**100**		

Total may not tally due to rounding off
Source: Ministry of Coal

Table 1.3: Statewise Estimated Reserves of Crude Oil and Natural Gas (As on 1st April 2025)

States/ UTs/ Region	Crude Oil (Million Tonnes)				Natural Gas (Billion Cubic Metres)			
	2024		2025		2024		2025	
	Estimated Reserves	Distribution (%)	Estimated Reserves	Distribution (%)	Estimated Reserves	Distribution (%)	Estimated Reserves	Distribution (%)
Andhra Pradesh	7.69	1.15	8.41	1.25	59.27	5.42	60.60	5.65
Arunachal Pradesh	2.88	0.43	2.97	0.44	7.33	0.67	7.10	0.66
Assam	145.41	21.66	144.73	21.53	164.51	15.03	163.33	15.22
Gujarat	118.86	17.70	121.20	18.03	55.46	5.07	54.74	5.10
Nagaland	2.38	0.35	2.38	0.35	0.09	0.01	0.09	0.01
Rajasthan	131.50	19.59	136.46	20.30	63.55	5.81	27.12	2.53
Tamil Nadu	8.54	1.27	9.11	1.36	36.57	3.34	38.39	3.58
Tripura	0.07	0.01	0.07	0.01	28.18	2.58	27.73	2.58
West Bengal	0.15	0.02	0.20	0.03	0.00	0.00	0.79	0.07
West Bengal (CBM)	0.00	0.00	0.00	0.00	44.37	4.06	44.93	4.19
Jharkhand (CBM)	0.00	0.00	0.00	0.00	4.86	0.44	5.67	0.53
Madhya Pradesh (CBM)	0.00	0.00	0.00	0.00	24.38	2.23	23.15	2.16
Eastern Offshore	40.67	6.06	37.25	5.54	263.34	24.07	270.67	25.23
Western Offshore	213.26	31.76	209.30	31.14	342.29	31.28	348.70	32.50
Total	**671.40**	**100.00**	**672.07**	**100.00**	**1094.19**	**100.00**	**1073.01**	**100.00**

CBM : Cold Bed Methane (Jharkhand, West Bengal and M.P.)

1. Western offshore includes Gujarat offshore
2. Total may not tally due to rounding off

Source: M/o Petroleum & Natural Gas

Table 1.4: Sourcewise and Statewise Estimated Potential of Renewable Power in India (as on 31.03.2025)

(in MW)

Sl. No.	States/ UTs	Wind Power @ 150m	Small Hydro Power*	Biomass Power	Cogeneration-bagasse	Solar Energy	Large Hydro#	Total	Distribution (%)
1	Andhra Pradesh	123336	409	1999	280	299312	2596	**427933**	**9.10**
2	Arunachal Pradesh	246	2065	18	0	468	50394	**53191**	**1.13**
3	Assam	459	202	322	0	19173	643	**20799**	**0.44**
4	Bihar	4023	527	964	347	32991	130	**38983**	**0.83**
5	Chhattisgarh	2749	1098	354	0	126484	1311	**131996**	**2.81**
6	Goa	14	5	33	0	6752	0	**6804**	**0.14**
7	Gujarat	180790	202	2638	555	243220	550	**427954**	**9.10**
8	Haryana	593	107	1353	362	6468	0	**8884**	**0.19**
9	Himachal Pradesh	239	3460	70	0	21502	18305	**43576**	**0.93**
10	J& K UT (including Ladakh)	1	1707	83	0	17146	12972	**31908**	**0.68**
11	Jharkhand	16	228	146	0	51831	300	**52522**	**1.12**
12	Karnataka	169251	3726	1794	1762	223279	4414	**404227**	**8.59**
13	Kerala	2621	647	778	0	12405	2473	**18924**	**0.40**
14	Madhya Pradesh	55423	820	2516	0	318972	2819	**380551**	**8.09**
15	Maharashtra	173868	786	2630	3917	486679	3144	**671024**	**14.26**
16	Manipur	0	100	62	0	2294	615	**3071**	**0.07**
17	Meghalaya	55	230	69	0	14674	2026	**17054**	**0.36**
18	Mizoram	0	169	3	0	612	1927	**2711**	**0.06**
19	Nagaland	0	182	54	0	191	325	**752**	**0.02**
20	Odisha	12129	286	299	0	139474	2825	**155013**	**3.30**
21	Punjab	428	578	3022	414	9210	1301	**14954**	**0.32**
22	Rajasthan	284250	52	1300	0	828781	411	**1114794**	**23.70**
23	Sikkim	0	267	5	0	254	6051	**6577**	**0.14**
24	Tamil Nadu	95107	604	1560	639	204765	1785	**304461**	**6.47**
25	Telangana	54717	102	1678	117	140451	1302	**198368**	**4.22**
26	Tripura	0	47	34		9106	0	**9187**	**0.20**
27	Uttar Pradesh	510	461	2800	4926	97843	502	**107041**	**2.28**
28	Uttarakhand	49	1664	93	215	4436	13481	**19939**	**0.42**
29	West Bengal	1281	392	1742	0	22742	809	**26966**	**0.57**
30	Andaman & Nicobar	1245	7	18	0	594	0	**1865**	**0.04**
31	Chandigarh	0	0	0	0	22	0	**23**	**0.00**
32	Dadar & Nagar Haveli, Daman & Diu	17	0	2	0	498	0	**517**	**0.01**
33	Delhi	0	0	0	0	550	0	**550**	**0.01**
34	Lakshadweep	31	0	1	0		0	**32**	**0.00**
35	Puducherry	408	0	5	0	196	0	**609**	**0.01**
36	Others$	0	0	0	284		0	**284**	**0.01**
All India Total		**1,163,856**	**21,134**	**28,447**	**13,818**	**3,343,378**	**133,410**	**4,704,043**	**100**
Distribution (%)		**24.74**	**0.45**	**0.60**	**0.29**	**71.07**	**2.84**	**100.00**	

$ Others includes installations through NGOs/IREDA in different states

*capacity upto 25 MW, # capacity > 25 MW

Source: Ministry of New and Renewable Energy

Chapter Two

Installed Capacity, Its Utilization and Credit flow to Domestic Energy Sector

CHAPTER 2
Installed Capacity, Its Utilization and Credit flow to Domestic Energy Sector

Introduction

In alignment with global sustainability commitments, the world has pledged to expand infrastructure and upgrade technologies to supply modern and sustainable energy services, particularly in developing countries. This aligns with *Sustainable Development Goal (SDG) Target 7.B*, which focuses on increasing energy access.

In the context of rapidly growing economies, especially in densely populated regions like Asia, there is an urgent need to shift towards cleaner energy sources. The demand for energy is continuously rising, driving the need for larger energy systems that can cater to the energy requirements of emerging economies.

In India, the focus has been on expanding the installed capacity of power generation from renewable sectors while reducing reliance on primary fossil fuels. The goal is to provide reliable and affordable power through the optimized use of various energy resources, incorporating innovative and eco-friendly technologies. Furthermore, environmental and health concerns associated with the use of hydrocarbons have prompted the global community to adopt energy-efficient and clean energy systems.

It is essential to understand that not all potential energy resources can be converted into capacity, and generating capacity does not directly equate to actual generation due to factors like production losses, plant downtime for maintenance and refuelling.

This chapter presents a comprehensive overview of the installed capacity for coal washeries, oil refineries, and electricity generation in India.

Chapter 2: Installed Capacity, Its Utilization and Credit flow to Domestic Energy Sector

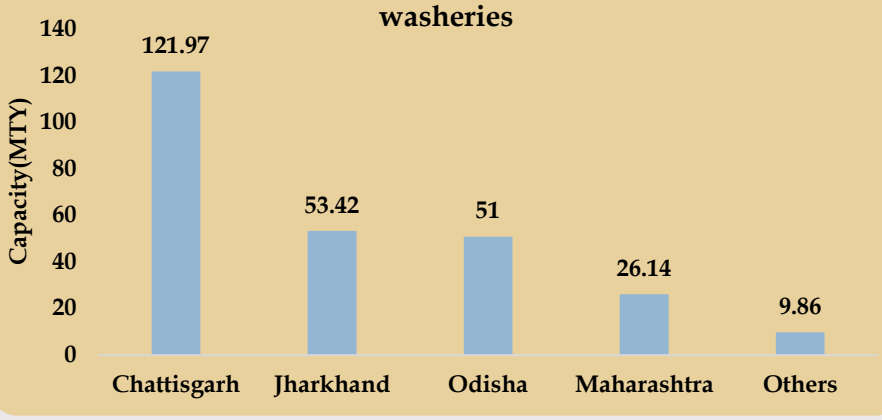
Highlights of installed capacity and capacity utilisation

2.1 Installed Capacity of Coal Washeries

As of 31-03-2025, the total installed capacity of coal washeries in India stood at **262.39 million Tons per Year (MTY)** (Table 2.1). This capacity plays a critical role in enhancing the quality of coal, ensuring its efficient use in power plants and industrial applications.

The State wise Installed Capacity of Coal washeries shown in **figure 2.1**.

Fig. 2.1 State wise Installed Capacity of Coal washeries

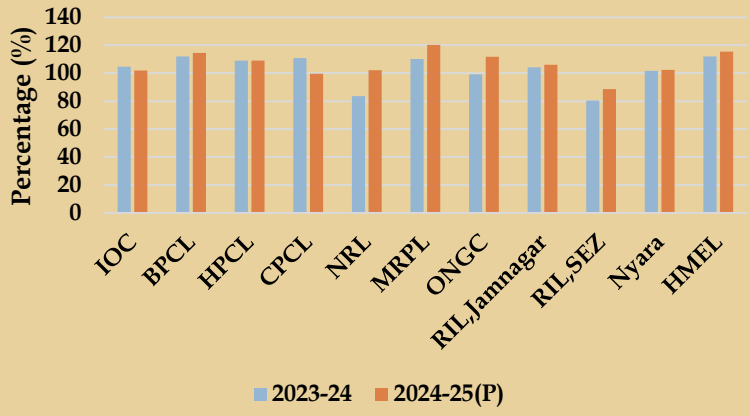


Note: Others states include Uttar Pradesh, West Bengal, Madhya Pradesh and Telangana

2.2 Refinery and Oil Refining Capacity in India

As of **March 31, 2025**, India has 23 refineries in total—19 in the public sector and 4 in the private sector/joint ventures. India's total refining capacity reached **2,58,116** Thousand Metric Tonnes per Annum (TMTPA), an increase of **1,300** TMTPA from the previous year.

Fig. 2.2: Refinery wise capacity utilisation(in%)



Public sector refineries still lead, making up over 61% of the refining capacity, with major players like **IOC**, **BPCL**, and **HPCL** at the forefront. Crude throughput increased from 2,61,545 TMT in 2023-24 to 2,68,613 TMT in 2024-25, a **2.70%** rise, which reflects the growing demand for petroleum products.

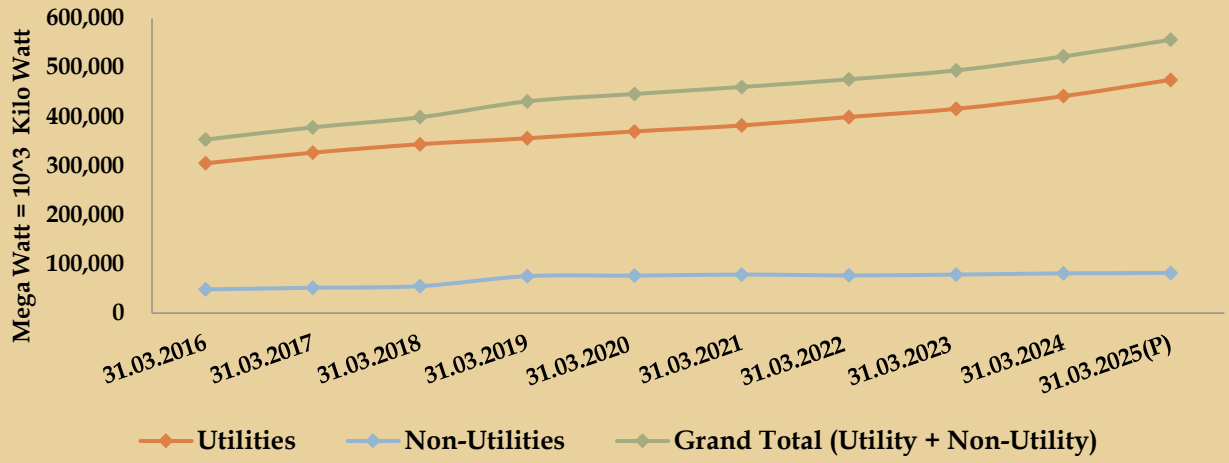
Figure 2.2 shows all the refineries have improved their

utilization or maintained a solid performance over the previous year except IOC, HPCL and CPCL.

2.3 Installed Capacity of Electricity Generation

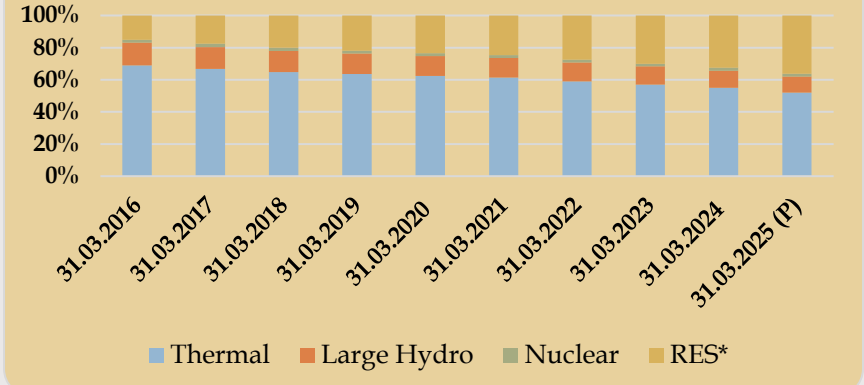
India's electricity generation capacity has continued to grow significantly, driven by both traditional and renewable energy sources. The total installed capacity in the FY 2024-25 reached **556,912 MW**, marking a **6.51**% increase from the previous year, where it stood at **522,896 MW**. This robust growth highlights the country's commitment to meeting the rising demand for electricity driven by industrialization, urbanization, and population growth. The year wise growth of installed electricity generation capacity over the last 10 years is shown in **figure 2.3**.

Fig 2.3:Trends in Installed Electricity Generation Capacity (MW) in India



2.3.1 Capacity by Source and Utility Distribution

Fig 2.4: Trends in Installed Electricity Generation Capacity from Utilities (MW) in India - Sourcewise during 31.03.2015 to 31.03.2024



A significant portion of the total installed capacity comes from Utility-owned generation, which accounts for **85.33**% of the total. This dominance is largely due to the substantial contributions of large public-sector

utilities in the country, which play a major role in energy generation.
Figure 2.4 shows the installed capacity by energy source, such as thermal, nuclear, renewable, and hydro, over the last decade.

2.3.2 Growth in Renewable Energy

The evolution of India's energy mix is increasingly shifting towards renewable energy sources, reflecting global trends toward sustainability. During 2024-25, the installed capacity of renewable energy sources grew by nearly 15%, showcasing the strong momentum towards cleaner energy. This growth aligns with India's national renewable energy targets and the country's commitment to reducing its carbon footprint.

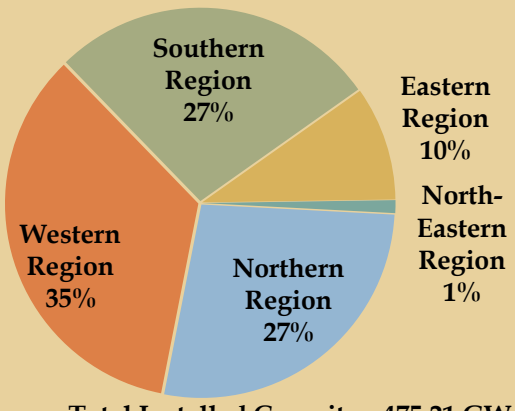
2.3.3 Thermal Energy Growth (Utility and Non-utility)

While renewable sources are growing rapidly, thermal energy generation—largely powered by coal and natural gas—continues to form the backbone of India's energy infrastructure. However, the growth rate of thermal-utility energy capacity was more modest at **1.53** % in **2024-25(P)** compared to previous year. This slower growth rate reflects a broader strategic shift towards diversifying the energy mix and decreasing dependency on fossil fuels.

2.4 Geographical Distribution of Installed Electricity Capacity

As shown in **figure 2.5**, the geographical distribution of India's installed electricity generation capacity shows the **Western Region** leading with **35%**, followed closely by the **Southern Region** at **27.5%** and the **Northern Region** with **27.3%**.

Fig 2.5:Regionwise Installed Generation Capacity of Electricity (Utilities) as on 31.03.2025



Total Installed Capacity =475.21 GW

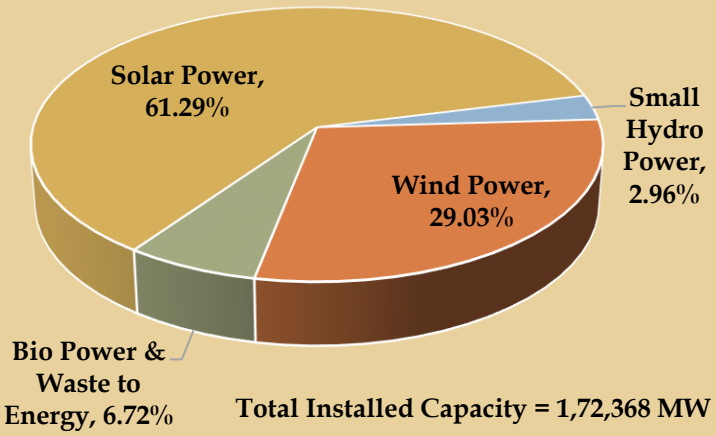
Additionally, Table 2.4 indicates that the **Northern Region** also holds the largest share of the country's hydropower capacity but its' the **Karnataka** (from the **Southern Region)** is leading in hydroelectric power at **3.63 GW** among states whereas the Rajasthan leads in other Renewable Energy Sources (RES) (like wind, small hydro etc.) with a capacity of **33.38 GW**.

In terms of regional growth during 2024-25(P), the **Northern Region** experienced the highest increase in installed capacity, registering a **10.12%** growth overall and a significant **25.58%** rise in the installed capacity for Renewable Energy Sources (RES) in **Western Region**, underscoring the region's increasing focus on clean energy. This trend highlights the ongoing shift towards renewable energy while meeting the rising demand for electricity across the country.

2.5 Grid-Interactive Renewable Power Capacity

The total installed capacity for **grid-interactive renewable power** grew from **1,43,645 MW** (as on 31.03.2024) to **1,72,368 MW** (as on 31.03.2025), reflecting a **growth of 20%.** (Table 2.5).

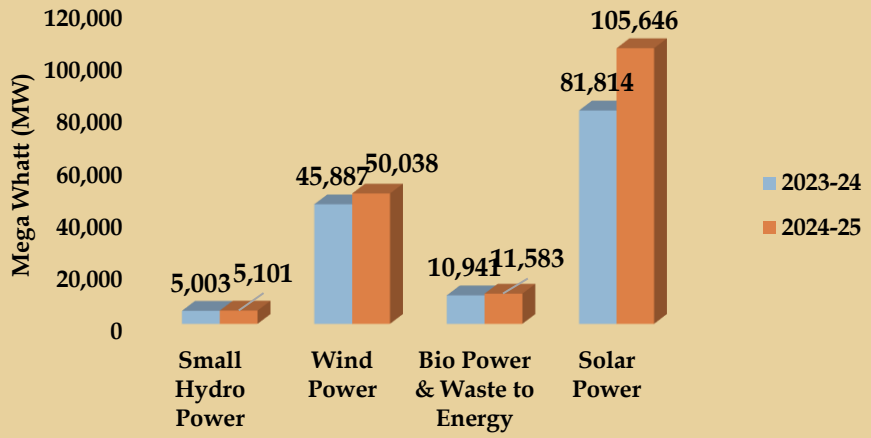
Fig 2.6 : Sectorwise percentage distribution of Installed Grid-Interactive Renewable Power Capacity as on 31.03.2025



As shown in the **figure 2.6**, the Solar power continued to dominate the renewable energy sector, accounting for **61%** of the total installed capacity followed by wind power (29%) and bio power & waste-to-energy (7%).

Among all sector solar power saw a significant growth rate of **29.13%** in installed capacity from **2023-24** to **2024-25(P)** as shown in the **figure 2.7**.

Fig 2.7 : Installed Capacity of Grid-Interactive Renewable Power During 2023-24 and 2024-25(P)

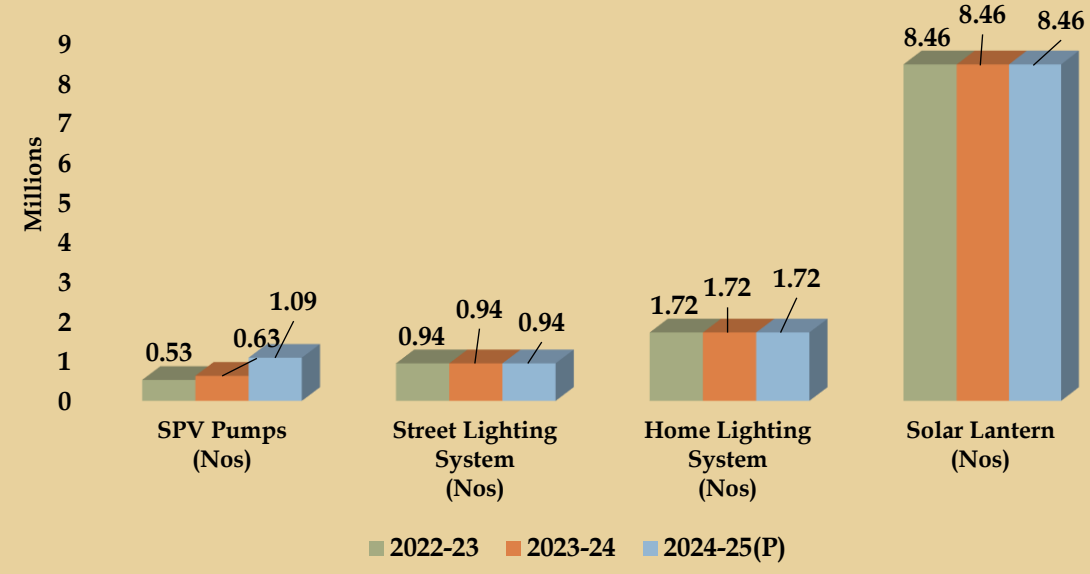


Among all the states, **Rajasthan** and **Gujarat** lead in renewable energy installations, with Rajasthan having the highest installed capacity of **33,725 MW** and Gujarat closely following at **31,403 MW**, largely driven by wind and solar power.

2.6 Off-Grid/Decentralized Renewable Energy Systems

India's off-grid or decentralized renewable energy systems have also shown steady growth. The installation of solar **Street lighting Systems (SLS)**, **Home Lighting Systems**, and **Solar Lanterns (SL)** remained stable compared to the previous year. However, **solar photovoltaic plants (SPV)** registered a **growth rate of 72.38%** over the previous year, indicating a positive trend in decentralized renewable energy solutions (Figure 2.8).

Fig 2.8 : Installation of Off-grid / Decentralised Renewable Energy Systems/ Devices during last 3 years

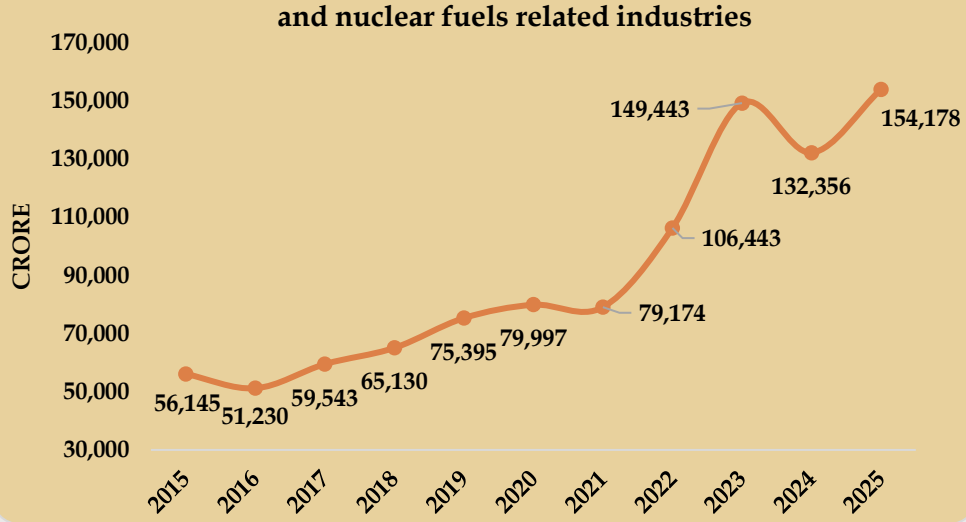


2.7 Credit flow to Domestic Energy Sector

Monitoring credit flow to the energy sector is important for understanding the volume of institutional finance supporting activities across the energy segment. These industries are capital intensive and require sustained investment for capacity expansion, system upgrades and operational continuity.

Incorporating credit flow statistics enables better understanding of the responsiveness of the banking system to national priorities in the energy domain, including ongoing expansion, transition initiatives, and infrastructure development.

Fig. 2.9 : Outstanding credit to petroleum, coal products and nuclear fuels related industries



The deployment of credit in the energy-sector, as published by Reserve Bank of India (RBI), provides a useful indication of the extent of financial resources being channelized over the recent past. Credit flow data supports the assessment of trends of investment, the financial requirements and the future potential over time. Bank credit plays a crucial role in financing India's energy infrastructure including mining, petroleum & coal products, electricity generation and emerging renewable energy sectors.

2.7.1 Credit flow to Petroleum, Coal Products & Nuclear Fuels[6]:

Fig 2.9 captures the outstanding credit to petroleum products, coal processing units and nuclear fuel related industries. The graph depicts a sharp increase in the flow of credit post 2021. The outstanding credit to Petroleum, Coal products & Nuclear Fuels[7] in India has

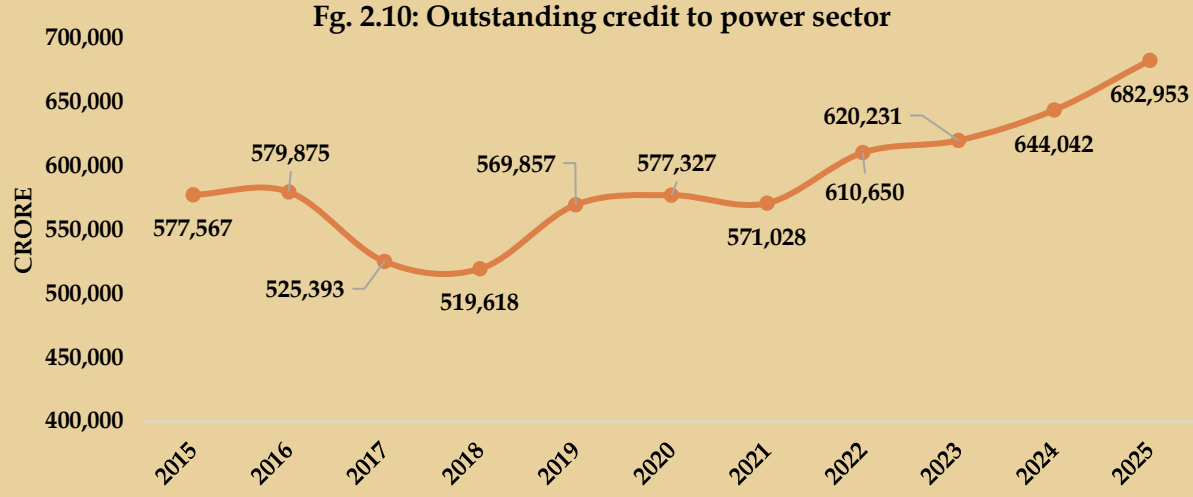
[7] Note: The above outstanding credit on Petroleum, Coal products & Nuclear Fuels 2015 to 2025 has been made based on the findings mentioned in
Table 46 Industry – wise- Deployment of Gross Bank Credit of RBI
[DBIE webite >Home >Publication > Time- series Publications >Handbook Of Statistics On The Indian Economy >Part 1 >Annual series > Money and banking > Table 46]
https://share.google/rlyhKdKITbUbycUbf

increased from ₹ 79,174 crore during 2021 to ₹ 1,54,178 crore in 2025 (as per the annual data in the month of March), i.e. almost doubled over a period of 5 years.

2.7.2 Credit flow to Power sector:

Fig 2.10 indicates the outstanding credit to power sector[8], an increase of 6.04% in 2024-25 as compared to 2023-24 is shown. The outstanding credit to power sector has increased from ₹ 5,57,567 crore in 2015 to ₹ 6,82,953 crore in 2025 (as per the annual data in the month of March), with an increase of 22.4%. Like the trend of flow of credit in *Petroleum, coal products and nuclear fuel* over the recent past, a consistent growth of outstanding credit in the power sector can also be observed from 2021 onwards. The consistent credit exposure to the power sector signaling its growing importance in India's vision of becoming the *Vikshit Bharat by 2047*.

Fg. 2.10: Outstanding credit to power sector

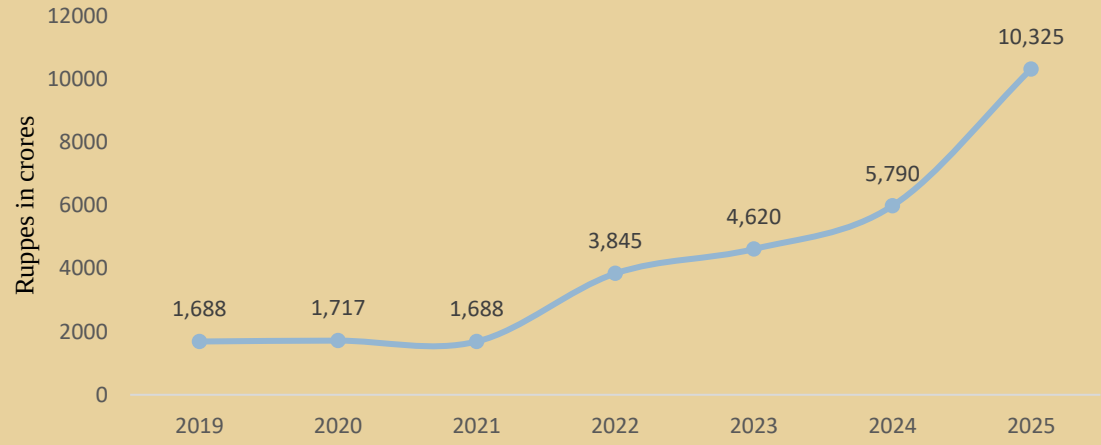


[8] Note: The above outstanding credit on Power 2015 to 2025 has been made based on the findings mentioned in Table 46 Industry - wise Deployment of Gross Bank Credit of RBI
[DBIE webite >Home >Publication > Time- series Publications >Handbook Of Statistics On The Indian Economy >Part 1 >Annual series > Money and banking > Table 46]
https://share.google/rlyhKdKITbUbycUbf

2.7.3. Credit flow to Renewable Energy Sector:

In order to maintain the sustainability of energy, tapping the renewable resources and investment on development of required infrastructure is the priority of the nation. The **Fig 2.11** indicates that the outstanding credit to renewable energy in India has increased from ₹ 1688 Cr during 2021 to ₹10,325 crore during 2025. [9]

Fig 2.11: Outstanding credit to Renewable Energy



RBI also provides the outstanding credit on renewable energy, petroleum, coal products & nuclear fuels and power in monthly basis.
Refer Table 167 Deployment of Bank Credit by Major Sector of RBI
[DBIE WEBSITE > Home > Publication > Time series Publications > Handbook of Statistics on The Indian Economy > PART II : Quarterly /Monthly series >Money and Banking> Table 167

[9] Note that the data for renewable energy is available from 2019 only.
The above outstanding credit on renewable energy 2019 to 2025 has been made based on the findings mentioned in ***Table 45 Sectoral Deployment of non - food gross bank credit of RBI***
[DBIE webite >Home >Publication > Time- series Publications >Handbook of Statistics On the Indian Economy >Part 1 >Annual series >Money and banking > Table 45]
https://share.google/rlyhKdKITbUbycUbf

Chapter 2: Installed Capacity, Its Utilization and Credit flow to Domestic Energy Sector

Table 2.1: Installed Capacity of Coal Washeries (as on 31.03.2025)		
Coking Coal		
Company	**State**	**Capacity (MTY)**
CIL	Jharkhand	30.88
	Madhya Pradesh	1.2
	West Bengal	1.7
IISCO	Jharkhand	2.04
TISCO	Jharkhand	10.5
Total of PSU and Private		**46.32**
Non-Coking Coal		
Company	**State**	**Capacity (MTY)**
CIL	Jharkhand	6.5
	Odisha	10
	Uttar Pradesh	4.5
ACB (india)	Odisha	16
ACB(India) Ltd,Renki Washery (formerly S.V.Power Pvt Ltd.)	Chattisgarh	2.5
ALPS Mining Services(Formerly Bhatia Coal Washery)	Odisha	2
Aryan Energy Pvt. Ltd., Talcher	Odisha	2.34
Aryan Ispat and Power Pvt. Ltd.	Odisha	0.7
Bhatia Energy & Minerals Pvt Ltd Coal Washery	Chattisgarh	5
Binjhari, Aryan Energy private ltd.	Chattisgarh	4.8
Chakabuwa, Aryan Energy private ltd.	Chattisgarh	7.5
Chattisgarh Power & Coal Benefication Ltd.	Chattisgarh	1.25
Clean Coal Enterprises Pvt. Ltd.	Chattisgarh	4.42
Dipka, Aryan coal beneficiation pvt. Ltd.	Chattisgarh	14
Earth Minerals Company Ltd.	Odisha	4
Gevra, Aryan coal beneficiation pvt. Ltd.	Chattisgarh	6.25
Global Coal & Mining Pvt. Ltd	Odisha	8
Hind Energy & Coal Benefication (India) Ltd	Chattisgarh	2.88
Hind Multi Services Private Limited, Hindadih, Bilaspur	Chattisgarh	3.6
Jindal Power Limited	Chattisgarh	6.8
Jindal Steel & Power Ltd, Angul	Odisha	6
K L Energy & Coal Beneficiation Pvt. Ltd.	Chattisgarh	0.9
KJSL Coal & Power Pvt. Ltd.	Chattisgarh	4.1
Maha Mineral Mining & Beneficiation Pvt Ltd	Maharashtra	14.85
Mahavir Coal Washeries Pvt. Ltd	Chattisgarh	5.34
Manuguru, Global coal Mining (P) Ltd.	Telengana	0.96
Maruti Clean Coal	Chattisgarh	3.3
MDCWL, Dakra, Ranchi	Jharkhand	3.5
Panderpauni, Aryan coal beneficiation pvt. Ltd.	Maharashtra	2.6
Paras Power & Coal Benefication Ltd	Chattisgarh	3.46
Parsa East and Kanta Basan Coal Washery	Chattisgarh	23
Phil Coal Benefication Pvt. Ltd	Chattisgarh	3.4
Radiant coal beneficiation Pvt Ltd	Chattisgarh	1.86
Ratija, Spectrum Coal & Power Ltd.	Chattisgarh	11
Rukhmai infrastructure Pvt. Ltd.	Maharashtra	6.19
Sambhavi Coal Benefication Pvt. Ltd., Gatora	Chattisgarh	0.9
Sarda Energy and Minerals Ltd.	Chattisgarh	0.96
Sarshatali Coal Washery	West Bengal	1.5
Shyam Metalics and Energy Ltd, Rengali	Odisha	1
Tamnar, Jindal Steel & Power Ltd.(Unit1)	Chattisgarh	4.75
Utkal Energy Ltd.	Odisha	0.96
Wani, Kartikay Coal washeries pvt. ltd.(Aryan)	Maharashtra	2.5
Total of PSU and Private		**216.07**
Total (Non-Coking + Coking)		***262.39***
Source: Ministry of Coal		

Chapter 2: Installed Capacity, Its Utilization and Credit flow to Domestic Energy Sector

Table 2.2: Installed Capacity and Utilization of Refineries of Crude Oil

Sl. No.	Refinery	Refinery Capacity (TMTPA)			Crude Oil Processed (TMT)		Capacity Utilisation (%)		
		31.03.2023	31.03.2024	31.03.2025	2023-24	2024-25 (P)	2023-24	2024-25 (P)	Change in Utilisation
1	2	3	4	5	6	7	8	9	10
(a)	**PUBLIC SECTOR**	**154,416**	**157,316**	**158,616**	**165,885**	**168,900**	**107.43**	**107.36**	**-0.06**
	IOCL, Guwahati, Assam	1,000	1,200	1,200	1,000	1,178	100.05	98.18	-1.87
	IOCL, Barauni, Bihar	6,000	6,000	6,000	6,618	6,513	110.29	108.55	-1.74
	IOCL, Koyali, Gujarat	13,700	13,700	13,700	15,202	15,283	110.96	111.56	0.59
	IOCL, Haldia, West Bengal	8,000	8,000	8,000	8,060	6,934	100.74	86.68	-14.06
	IOCL, Mathura, Uttar Pradesh	8,000	8,000	8,000	9,191	8,054	114.88	100.67	-14.21
	IOCL, Digboi, Assam	650	650	650	710	774	109.26	119.09	9.83
	IOCL, Panipat, Haryana	15,000	15,000	15,000	14,305	15,398	95.36	102.66	7.29
	IOCL, Bongaigaon, Assam	2,700	2,700	2,700	3,009	2,772	111.44	102.67	-8.77
	IOCL, Paradip, Odisha	15,000	15,000	15,000	15,213	14,657	101.42	97.71	-3.71
	Total IOC	**70,050**	**70,250**	**70,250**	**73,308**	**71,564**	**104.65**	**101.87**	**-2.78**
	BPCL, Mumbai, Maharashtra	12,000	12,000	12,000	15,052	15,529	125.43	129.41	3.98
	BPCL, Kochi, Kerala	15,500	15,500	15,500	17,314	17,193	111.70	110.92	-0.78
	BPCL, Bina, Madhya Pradesh	7,800	7,800	7,800	7,133	7,709	91.45	98.83	7.39
	Total BPCL	**35,300**	**35,300**	**35,300**	**39,499**	**40,431**	**111.89**	**114.54**	**2.64**
	HPCL, Mumbai, Maharashtra	9,500	9,500	9,500	9,639	9,958	101.46	104.82	3.36
	HPCL, Visakh, Andhra Pradesh	11,000	13,700	15,000	12,689	15,310	115.35	111.75	-3.60
	Total HPCL	**20,500**	**23,200**	**24,500**	**22,328**	**25,268**	**108.92**	**108.91**	**0.00**
	CPCL, Manali, Tamil Nadu	10,500	10,500	10,500	11,642	10,454	110.88	99.56	-11.32
	CPCL, Narimanam, Tamil Nadu	-	-	-	-	-	-	-	-
	Total CPCL	**10,500**	**10,500**	**10,500**	**11,642**	**10,454**	**110.88**	**99.56**	**-11.32**
	NRL, Numaligarh, Assam	3,000	3,000	3,000	2,510	3,066	83.66	102.19	18.53
	MRPL, Mangalore, Karnataka	15,000	15,000	15,000	16,533	18,044	110.22	120.29	10.07
	ONGC, Tatipaka, Andhra Pradesh	66	66	66	65	74	99.10	111.76	12.65
(b)	**PRIVATE SECTOR & JVs SECTOR**	**99,500**	**99,500**	**99,500**	**95,660**	**99,714**	**96.14**	**100.21**	**4.07**
	RIL, Jamnagar, Gujarat	33,000	33,000	33,000	34,390	34,990	104.21	106.03	1.82
	RIL, SEZ-Jamnagar, Gujarat	35,200	35,200	35,200	28,300	31,192	80.40	88.61	8.21
	Nyara Energy Ltd. Vadinar	20,000	20,000	20,000	20,322	20,487	101.61	102.43	0.82
	HMEL, GGS, Bathinda, Punjab	11,300	11,300	11,300	12,648	13,045	111.93	115.44	3.51
	Total (a+b)	**253,916**	**256,816**	**258,116**	**261,545**	**268,613**	**103.00**	**104.59**	**1.59**

1.Total may not tally due to rounding off (P): Provisional

2. Crude throughput in terms of crude oil processed.

3. Capacity utilisation is equal to crude oil processsed in during year divided by refineing capacity at the 1st April of initial of year*100

Source: M/o Petroleum & Natural Gas

Chapter 2: Installed Capacity, Its Utilization and Credit flow to Domestic Energy Sector

Table 2.3 (A): Yearwise Installed Capacity of Electicity Generation in Utilities and Non-Utilities

(in Mega Watt = 10^3 Kilo Watt)

As on	Utilities							
	Thermal				Large Hydro	Nuclear	RES*	Total
	Steam	Diesel	Gas	Total				
1	2	3	4	5	6	7	8	9
31.03.2015	164,636	1,200	23,062	188,898	41,267	5,780	38,959	274,904
31.03.2016	185,173	994	24,509	210,675	42,783	5,780	45,924	305,162
31.03.2017	192,163	838	25,329	218,330	44,478	6,780	57,244	326,833
31.03.2018	197,172	838	24,897	222,907	45,293	6,780	69,022	344,002
31.03.2019	200,705	638	24,937	226,279	45,399	6,780	77,642	356,100
31.03.2020	205,135	510	24,955	230,600	45,699	6,780	87,028	370,106
31.03.2021	209,295	510	24,924	234,728	46,209	6,780	94,434	382,151
31.03.2022	210,700	510	24,900	236,109	46,723	6,780	109,885	399,497
31.03.2023	211,856	589	24,824	237,269	46,850	6,780	125,160	416,059
31.03.2024	217,589	589	25,038	243,217	46,928	8,180	143,645	441,970
31.03.2025 (P)	221,813	589	24,533	246,935	47,728	8,180	172,368	475,212
Growth rate of 2024-25 over 2023-24(%)	**1.94**	**0.00**	**-2.02**	**1.53**	**1.70**	**0.00**	**20.00**	**7.52**
CAGR 2015-16 to 2024-25(%)	**3.37**	**-7.60**	**0.69**	**3.02**	**1.63**	**3.93**	**17.97**	**6.27**

*RES= Comprising of Solar, Wind, Bio-Power and Small Hydro Power (P): Provisional
Capacity in respect of Self Generating Industries includes units of capacity 1 MW and above.
CAGR: Compound Annual Growth Rate =((Current Value/Base Value)^(1/nos. of years)-1)*100
Source: Central Electricity Authority.

Table 2.3 (B) : Yearwise Installed Capacity of Electricity Generation in Utilities and Non-Utilities

(in Mega Watt = 10^3 x Kilo Watt)

As on	Non-Utilities							Grand Total (Utility + Non-Utility)
	Thermal				Large Hydro	RES*	Total	
	Steam	Diesel	Gas	Total				
	10	11	12	13	14	15	16	17= 9+16
31.03.2012	22,615	9,955	5,885	38,456	48	872	39,375	239,252
31.03.2013	23,890	11,148	4,498	39,535	67	1,124	40,726	264,070
31.03.2014	24,752	11,432	4,751	40,935	64	1,259	42,258	290,812
31.03.2015	26,089	12,009	5,193	43,291	65	1,301	44,657	319,561
31.03.2016	28,688	12,347	5,819	46,853	59	1,368	48,279	353,442
31.03.2017	30,572	13,350	6,109	50,031	65	1,433	51,529	378,362
31.03.2018	32,854	13,145	7,156	53,155	51	1,726	54,933	398,935
31.03.2019	47,679	15,571	8,787	72,037	103	3,067	75,207	431,307
31.03.2020	51,543	12,775	7,316	71,633	131	4,475	76,239	446,346
31.03.2021	47,760	17,563	7,361	72,683	131	5,694	78,508	460,659
31.03.2022	45,303	18,649	5,685	69,637	135	6,961	76,732	476,229
31.03.2023	46,782	18,078	6,360	71,220	132	7,047	78,400	494,459
31.03.2024	46,064	19,604	6,204	71,873	120	8,933	80,926	522,896
31.03.2025(P)	46,500	19,700	6,250	72,450	120	9,130	81,700	556,912
Growth rate of 2024-25 over 2023-24(%)	**0.95**	**0.49**	**0.74**	**0.80**	**0.00**	**2.20**	**0.96**	**6.51**
CAGR 2015-16 to 2024-25(%)	**6.63**	**5.65**	**2.08**	**5.89**	**7.03**	**24.17**	**6.94**	**6.37**

(P): Provisional

* RES=Comprising of Solar, Wind, Bio-Power and Small Hydro Power

Capacity in respect of Self Generating Industries includes units of capacity 1 MW and above.
CAGR: Compound Annual Growth Rate =((Current Value/Base Value)^(1/nos. of years)-1))*100

Source : Central Electricity Authority.

Chapter 2: Installed Capacity, Its Utilization and Credit flow to Domestic Energy Sector

Table 2.4 : Regionwise and Statewise Installed Capacity of Electricity Generation (Utilities)

(in GW)

States/UTs	Large Hydro		Thermal		Nuclear		RES*		Total		Growth Rate (2023-24 to 2024-25) (%)
	31.03.2024	31.03.2025	31.03.2024	31.03.2025	31.03.2024	31.03.2025	31.03.2024	31.03.2025	31.03.2024	31.03.2025	
Chandigarh	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.08	0.07	0.08	**20.34**
Delhi	0.00	0.00	2.36	2.36	0.00	0.00	0.34	0.40	2.70	2.75	**2.11**
Haryana	0.20	0.20	4.82	4.82	0.00	0.00	1.83	2.44	6.85	7.47	**9.01**
Himachal Pradesh	2.91	3.01	0.00	0.00	0.00	0.00	1.08	1.22	3.99	4.23	**6.02**
Jammu & Kashmir	1.23	1.23	0.18	0.18	0.00	0.00	0.29	0.32	1.69	1.72	**1.88**
Punjab	1.24	1.24	6.92	6.92	0.00	0.00	2.07	2.17	10.24	10.34	**1.04**
Rajasthan	0.43	0.43	11.93	11.93	0.00	0.00	26.35	33.38	38.71	45.74	**18.17**
Uttar Pradesh	0.72	0.72	14.44	15.76	0.00	0.00	5.17	5.69	20.33	22.18	**9.08**
Uttarakhand	2.20	2.20	0.76	0.76	0.00	0.00	0.94	0.98	3.90	3.94	**1.00**
Central Sector NR	11.61	12.21	15.54	16.86	1.62	1.62	0.38	0.38	29.16	31.08	**6.59**
Sub-Total (NR)	**20.56**	**21.26**	**56.95**	**59.59**	**1.62**	**1.62**	**38.49**	**47.06**	**117.63**	**129.53**	**10.12**
Chhattisgarh	0.12	0.12	16.01	16.01	0.00	0.00	1.56	1.71	17.69	17.84	**0.82**
Gujarat	0.77	0.77	20.23	19.57	0.00	0.00	25.23	31.16	46.23	51.51	**11.41**
Madhya Pradesh	1.70	1.70	11.25	11.25	0.00	0.00	6.80	8.29	19.75	21.24	**7.57**
Maharashtra	3.33	3.33	22.41	23.07	0.00	0.00	14.36	19.23	40.10	45.63	**13.79**
Dadra and Nagar Haveli and Daman and diu	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.05	0.05	**11.62**
Goa	0.00	0.00	0.05	0.05	0.00	0.00	0.05	0.06	0.09	0.11	**13.87**
Central Sector WR	1.52	1.52	22.88	22.88	3.24	3.24	0.67	0.67	28.31	28.31	**0.00**
Sub-Total (WR)	**7.45**	**7.45**	**92.82**	**92.82**	**3.24**	**3.24**	**48.71**	**61.17**	**152.21**	**164.68**	**8.19**
Andhra Pradesh	1.67	1.67	13.90	13.68	0.00	0.00	9.17	10.25	24.75	25.61	**3.50**
Telangana	2.48	2.48	7.46	8.26	0.00	0.00	5.19	5.27	15.13	16.02	**5.84**
Karnataka	3.63	3.63	7.11	7.48	0.00	0.00	17.75	20.23	28.49	31.34	**9.99**
Kerala	1.86	1.96	0.33	0.33	0.00	0.00	1.32	1.84	3.51	4.14	**17.76**
Tamil Nadu	2.18	2.18	9.45	9.51	0.00	0.00	19.80	22.88	31.43	34.57	**10.00**
Puducherry	0.00	0.00	0.03	0.03	0.00	0.00	0.05	0.05	0.08	0.09	**5.58**
Lakshadweep	0.00	0.00	0.03	0.03	0.00	0.00	0.00	0.00	0.03	0.03	**0.00**
Central Sector SR #	0.00	0.00	14.85	14.85	3.32	3.32	0.54	0.54	18.71	18.71	**0.00**
Sub-Total (SR)	**11.83**	**11.93**	**53.16**	**54.18**	**3.32**	**3.32**	**53.82**	**61.08**	**122.14**	**130.50**	**6.85**
Bihar	0.00	0.00	0.00	0.00	0.00	0.00	0.45	0.54	0.45	0.54	**19.80**
Jharkhand	0.13	0.13	2.25	2.25	0.00	0.00	0.19	0.22	2.57	2.60	**1.50**
Odisha	2.07	2.07	4.94	5.00	0.00	0.00	0.66	0.79	7.67	7.87	**2.53**
West Bengal	0.99	0.99	6.93	6.93	0.00	0.00	0.64	0.77	8.55	8.68	**1.52**
Sikkim	0.87	0.87	0.00	0.00	0.00	0.00	0.06	0.06	0.93	0.93	**0.06**
A. & N. Islands	0.00	0.00	0.09	0.09	0.00	0.00	0.03	0.03	0.12	0.12	**0.00**
Central Sector ER $	1.01	1.01	23.62	23.62	0.00	0.00	0.01	0.02	24.64	24.64	**0.02**
Sub-Total (ER)	**5.07**	**5.07**	**37.83**	**37.89**	**0.00**	**0.00**	**2.04**	**2.44**	**44.94**	**45.39**	**1.02**
Arunachal Pradesh	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.16	0.14	0.16	**7.29**
Assam	0.10	0.10	0.31	0.31	0.00	0.00	0.17	0.21	0.57	0.61	**7.03**
Manipur	0.00	0.00	0.04	0.04	0.00	0.00	0.02	0.02	0.05	0.06	**1.38**
Meghalaya	0.32	0.32	0.00	0.00	0.00	0.00	0.07	0.07	0.40	0.40	**0.01**
Mizoram	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.08	0.08	0.08	**0.11**
Nagaland	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.04	0.04	0.04	**0.00**
Tripura	0.00	0.00	0.11	0.11	0.00	0.00	0.03	0.03	0.13	0.14	**2.07**
Central Sector NER	1.61	1.61	2.00	2.00	0.00	0.00	0.04	0.03	3.64	3.64	**-0.14**
Sub-Total (NER)	**2.03**	**2.03**	**2.45**	**2.45**	**0.00**	**0.00**	**0.58**	**0.63**	**5.06**	**5.11**	**0.98**
Total States	**31.19**	**31.39**	**164.32**	**166.72**	**0.00**	**0.00**	**142.01**	**170.74**	**337.52**	**368.84**	**9.28**
Total Central	**15.74**	**16.34**	**78.90**	**80.22**	**8.18**	**8.18**	**1.63**	**1.63**	**104.45**	**106.37**	**1.84**
Total All India	**46.93**	**47.73**	**243.22**	**246.94**	**8.18**	**8.18**	**143.64**	**172.37**	**441.97**	**475.21**	**7.52**

$ Damodar Valley Corporation (DVC) installed capacity is considered under central sector(ER)

* RES: Comprising of Solar, Wind, Bio-Power and Small Hydro Power

Includes NLC-Central capacity also

Sub-totals/Totals may not tally due to conversion to GW and rounding off.

Source : Central Electricity Authority.

Chapter 2: Installed Capacity, Its Utilization and Credit flow to Domestic Energy Sector

Table 2.5: State-wise cumulative Installed Capacity of Renewable Power

S. No.	STATES / UTs	Small Hydro Power		Wind Power		Bio-Power-BM Power/Cogen. Bagasse		Waste to Energy		Solar Power		Total Capacity		Growth Rate(2023-24 to 2024-25)
		(MW)		(MW)		(MW)		(MW)		(MW)		(MW)		
		31.03.2024	31.03.2025	31.03.2024	31.03.2025	31.03.2024	31.03.2025	31.03.2024	31.03.2025	31.03.2024	31.03.2025	31.03.2024	31.03.2025	
1	Andhra Pradesh	163.31	163.31	4096.65	4377.15	491.67	491.67	82.72	102.35	4584.98	5370.00	**9419**	**10504**	**11.52**
2	Arunachal Pradesh	133.11	140.61			0.00	0.00	0.00	0.00	11.79	14.85	**145**	**155**	**7.29**
3	Assam	34.11	34.11			2.00	2.00	0.00	0.00	156.18	196.54	**192**	**233**	**20.99**
4	Bihar	70.70	70.70			138.90	138.90	1.32	1.32	239.23	328.34	**450**	**539**	**19.80**
5	Chhatisgarh	76.00	76.00			274.59	274.59	0.41	10.83	1212.39	1347.04	**1563**	**1708**	**9.28**
6	Goa	0.05	0.05			0.00	0.00	1.94	1.94	43.48	56.44	**45**	**58**	**28.50**
7	Gujarat	91.64	106.64	11722.72	12677.48	77.30	77.30	35.18	44.95	13544.88	18496.66	**25472**	**31403**	**23.29**
8	Haryana	73.50	73.50			262.66	262.66	21.04	48.81	1475.72	2064.97	**1833**	**2450**	**33.66**
9	Himachal Pradesh	969.71	1000.71			9.20	9.20	1.00	1.00	95.23	204.26	**1075**	**1215**	**13.02**
10	Jammu & Kashmir	169.93	189.93			0.00	0.00	0.00	0.00	65.44	74.49	**235**	**264**	**12.34**
11	Jharkhand	4.05	4.05			19.10	19.10	0.00	1.04	162.40	199.87	**186**	**224**	**20.75**
12	Karnataka	1280.73	1284.73	6019.61	7351.10	1887.30	1889.11	20.42	23.84	8544.68	9679.66	**17753**	**20228**	**13.95**
13	Kerala	276.52	276.52	63.50	71.27	2.27	2.27	0.23	0.23	1022.79	1538.94	**1365**	**1889**	**38.37**
14	Ladakh	42.99	45.79			0.00	0.00	0.00	0.00	7.80	7.80	**51**	**54**	**5.51**
15	Madhya Pradesh	123.71	123.71	2844.29	3195.15	107.35	107.35	27.59	48.11	3995.43	5118.38	**7098**	**8593**	**21.05**
16	Maharashtra	382.28	384.28	5207.98	5284.61	2584.40	2923.70	58.79	74.60	6249.67	10687.27	**14483**	**19354**	**33.63**
17	Manipur	5.45	5.45			0.00	0.00	0.00	0.00	13.04	13.79	**18**	**19**	**4.06**
18	Meghalaya	55.03	55.03			13.80	13.80	0.00	0.00	4.24	4.28	**73**	**73**	**0.05**
19	Mizoram	45.47	45.47			0.00	0.00	0.00	0.00	30.31	30.39	**76**	**76**	**0.11**
20	Nagaland	32.67	32.67			0.00	0.00	0.00	0.00	3.17	3.17	**36**	**36**	**0.00**
21	Odisha	115.63	115.63			59.22	59.22	0.00	5.00	495.63	624.44	**670**	**804**	**19.96**
22	Punjab	176.10	176.10			531.29	531.29	35.96	45.30	1324.27	1421.43	**2068**	**2174**	**5.15**
23	Rajasthan	23.85	23.85	5195.82	5208.75	121.25	136.15	4.39	70.12	21347.58	28286.47	**26693**	**33725**	**26.35**
24	Sikkim	55.11	55.11			0.00	0.00	0.00	0.00	7.04	7.56	**62**	**63**	**0.84**
25	Tamil Nadu	123.05	123.05	10603.54	11739.91	1012.65	1012.65	32.80	33.97	8211.38	10153.58	**19983**	**23063**	**15.41**
26	Telangana	90.87	90.87	128.10	128.10	161.40	161.40	60.27	60.27	4758.16	4842.10	**5199**	**5283**	**1.61**
27	Tripura	16.01	16.01			0.00	0.00	0.00	0.00	18.46	21.24	**34**	**37**	**8.06**
28	Uttar Pradesh	49.10	49.10			2122.76	2150.76	103.38	158.38	2920.33	3364.07	**5196**	**5722**	**10.14**
29	Uttarakhand	218.82	233.82			132.72	132.72	9.52	15.81	575.53	593.07	**937**	**975**	**4.15**
30	West Bengal	98.50	98.50			343.52	343.52	4.84	8.34	194.07	320.62	**641**	**771**	**20.29**
31	Andaman & Nicobar	5.25	5.25			0.00	0.00	0.00	0.00	29.91	29.91	**35**	**35**	**0.00**
32	Chandigarh					0.00	0.00	0.00	0.00	65.52	78.85	**66**	**79**	**20.34**
32	Dadar & Nagar Haveli						3.75			46.47	48.12	**46**	**52**	**11.62**
34	Daman & Diu													
35	Delhi					0.00		84.00	84.00	256.51	313.40	**341**	**397**	**16.71**
36	Lakshwadeep					0.00		0.00		4.97	4.97	**5**	**5**	**0.00**
37	Puducherry					0.00		0.00		49.91	54.51	**50**	**55**	**9.22**
38	Others			4.30	4.30	0.00		0.00		45.01	45.01	**49**	**49**	**0.00**
Total (MW)		**5003**	**5101**	**45887**	**50038**	**10355**	**10743**	**586**	**840**	**81814**	**105646**	**143645**	**172368**	**20.00**
Percentages Distribution		**3.5**	**3.0**	**31.9**	**29.0**	**7.2**	**6.2**	**0.4**	**0.5**	**57.0**	**61.3**	**100**	**100**	

Source: Ministry of New and Renewable Energy

Chapter 2: Installed Capacity, Its Utilization and Credit flow to Domestic Energy Sector

Table 2.6 : Installation of Off-grid / Decentralised Renewable Energy Systems/ Devices as on 31.03.2025

Sl. No.	State/UT	Biogas Plants (Nos)	SPV Pumps (Nos.)	Solar Photovoltaic (SPV) Systems				Waste to Energy (off Grid)(MW)
				SLS (Nos.)	HLS (Nos.)	SL (Nos.)	PP (KWP)	
1	2	3	4	5	6	7	8	9
1	Andhra Pradesh	268652	34045	16460	22972	77803	3816	49.19
2	Arunachal Pradesh	3621	473	25008	35065	218551	963	-
3	Assam	139485	45	29538	46879	647761	1605	-
4	Bihar	130440	2813	54147	12303	1735227	6905	1.32
5	Chhattisgarh	60738	119282	4538	42232	3311	31373	10.83
6	Goa	4245	145	707	393	1093	33	-
7	Gujarat	439402	21745	5004	9253	31603	13577	37.45
8	Haryana	64366	155664	34625	56727	93853	4571	37.61
9	Himachal Pradesh	47718	881	98800	22592	33909	21606	1
10	Jammu & Kashmir	3201	2327	39076	144316	51224	8130	-
11	Jharkhand	7890	36953	14344	9450	790515	3770	1.04
12	Karnataka	515386	9402	5694	52638	7781	7854	22.84
13	Kerala	154462	826	1735	41912	54367	16268	0.23
14	Ladakh	0	0	-	-	-	-	-
15	Madhya Pradesh	388333	25138	16808	7920	529101	7654	32.71
16	Maharashtra	945345	332122	10420	3497	239297	3858	62.01
17	Manipur	2178	118	32767	24583	69722	1581	-
18	Meghalaya	11156	117	5800	14874	97360	2004	-
19	Mizoram	5857	77	20325	12060	155217	3895	-
20	Nagaland	7953	68	16045	1045	30766	1506	-
21	Odisha	271980	15233	19109	5274	99843	2321.5	5
22	Punjab	191157	17605	43758	8626	17495	2066	34.55
23	Rajasthan	73597	152497	8934	187968	225851	104449	10.52
24	Sikkim	9044	0	504	15059	45200	850	
25	Tamil Nadu	224129	55491	41419	298641	16818	13053	27.57
26	Telangana	316749	424	2458	-	142000	7450	14.47
27	Tripura	4052	4389	15517	32723	364012	867	
28	Uttar Pradesh	441845	91995	302532	235909	2351205	10638	158.38
29	Uttarakhand	367169	1056	43803	91595	165071	4060	15.81
30	West Bengal	1293	653	18203	145332	17662	1730	8.34
31	Andaman & Nicobar	97	5	1490	468	6296	167	-
32	Chandigarh	169	12	901	275	1675	730	-
33	Dadar & Nagar Haveli	681	0	-	-	-	-	-
34	Daman & Diu	0	0	-	-	-	-	-
35	Delhi	578	90	301	-	4807	1269	-
36	Lakshadweep	0	0	4465	600	5289	2190	-
37	Puducherry	17541	21	417	25	1637	121	-
38	Others*		4621	9150	140273	125797	23885	-
	Total	**5,120,509**	**1,086,333**	**944,802**	**1,723,479**	**8,459,119**	**316,816**	**530.87**

* Others includes installations through NGOs/IREDA in different states

SLS = Street Lighting System; HLS = Home Lighting System; SL = Solar Lantern; PP = Power Plants; SPV = Solar Photovoltaic;

MW = Mega Watt; KWP = Kilowatt peak

Source : Ministry of New and Renewable Energy

Chapter Three

Production of Energy Resources

CHAPTER 3
Production of Energy Resources

Introduction

Energy production plays a critical role in shaping a nation's economic stability and growth. A structured, timely and detailed energy statistics always act as the key tool for the policymakers to make informed decisions including anticipating global price shocks in energy commodities. Additionally, data on energy production and stock changes are essential for monitoring national energy security. In a global energy landscape marked by evolving trade dynamics, consumption patterns and stock levels, disruptions in national energy supply are often perceived as a threat to national energy security—particularly when domestic energy resources do not meet the growing demand.

In Energy Statistics, production is defined as the capture, extraction or manufacture of fuels or energy that are ready for general use. Two types of production are distinguished, primary and secondary. Primary production is the capture or extraction of fuels or energy from natural energy flows, the biosphere and natural reserves of fossil fuels within the national territory in a form suitable for use. Inert matter removed from the extracted fuels and quantities reinjected, flared or vented are not included.

Secondary production is the manufacture of energy products through the process of transformation of other fuels or energy, whether primary or secondary. The quantities of secondary fuels reported as production include quantities lost through venting and flaring during and after production.

This chapter discusses the production of various energy resources, including coal, lignite, crude oil, natural gas, and electricity.

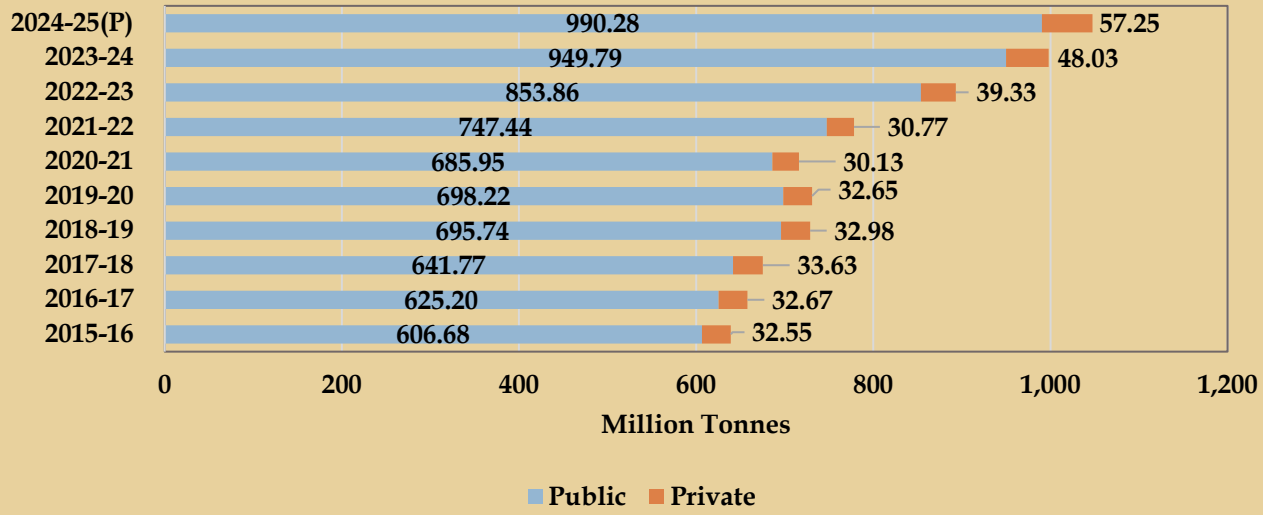
Chapter 3: Production of Energy Resources

Highlights of Production of Energy Resources

3.1 Coal Production

During the FY 2024-25(P), coal production in India reached **1047.52 million tonnes**, marking an increase of **4.98%** from **997.83 million tonnes** in FY 2023-24. The production of coal has shown a steady increase over the past decade, with a compound annual growth rate (CAGR) of 5.64% from FY 2015-16 to FY 2024-25(P). The exception to this upward trend occurred in FY 2020-21(Table 3.1) due to pandemic. The public sector remains dominant in coal production, contributing nearly 95% of the total coal production in India during FY 2024-25. Production performance by Public and Private sector during past 10 years is shown in **figure 3.1**.

Fig 3.1: Share of Private and Public sector in Production of Coal in India during FY : 2015-16 to FY : 2024-25(P)



3.2 Lignite Production

Similar to coal, lignite production saw a slight increase in FY 2024-25(P), with total production recorded at **45.13 million tonnes**, increased by **5.15%** from **42.92 million tonnes** in FY 2023-24(Table 3.1).

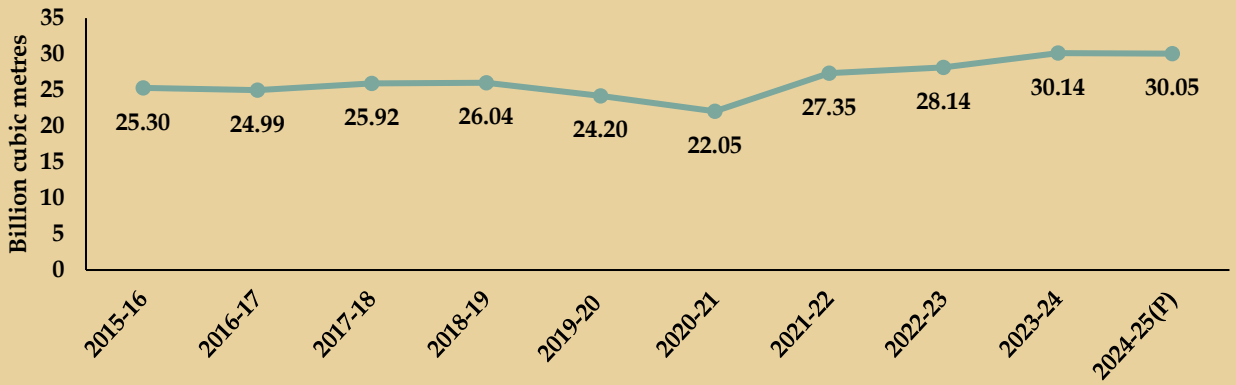
3.3 Crude Oil Production

Though the energy demand of India is rising, the Crude oil production in India experienced a marginal decrease in FY 2024-25(P), reaching **28.70 million tonnes** compared to **29.36 million tonnes** in FY 2023-24, reflecting a decrease of **2.22%** (Table 3.1).

3.4 Natural Gas Production

The net production of natural gas for consumption has also decreased marginally by **0.90%** in FY 2024-25(P), reaching **36.11 Billion Cubic Meters (BCM)**, compared to **36.44 BCM** in FY 2023-24. The net production of natural gas for sale also saw a decline of 0.29%, decreasing from **30.14 BCM** in FY 2023-24 to **30.05 BCM** in FY 2024-25(P) (Table 3.5). The year wise net production of natural gas during the last 10 years has been shown below.

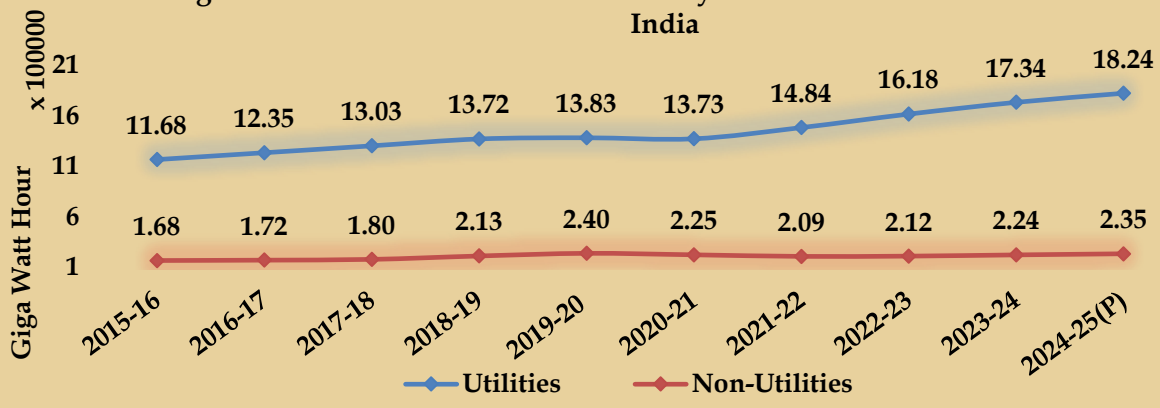
Fig 3.2 : Trend of Net production (for Sale) of Natural Gas in India



3.5 Electricity Generation

India has experienced a steady growth of electricity generation in Utility sector over time except 2020-21. The CAGR grew at a rate of 5.08% in the last ten years from 2015-16 to 2024-25(P). The generation of electricity in India still depends heavily on Coal. During FY:2024-25(P) close to 74% of the electricity (from utilities and non-utilities) has been generated from Steam. However, the RES (Renewable Energy Resources other than Hydro for utility and non-utility) has shown some good signs as it has registered a growth of 14.19% during FY: 2024-25(P), as compared to 2023-24(Table 3.6 A&B). The year wise generation of electricity from utilities and Non-utilities from 2015-16 to 2024-25(P) is shown in below figure.

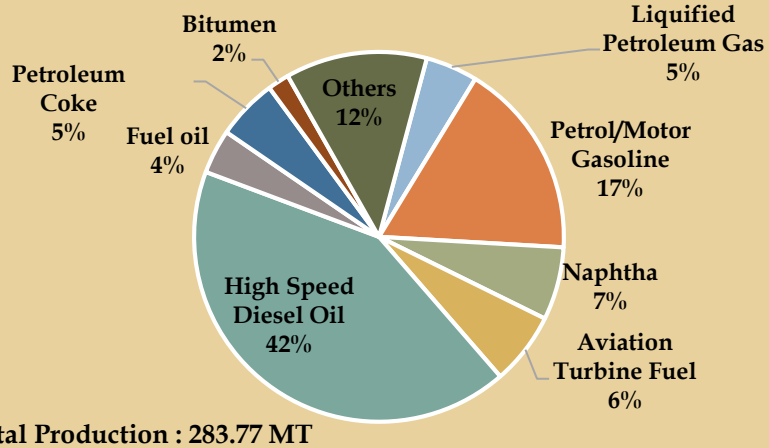
Fig 3.3: Trends of Generation of Electricity from Utilities and Non-Utilities in India



3.6 Petroleum Products Production

The production of petroleum products in India rose by 2.79% in FY 2024-25(P), with a total production of 283.77 million tonnes, compared to 276.06 million tonnes in FY 2023-24 (Table 3.4).

Fig 3.4 : Production of Petroleum Products by type during 2024-25(P)



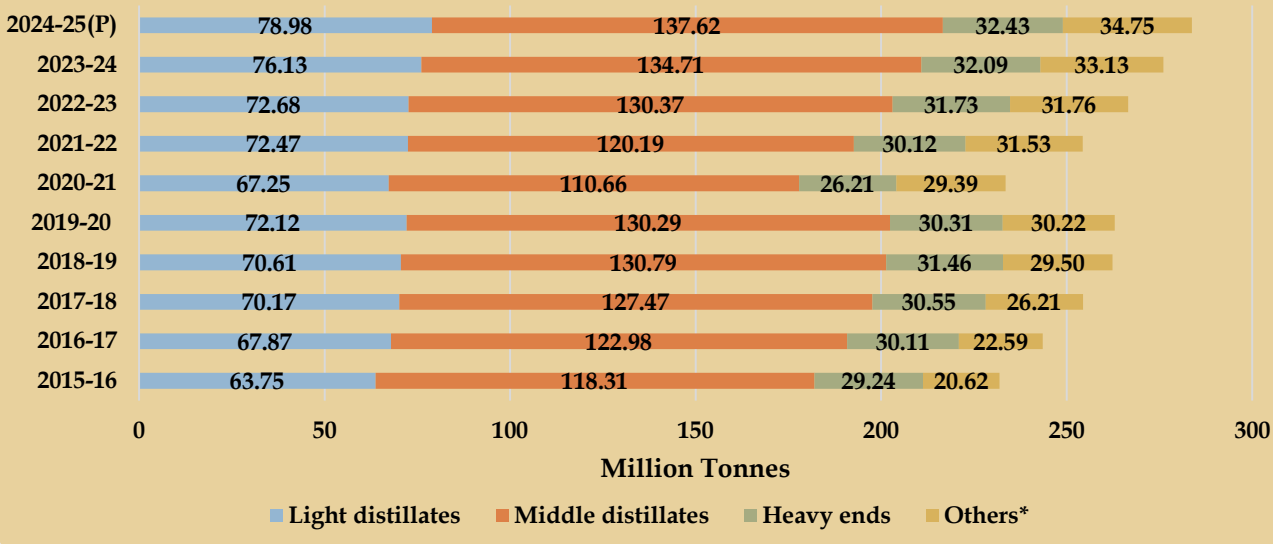
Total Production : 283.77 MT

The High-Speed Diesel (HSD) oil was the dominant petroleum product, accounting for near 42% of total production, followed by petrol/motor gasoline at 17% as shown in **figure 3.4**.

Within the three main categories of petroleum products, the *Middle Distillates*—such as Kerosene, Aviation Turbine Fuel (ATF), High speed Diesel (HSD) and LDO—constitute the largest share, accounting for 48.50% of India's petroleum production. These products experienced a growth of 2.16% in FY 2024-25(P) compared to the previous year.

A sectoral overview during last 10 years is shown in below figure:

Fig 3.5 : Yearwise domestic production of Petroleum products

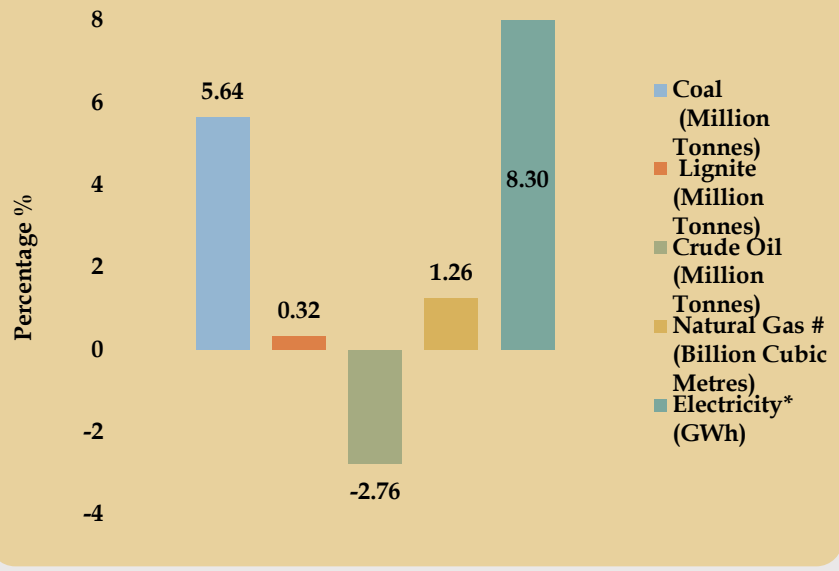


Others include VGO, Benzene, MTO, CBFS, Sulphur, waxes. MTBE& Reformate etc.

3.7 Compound annual growth rate of production of primary energy resources

The Compound Annual Growth Rates (CAGRs) of crude oil and natural gas production, relative to FY 2015-16, show a decline for crude oil at -2.76% and a modest growth for natural gas at 1.26%. Conversely, electricity generation from hydro, nuclear, and other renewable sources exhibited the highest CAGR of 8.30%, showing remarkable growth of renewable energy in India as shown in **figure 3.6**.

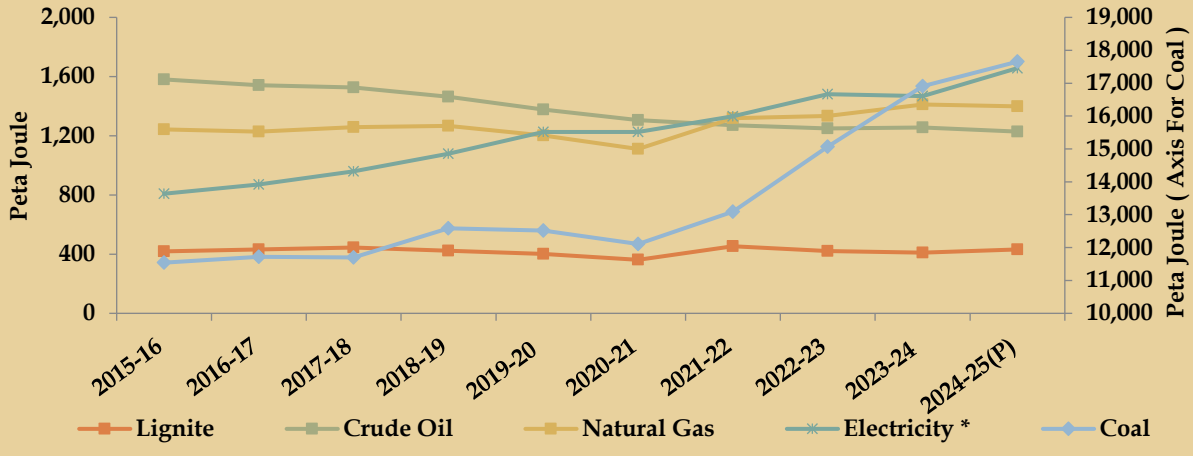
Fig 3.6 : Compound Annual Growth Rate of Production of Primary Energy Resources from 2015-16 to 2024-25(P)



3.8 Energy Production in Petajoules

Energy production in terms of Petajoules (PJ) increased by 4.43% from 21,452 PJ in FY 2023-24 to 22370 PJ in FY 2024-25(P). This growth indicates a general expansion of energy production across various sources (Table 3.2). The production of primary energy sources in India during last 10 years is shown in below figure:

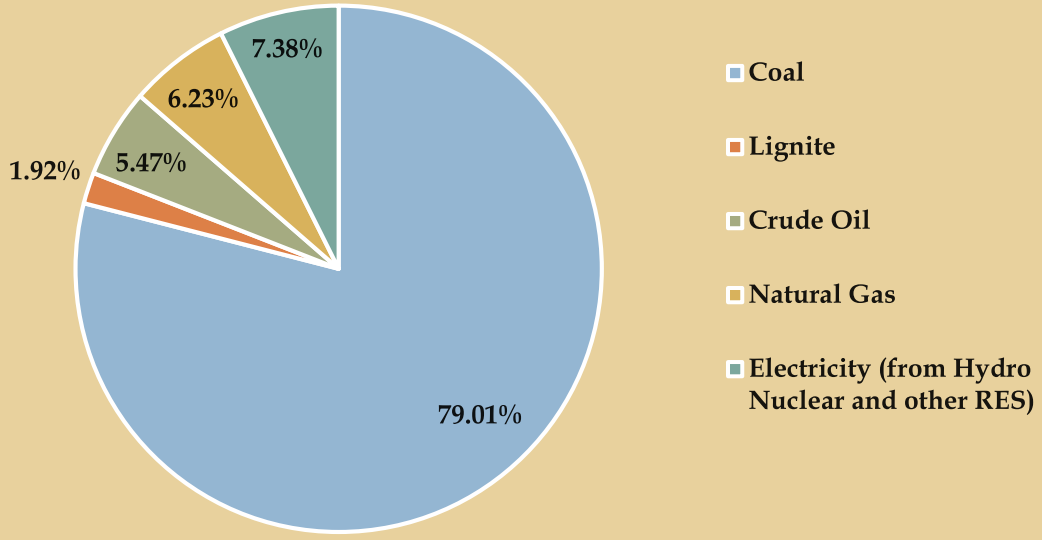
Fig 3.7: Trends in Production of Primary Energy (in petajoules) in India from 2015-16 to 2024-25 (P)



3.9 Dependency on Coal for Primary Energy Generation

India continues to rely heavily on coal for energy generation. In FY 2024-25(P), coal contributed to about **79%** of the total primary energy generation, followed by electricity from hydro, nuclear, and other renewable sources (7%) and natural gas (6%). The share of total energy generated from different commercial sources in India during FY 2024-25 is shown in below figure:

Fig 3.8: Share of Total Energy Generated (in petajoules) from Primary Energy Resources in India in FY : 2024-25(P)



Total Energy Generated- 22,370 PJ

Chapter 3: Production of Energy Resources

Table 3.1: Yearwise Production of Primary Energy Resources in Physical Units

Year	Coal (Million Tonnes)	Lignite (Million Tonnes)	Crude Oil (Million Tonnes)	Natural Gas # (Billion Cubic Metres)	Electricity* (GWh)
1	2	3	4	5	6
2015-16	639.23	43.84	36.94	32.25	224,571
2016-17	657.87	45.23	36.01	31.90	241,842
2017-18	675.40	46.64	35.68	32.65	266,308
2018-19	728.72	44.28	34.20	32.87	299,465
2019-20	730.87	42.10	32.17	31.18	340,579
2020-21	716.08	37.90	30.49	28.67	340,576
2021-22	778.21	47.49	29.69	34.02	369,652
2022-23	893.19	44.03	29.18	34.45	411,514
2023-24	997.83	42.92	29.36	36.44	407,826
2024-25(P)	1047.52	45.13	28.70	36.11	460,324
Growth rate of 2023-24 over 2024-25 (%)	**4.98**	**5.15**	**-2.22**	**-0.90**	**12.87**
CAGR 2015-16 to 2024-25(%)	**5.64**	**0.32**	**-2.76**	**1.26**	**8.30**

(P): Provisional
For Natural Gas Gross Production is reported
* Electricity from Hydro, Nuclear and other Renewable energy sources (Utility)
Sources: 1. *Ministry of Coal*
2. *Ministry of Petroleum & Natural Gas*
3. *Central Electricity Authority*

Table 3.2: Yearwise Production of Primary Energy Resources in Energy Units

(in Petajoules) @

Year	Coal	Lignite	Crude Oil	Natural Gas	Electricity *	Total
1	2	3	4	5	6	7= 2 to 6
2015-16	11,541	419	1581	1242	808	15,591
2016-17	11,721	432	1541	1229	871	15,793
2017-18	11,695	445	1527	1258	959	15,884
2018-19	12,586	423	1464	1266	1078	16,817
2019-20	12,519	402	1377	1201	1226	16,725
2020-21	12,104	362	1305	1111	1226	16,108
2021-22	13,092	453	1270	1318	1331	17,465
2022-23	15,064	420	1249	1334	1481	19,549
2023-24	16,906	410	1256	1411	1468	21,452
2024-25(P)	17,655	431	1228	1399	1657	22,370
Growth rate of 2024-25 over 2023-24 (%)	**4.43**	**5.15**	**-2.22**	**-0.90**	**12.87**	**4.28**
CAGR 2015-16 to 2024-25(%)	**4.84**	**0.32**	**-2.76**	**1.33**	**8.30**	**4.09**

(P): Provisional
* Electricity from hydro, Nuclear and other Renewable energy sources (utility)
@ Conversion factors have been applied to convert production of primary resources of energy into petajoules
Sources: 1. *Ministry of Coal*
2. *Ministry of Petroleum & Natural Gas*
3. *Central Electricity Authority*

Table 3.3: Yearwise Production of Coal - Typewise and Sectorwise

(Million Tonnes)

Year	Coal			Public	Private	Total
	Coking	Non-coking	Total			
1	2	3	4=2+3	5	6	7=5+6
2015-16	60.89	578.34	639.23	606.68	32.55	639.23
2016-17	61.66	596.21	657.87	625.20	32.67	657.87
2017-18	40.15	635.25	675.40	641.77	33.63	675.40
2018-19	41.13	687.59	728.72	695.74	32.98	728.72
2019-20	52.94	677.94	730.87	698.22	32.65	730.87
2020-21	44.79	671.30	716.08	685.95	30.13	716.08
2021-22	51.70	726.51	778.21	747.44	30.77	778.21
2022-23	60.76	832.43	893.19	853.86	39.33	893.19
2023-24	66.82	931.01	997.83	949.79	48.03	997.83
2024-25(P)	66.47	981.05	1047.52	990.28	57.25	1047.52
Growth rate of 2024-25 over 2023-24 (%)	**-0.53**	**5.38**	**4.98**	**4.26**	**19.18**	**4.98**
CAGR 2015-16 to 2024-25(%)	**0.98**	**6.05**	**5.64**	**5.60**	**6.47**	**5.64**

(P): Provisional

Source: Ministry of Coal

Table 3.3(A): Grade Wise Production of Coking Coal by Sector during 2023-24 & 2024-25

(Million Tonnes)

Grade of Coking Coal	Public		Private		All India		Change in production (%)
	2023-24	2024-25(P)	2023-24	2024-25(P)	2023-24	2024-25(P)	
Steel-I	0.00	0.00	0.00	0.00	0.00	0.00	-
Steel-II	0.10	0.15	0.00	0.00	0.10	0.15	-
SC-1	0.22	0.22	0.00	0.00	0.22	0.22	-
Wash-I	1.23	1.60	0.00	0.00	1.23	1.60	-
Wash-II	2.95	4.25	0.49	0.83	3.44	5.08	47.86
Wash-III	4.31	4.84	0.29	0.34	4.60	5.18	12.63
Wash-IV	30.41	29.40	5.15	4.91	35.55	34.31	-3.49
Wash-V	21.21	19.67	0.00	0.14	21.21	19.81	-6.62
Wash-VI	0.48	0.11	0.00	0.00	0.48	0.11	-
Washery Feed	0.00	0.00	0.00	0.00	0.00	0.00	-
SLV1	0.00	0.00	0.00	0.00	0.00	0.00	-
All India Total	**60.90**	**60.25**	**5.92**	**6.22**	**66.82**	**66.47**	**-0.53**
Met. Coal	**37.60**	**43.50**	**5.77**	**5.92**	**43.37**	**49.42**	**13.96**
Non Met	**17.39**	**17.40**	**0.00**	**0.00**	**17.39**	**17.40**	**0.05**
All India Total	**54.99**	**60.90**	**5.77**	**5.92**	**60.76**	**66.82**	**9.98**

(P): Provisional

Source: Ministry of Coal

Table 3.3(B): Grade Wise Production of Non-Coking Coal by Sector during2023-24 & 2024-25

(Million Tonnes)

Grade of Non- Coking Coal	Public		Private		All India		Change in production (%)
	2023-24	2024-25 (P)	2023-24	2024-25 (P)	2023-24	2024-25 (P)	
G1	0.05	0.08	0.00	0.00	0.05	0.08	-
G2	0.09	0.26	0.00	0.00	0.09	0.26	-
G3	2.59	1.95	0.00	0.00	2.59	1.95	-
G4	18.01	19.60	0.00	0.00	18.01	19.60	8.84
G5	8.95	8.81	0.18	0.00	9.13	8.81	-3.49
G6	7.30	9.61	0.15	0.00	7.45	9.61	29.03
G7	54.63	53.12	0.88	0.65	55.51	53.77	-3.15
G8	57.81	71.15	0.00	0.10	57.81	71.25	23.26
G9	67.46	56.11	10.95	7.51	78.41	63.62	-18.87
G10	68.36	86.57	1.17	1.09	69.53	87.67	26.09
G11	267.67	254.05	4.28	6.10	271.96	260.15	-4.34
G12	108.44	119.15	12.79	14.96	121.23	134.12	10.63
G13	112.40	108.84	2.87	6.71	115.27	115.55	0.24
G14	89.35	124.40	3.80	4.02	93.15	128.42	37.87
G15	24.49	14.83	0.10	1.17	24.59	16.00	-34.93
G16	0.00	1.41	4.32	0.00	4.32	1.41	-67.47
G17	1.30	0.00	0.61	8.50	1.91	8.50	-
UNG	0.00	0.08	0.00	0.23	0.00	0.31	-
All India Total	**888.90**	**930.02**	**42.11**	**51.03**	**931.01**	**981.05**	5.38

(P): Provisional

Source: Ministry of Coal

Table 3.4 : Yearwise Domestic Production of Petroleum Products

(Million Tonnes)

Year	Light distillates				Middle distillates					Heavy ends					Others*	Total
	LPG	Petrol/MG	Naphtha	Total	Kerosene	ATF	HSD	LDO	Total	Fuel oil	Lubes	Pet. Coke	Bitumen	Total		
1	2	3	4	5	6	7	8	9	10	11	12	12	14	15	16	17
2014-15	9.84	32.33	17.39	59.56	7.56	11.10	94.43	0.36	113.45	11.92	0.95	12.45	4.63	29.94	18.19	221.14
2015-16	10.57	35.32	17.86	63.75	7.50	11.79	98.59	0.43	118.31	9.73	1.04	13.32	5.16	29.24	20.62	231.92
2016-17	11.33	36.59	19.95	67.87	6.04	13.83	102.48	0.63	122.98	9.96	1.03	13.94	5.19	30.11	22.59	243.55
2017-18	12.38	37.78	20.01	70.17	4.41	14.59	107.90	0.56	127.47	9.49	1.04	14.75	5.28	30.55	26.21	254.40
2018-19	12.79	38.04	19.79	70.61	4.07	15.48	110.53	0.70	130.79	10.03	0.95	14.68	5.80	31.46	29.50	262.36
2019-20	12.82	38.62	20.68	72.12	3.21	15.24	111.22	0.62	130.29	8.61	0.93	15.53	5.24	30.31	30.22	262.94
2020-21	12.07	35.78	19.40	67.25	2.39	7.09	100.44	0.73	110.66	7.24	1.07	12.66	5.25	26.21	29.39	233.51
2021-22	12.24	40.24	19.99	72.47	1.92	10.29	107.17	0.81	120.19	8.33	1.17	15.51	5.11	30.12	31.53	254.31
2022-23	12.83	42.82	17.04	72.68	0.95	15.00	113.77	0.65	130.37	9.24	1.30	16.04	5.14	31.73	31.76	266.54
2023-24	12.78	45.08	18.27	76.13	0.98	17.12	115.94	0.66	134.71	10.44	1.35	15.05	5.24	32.09	33.13	276.06
2024-25(P)	12.79	48.26	17.92	78.98	1.01	17.75	118.22	0.63	137.62	10.86	1.30	14.96	5.30	32.43	34.75	283.77
Growth rate of 2024-25 over 2023-24(%)	**0.09**	**7.06**	**-1.91**	**3.74**	**2.58**	**3.68**	**1.97**	**-3.88**	**2.16**	**3.99**	**-3.84**	**-0.60**	**1.21**	**1.05**	**4.90**	**2.79**
CAGR 2014-15 to 2023-24 (%)	**2.14**	**3.53**	**0.04**	**2.41**	**-19.99**	**4.66**	**2.04**	**4.40**	**1.69**	**1.23**	**2.54**	**1.30**	**0.31**	**1.15**	**5.97**	**2.27**

(P): Provisional LPG=Liquified Petroleum Gas, MG= Motor Gasoline, ATF= Aviation Turbine Fue Lubes= Lubricant, Pet.Coke= Petroleum Coke

* Others include VGO, Benzene, MTO, CBFS, Sulphur, Waxes, MTBE & Reformate, etc.

Source : Ministry of Petroleum & Natural Gas.

Table 3.5: Yearwise Gross and Net Production of Natural Gas

(in Billion Cubic Meters)

Year	Gross Production	Internal Consumption	Flared	Losses	Net Production (For Consumption)	Net Production (For Sales)
1	2	3	4	5	6=2-4-5	7 = 6 - 3
2015-16	32.25	5.83	1.01	0.12	31.12	25.30
2016-17	31.90	5.86	0.98	0.07	30.85	24.99
2017-18	32.65	5.81	0.82	0.09	31.73	25.92
2018-19	32.87	6.02	0.73	0.09	32.05	26.04
2019-20	31.18	6.05	0.86	0.07	30.26	24.20
2020-21	28.67	5.73	0.82	0.07	27.78	22.05
2021-22	34.02	5.77	0.81	0.09	33.12	27.35
2022-23	34.45	5.51	0.69	0.11	33.65	28.14
2023-24	36.44	5.58	0.65	0.07	35.72	30.14
2024-25(P)	36.11	5.55	0.47	0.04	35.59	30.05
Growth rate of 2024-25 over 2023-24(%)	**-0.90**	**-0.63**	**-26.88**	**-37.49**	**-0.34**	**-0.29**
CAGR 2015-16 to 2024-25 (%)	**1.26**	**-0.55**	**-8.02**	**-10.11**	**1.50**	**1.93**

(P): Provisional
Total may not tally due to rounding off.
Source: Ministry of Petroleum & Natural Gas.

Table 3.6 (A): Yearwise Gross Generation of Electricity from Utilities

(Giga Watt hour=10^6 Kilo Watt hour)

Year	Utilities							
	Thermal				Large Hydro	Nuclear	RES*	Total
	Steam	Diesel	Gas	Total				
1	2	3	4		6	7	8	9
2015-16	895,340	551	47,122	943,013	121,377	37,414	65,781	1,167,584
2016-17	944,022	401	49,094	993,516	122,378	37,916	81,548	1,235,358
2017-18	986,591	348	50,208	1,037,146	126,123	38,346	101,839	1,303,455
2018-19	1,022,265	215	49,834	1,072,314	134,894	37,813	126,759	1,371,779
2019-20	994,197	199	48,443	1,042,838	155,769	46,472	138,337	1,383,417
2020-21	981,443	224	50,944	1,032,611	150,300	43,029	147,248	1,373,187
2021-22	1,078,581	214	36,016	1,114,811	151,627	47,112	170,912	1,484,463
2022-23	1,182,096	409	23,885	1,206,390	162,099	45,861	203,555	1,617,905
2023-24	1,294,852	401	31,296	1,326,549	134,054	47,937	225,835	1,734,375
2024-25(P)	1,331,867	443	31,580	1,363,890	148,634	56,681	255,009	1,824,214
Growth rate of 2024-25 over 2023-24(%)	**2.86**	**10.50**	**0.91**	**2.81**	**10.88**	**18.24**	**12.92**	**5.18**
CAGR 2015-16 to 2024-25(%)	**4.51**	**-2.40**	**-4.35**	**4.19**	**2.28**	**4.72**	**16.25**	**5.08**

(P): Provisional
* RES: Comprising of Solar, Wind, Bio-Power and Small Hydro Power
Source: Central Electricity Authority.

Table 3.6 (B): Yearwise Gross Generation of Electricity from Non-Utilities

(Giga Watt hour= 10^6 x Kilo Watt hour)

Year	Non-Utilities							Grand Total
	Thermal				Large Hydro	RES*	Total	
	Steam	Diesel	Gas	Total				
	10	11	12	13	14	15	16	17
2015-16	136,721	8,412	21,083	166,216	110	2,046	168,372	1,335,956
2016-17	137,588	9,182	22,855	169,625	144	2,277	172,046	1,407,404
2017-18	143,868	8,107	25,362	177,337	112	2,328	179,777	1,483,232
2018-19	184,250	5,334	19,545	209,130	270	3,674	213,074	1,584,853
2019-20	205,546	1,919	25,443	232,908	348	6,310	239,567	1,622,983
2020-21	193,143	2,504	21,684	217,330	339	7,158	224,827	1,598,014
2021-22	179,235	2,105	20,801	202,141	357	6,813	209,311	1,693,774
2022-23	179,831	2,035	21,087	202,953	291	8,688	211,932	1,829,837
2023-24	183,093	10,158	21,677	214,928	274	8,701	223,903	1,958,278
2024-25(P)	186,900	12,010	23,008	221,918	380	12,800	235,098	2,059,312
Growth rate of 2024-25 over 2023-24(%)	**2.08**	**18.24**	**6.14**	**3.25**	**38.90**	**47.11**	**5.00**	**5.16**
CAGR 2015-16 to 2024-25(%)	**3.53**	**4.04**	**0.98**	**3.26**	**14.76**	**22.60**	**3.78**	**4.93**

(P): Provisional
* RES: Comprising of Solar, Wind, Bio-Power and Small Hydro Power
Source: Central Electricity Authority.

Chapter Four

Foreign Trade and Prices of Energy Resources

CHAPTER 4
Foreign Trade and Prices of Energy Resources

Introduction

India's economic growth is significantly shaped by foreign trade, with energy resources playing a central role. The country's heavy reliance on imports, particularly crude oil, natural gas, and coal, makes it highly susceptible to fluctuations in global energy prices. These fluctuations affect the trade balance, as rising energy prices increase India's import bill, leading to a higher trade deficit.

Energy prices are particularly influential on key sectors like transportation, manufacturing, and agriculture, all of which depend heavily on affordable energy. As India continues to expand its industrial base and infrastructure, the cost of energy becomes a critical factor in maintaining competitiveness and economic stability. India is focusing on increasing its energy security by diversifying sources, investing in renewable energy, and promoting energy efficiency. Managing energy imports and stabilizing energy prices are key to India's goal of achieving sustainable economic growth while reducing its dependence on volatile global energy markets.

This chapter presents the foreign trade and prices of energy resources i.e. Coal, Crude Oil, Petroleum, Natural Gas and Electricity.

Chapter 4: Foreign Trade and Prices of Energy Resources

4.1 Coal Imports

Though India is having one of the largest reserves of Coal in the world, still India has experienced a steady dependency in imported Coal over the last decade. The net import of coal increased from **202.37 million tonnes (MT)** in FY 2015-16 to **262.99 MT** in FY 2023-24. During FY 2024-25(P), this figure has been decreased by **8.09%** over previous year and became **241.71 MT** which testament to the fact of growing self-reliance of India.

4.2 Crude Oil Imports

India remains heavily reliant on crude oil imports to meet domestic consumption. Crude oil imports grew from **202.85 MT** in FY 2015-16 to **226.95 MT** in FY 2019-20. The COVID-19 pandemic caused a dip in 2020-21, reducing imports to **196.46 MT**. However, imports rose again in FY 2024-25(P), reaching **243.22 MT**, an increase of **3.83%** from the previous year.

4.3 Petroleum Product Exports

India is an exporter of petroleum products. The export of petroleum products has grown at a slow but steady rate, from **60.54 MT** in FY **2015-16** to **65.69 MT** in FY **2019-20.** Exports decreased in 2020-21 but rebounded in subsequent years, reaching **65.08 MT** in FY 2024-25 (P), reflecting a **3.97%** increase compared to the previous year.

4.4 Natural Gas Imports

Natural gas imports have risen substantially over the past decade. From **21.39 BCM** (Billion Cubic Meter) in FY 2015-16, imports grew to **33.89 BCM** in FY 2019-20. In FY 2024-25(P), the import figure stood at **35.72 BCM**, up from **31.80 BCM** in FY 2023-24. The compound annual growth rate (CAGR) of natural gas imports between FY 2015-16 and FY 2024-25 (P) is **5.86%**.

4.5 Electricity Exports and Imports

India's electricity exports rose from **5150.30 GWh** in FY 2015-16 to **10620.78 GWh** in FY 2024-25 (P) with a CAGR of **8.37%**.
Simultaneously, India also imported electricity to meet domestic demand. The gross import of electricity increases from **5244.21 GWh** in FY 2015-16 to **7457.24 GWh in 2024-25(P) with a CAGR of 3.99 %**. Imports of Electricity increased by 21.31% from **6147.23 GWh** in FY 2023-24 to 7457.24 **GWh** in FY 2024-25(P).

4.6 Trend in Import of Coal, Crude Oil, Petroleum Products, Natural Gas and electricity

Fig 4.1: Trends of Import of Coal, Crude oil,Petroleum products in India

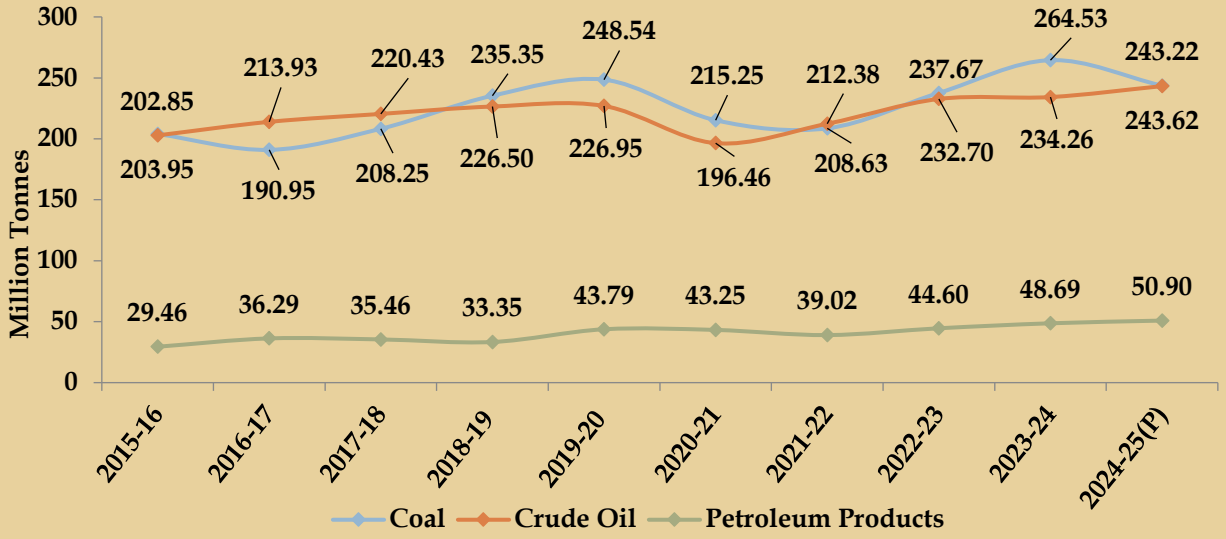
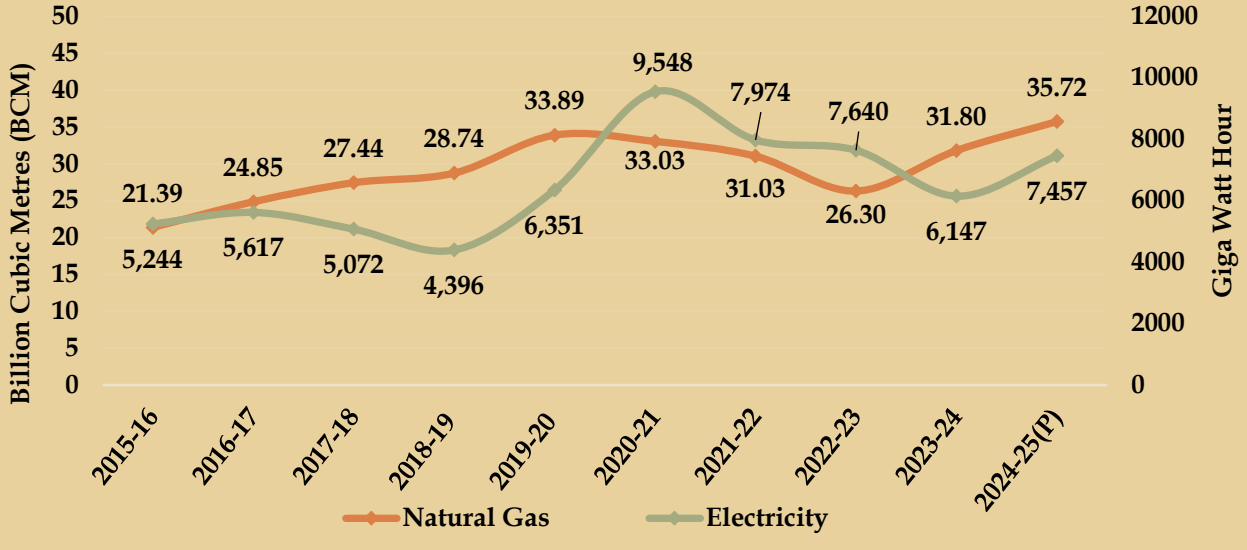


Fig 4.2: Trends of Import of Natural Gas and Electricity in India



4.7 Trend in Whole sale Price Indices (base 2011-12) of Energy commodities :

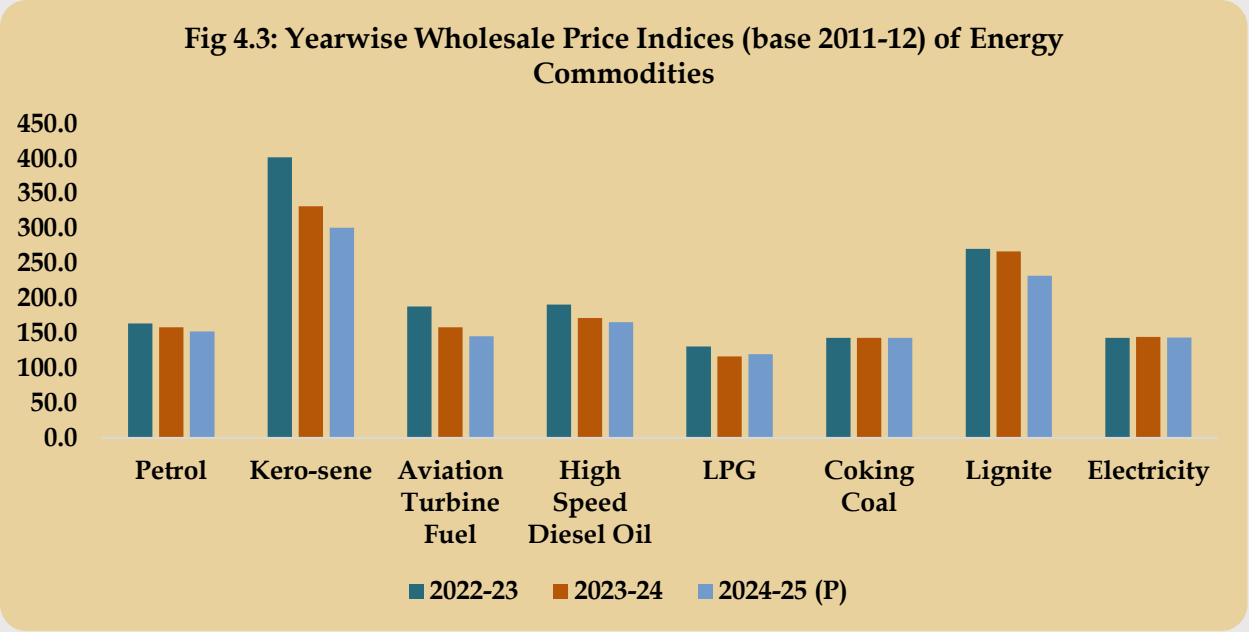


Figure 4.3 shows that most energy prices (Petrol, Kerosene, Aviation Fuel, Diesel, LPG, and Lignite) decreased in 2024-25 compared to 2023-24, with the biggest drop in Kerosene. However, Coking Coal prices remained the same.

Table 4.1: Yearwise Foreign Trade in Coal, Crude Oil, Petroleum Products(total), Natural Gas and Electricity

(Million Tonnes)

Year	Coal			Lignite			Crude Oil			Petroleum Products		
	Gross Imports	Exports	Net Imports	Gross Imports	Exports	Net Imports	Gross Imports	Exports	Net Imports	Gross Imports	Exports	Net Imports
1	2	3	4=2-3	5	6	7=5-6	8	9	10=8-9	11	12	13=11-12
2015-16	203.95	1.58	202.37	0.00	0.00	0.00	202.85	0.00	202.85	29.46	60.54	-31.08
2016-17	190.95	1.77	189.18	0.02	0.01	0.01	213.93	0.00	213.93	36.29	65.51	-29.23
2017-18	208.25	1.50	206.75	0.01	0.00	0.01	220.43	0.00	220.43	35.46	66.83	-31.37
2018-19	235.35	1.31	234.04	0.02	0.08	-0.06	226.50	0.00	226.50	33.35	61.10	-27.75
2019-20	248.54	1.03	247.51	0.05	0.09	-0.04	226.95	0.00	226.95	43.79	65.69	-21.90
2020-21	215.25	2.95	212.31	0.02	0.19	-0.17	196.46	0.00	196.46	43.25	56.77	-13.52
2021-22	208.63	1.32	207.31	0.01	0.02	-0.01	212.38	0.00	212.38	39.02	62.75	-23.74
2022-23	237.67	1.17	236.50	0.02	0.33	-0.31	232.70	0.00	232.70	44.60	61.01	-16.42
2023-24	264.53	1.55	262.99	0.05	0.00	0.05	234.26	0.00	234.26	48.69	62.59	-13.90
2024-25(P)	243.62	1.91	241.71	0.14	0.02	0.12	243.22	0.00	243.22	50.90	65.08	-14.17
Growth rate of 2024-25 over 2023-24(%)	**-7.90**	**23.87**	**-8.09**	**168.63**	**1136.03**	**137.63**	**3.83**	**-**	**3.83**	**4.54**	**3.97**	**1.96**
CAGR 2015-16 to 2024-25 (%)	**1.99**	**2.19**	**1.99**	**72.23**	**50.33**	**82.29**	**2.04**		**2.04**	**6.27**	**0.81**	**-8.36**

Table 4.1 (Contd): Yearwise Foreign Trade in Coal, Crude Oil, Petroleum Products, Natural Gas and Electricity

Year	Natural Gas (BCM)			Electricity (Gwh)		
	Gross Imports	Exports	Net Imports	Gross Imports	Exports	Net Imports
1	14	15	16=14-15	17	18	19=17-18
2015-16	21.39	0.00	21.39	5244.21	5150.30	93.91
2016-17	24.85	0.00	24.85	5617.30	6710.19	-1092.89
2017-18	27.44	0.00	27.44	5072.08	7202.86	-2130.78
2018-19	28.74	0.00	28.74	4395.86	8468.94	-4073.08
2019-20	33.89	0.00	33.89	6350.60	9490.91	-3140.31
2020-21	33.03	0.00	33.03	9547.70	9573.55	-25.85
2021-22	31.03	0.00	31.03	7974.01	9249.39	-1275.39
2022-23	26.30	0.00	26.30	7639.76	13791.92	-6152.16
2023-24	31.80	0.00	31.80	6147.23	11295.19	-5147.95
2024-25(P)	35.72	0.00	35.72	7457.24	10620.78	-3163.54
Growth rate of 2024-25 over 2023-24(%)	**12.34**	**-**	**12.34**	**21.31**	**-5.97**	**-38.55**
CAGR 2015-16 to 2024-25 (%)	**5.86**		**5.86**	**3.99**	**8.37**	**-247.81**

(P): Provisional.

Sources:

1. *Ministry of Coal*
2. *Ministry of Petroleum & Natural Gas.*
3. *Central Electricity Authority*

Table 4.2: Yearwise Wholesale Price Indices of Energy Commodities

(Base Year 2011-12=100)

Year	Petrol	Kerosene	Aviation Turbine Fuel	High Speed Diesel Oil	LPG	Coking Coal	Lignite	Electricity
1	2	3	4	5	9	10	12	13
2015-16	75.7	88.4	69.5	73.4	76.7	101.4	94.7	105.3
2016-17	72.4	94.3	69.3	74.4	72.0	108.2	90.2	104.2
2017-18	80.3	117.8	78.7	84.4	82.2	134.1	104.2	103.7
2018-19	88.4	152.4	102.8	97.1	92.1	132.9	120.3	109.6
2019-20	85.6	172.8	97.2	93.7	84.5	138.1	129.1	111.8
2020-21	75.5	116.8	62.5	80.2	82.2	141.8	130.9	109.6
2021-22	123.0	221.9	112.4	128.2	117.8	143.0	170.5	117.4
2022-23	164.1	402.6	188.5	191.4	130.9	143.4	271.1	143.3
2023-24	158.7	332.2	158.6	171.9	116.8	143.4	267.6	145.0
2024-25 (P)	152.8	301.6	145.6	166.0	120.0	143.4	232.4	144.1
Increase in 2023-24 over 2022-23(%)	**-3.72**	**-9.21**	**-8.20**	**-3.43**	**2.74**	**0.00**	**-13.15**	**-0.62**

* Annual average of monthly index, Financial Year wise

Source: Office of the Economic Advisor, Ministry of Commerce & Industry.

Chapter Five

Availability of Energy Resources

CHAPTER 5
Availability of Energy Resources

Introduction

The availability of energy resources is crucial for the economic and social development of a country, especially for poverty reduction and improving living standards. Timely and reliable data on energy availability is essential for sound decision-making and long-term planning. Monitoring energy resources, helps assess their availability and depletion over time. This is crucial for maintaining energy security and supporting sustainable development.

Importance of Energy Availability

Energy availability is a key enabler of improved quality of life, fostering economic growth, and addressing the energy needs of households and industries. For developing countries like India, tracking energy resources and their depletion is vital for assessing long-term sustainability. The push towards renewable and cleaner forms of energy has gained momentum in recent years, aiming to bridge the gap between energy demand and supply while minimizing environmental impact. Furthermore, energy access for all, particularly clean energy, has been recognized as a key goal in the Sustainable Development Goals (SDGs), with a target for 2030.

This chapter outlines the current status of energy availability in India, focusing on coal, crude oil, petroleum products, and electricity.

Chapter 5: Availability of Energy Resources

Key Highlights of Energy Availability

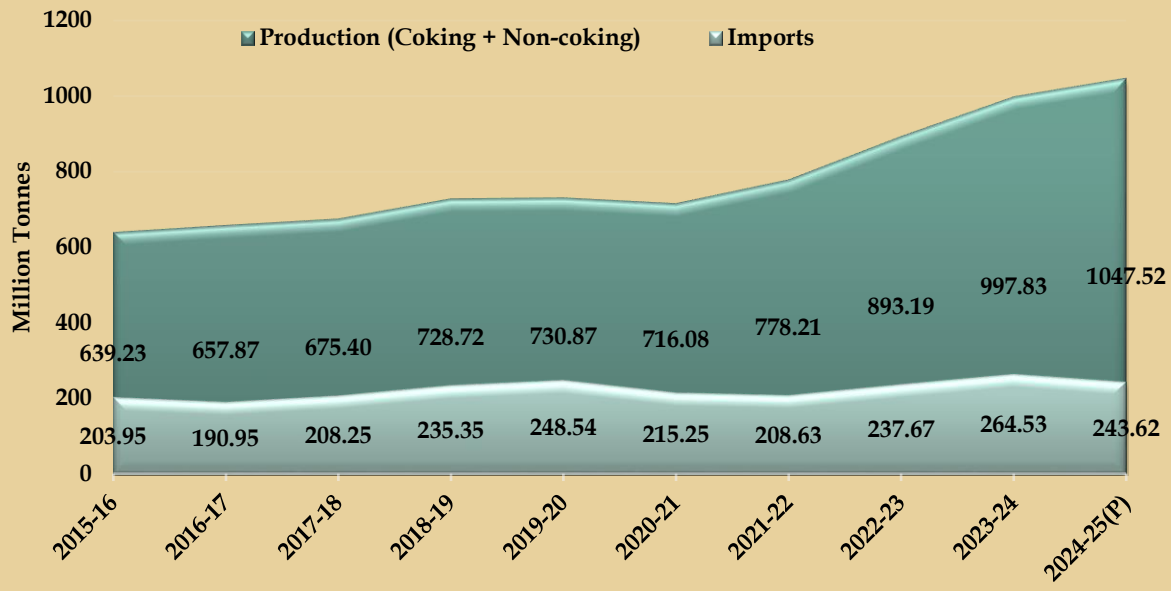
5.1 Availability of energy resources

Table 5.1 indicates that coal availability in India has shown consistent growth, with a **2.48%** increase in FY 2024-24(P) compared to FY 2023-24, and a **CAGR of 4.73%** over the past decade, indicating a steady rise in domestic production over the years except in FY 2020-21. Similarly, lignite availability has inclined by **4.48%** with a **CAGR of 0.60%** over the period of 10 years. Among others, the availability of Crude oil has seen modest growth of **3.15%** over the last year; the natural gas availability has experienced a significant **5.63%** rise, with a **CAGR of 3.46%**, both of which because of increase in Import-Qty over the last year.

5.2 Coal Availability

Table 5.2 indicates that India's coal production has seen a steady rise (except in FY 2020-21), reaching **1047.52 MT** in FY 2024-25 (P), reflecting an **4.98%** increase from the previous year, indicating a growing capacity to meet domestic energy needs. Coal imports declined by **7.90%** to **243.62 MT**, indicating reduced reliance on external sources to supplement domestic production and meet rising demand. The year wise trend in production and import of coal in India is shown in below figure:

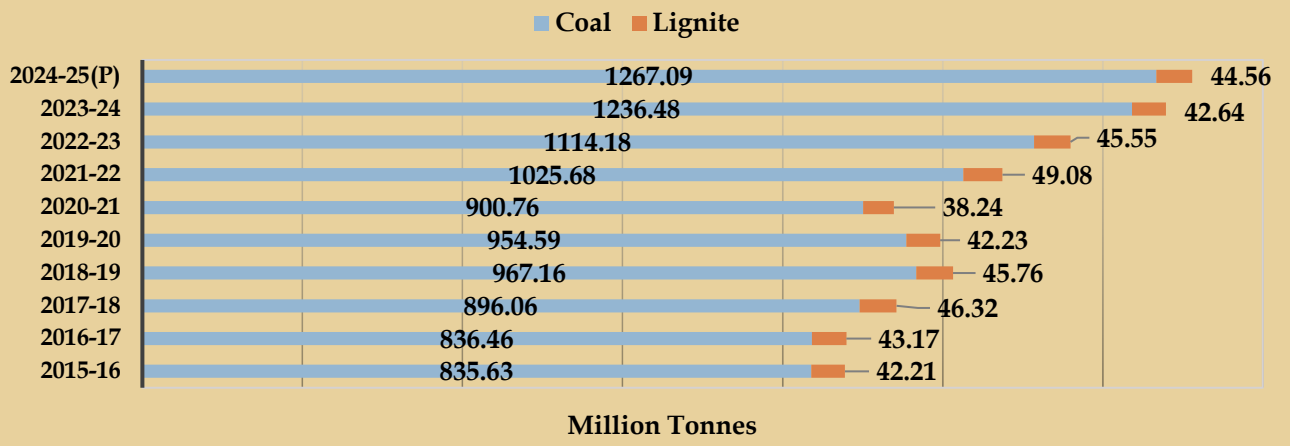
Fig 5.1 : Trend of Production and Import of Coal in India



However, Exports of coal remained stable, with an increase to **1.91 MT**. The **change in vendible stock** is **22.14 MT**. As a result, the **availability for consumption** reached

1267.09 MT, a **2.48**% increase from the previous year. The Lignite availability in India has shown an upward trend, with production in FY 2024-25(P) increasing by **5.15**% to **45.13 MT**, compared to **42.92 MT** in FY 2023-24. Imports have remained minimal, and exports of lignite have been negligible, in FY 2024-25 (P). As a result, the **availability for consumption** of lignite increased by **4.48**% to **44.56 MT** in FY 2024-25(P). The year wise availability of Coal and Lignite is shown in below figure:

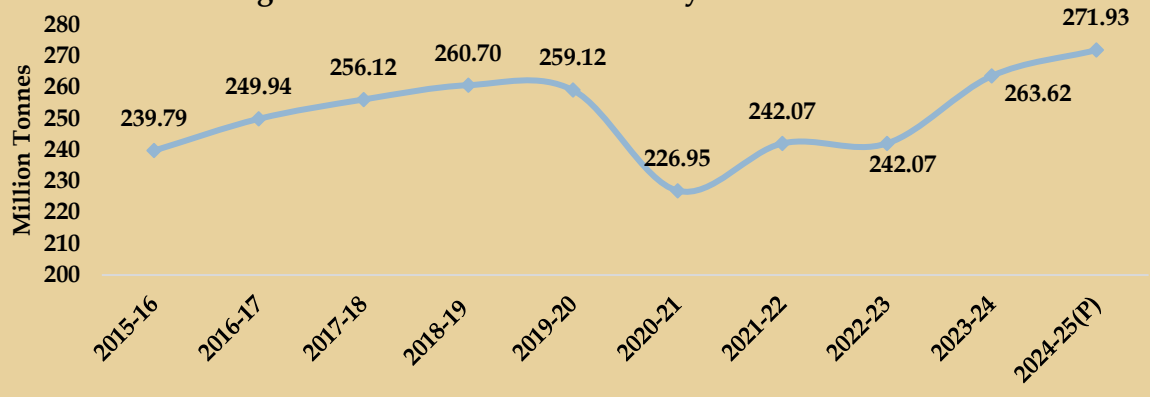
Fig 5.2: Yearwise Total Aviailability of Coal and Lignite in India



5.3 Crude Oil Availability

Table 5.3 indicates that the Crude oil production in India has been steadily declining reaching **28.70 MT** in FY 2024-25(P), the compound annual growth rate (CAGR) is **-2.92**%, signaling a consistent decline in domestic production. The net **imports** of crude oil have been rising, reaching **243.22 MT** in FY 2024-25(P), a **3.83**% increase from the previous year, with a **CAGR of 2.82**% over the past decade, indicating India's continued reliance on foreign sources to meet domestic energy-demand. As a result, the **total availability** of crude oil has increased by **3.15**% in FY 2024-25(P) to **271.93 MT**, driven by higher imports despite the decline in domestic production.

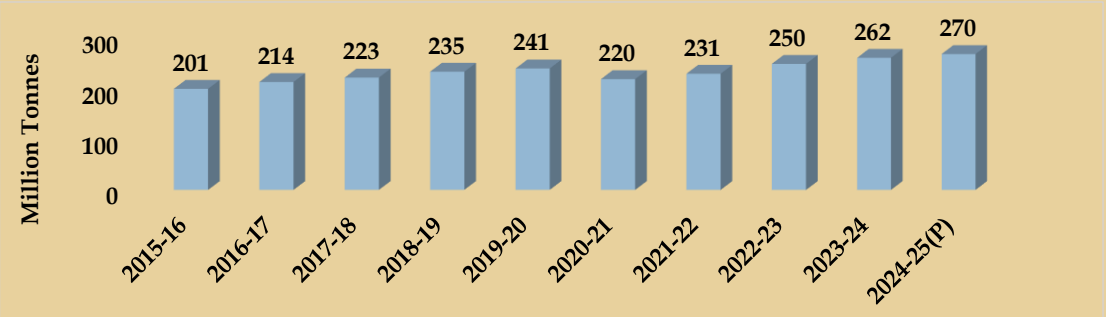
Fig 5.3: Yearwise Total Availability of Crude Oil in India



5.4 Petroleum Products Availability

Table 5.3 indicates that, In FY 2024-25(P), the production of petroleum products increased by **2.79%**, reaching **283.77 MT** compared to **276.06 MT** in FY 2023-24, with a **CAGR of 2.81%** over the long term (2015-16 to 2024-25). Meanwhile, **net imports** of petroleum products increased slightly by **1.96%**, reaching to **-14.17 MT** in 2024-25(P) to **-13.90 MT** in FY 2023-24, reflecting an increased reliance on imports likely due to insufficient domestic refining capacity. As a result, the **availability** of petroleum products increased by **2.84%** to **269.60 MT** in FY 2024-25(P). The year wise availability of petroleum products during last 10 years is shown below:

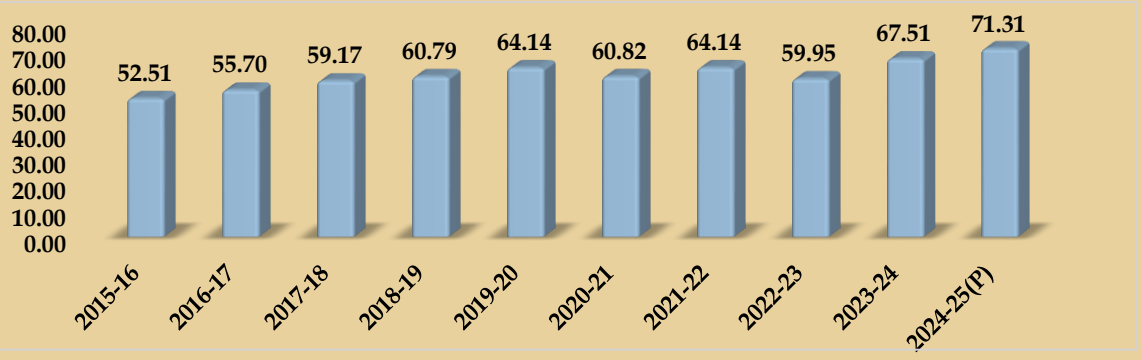
Fig 5.4: Yearwise Total Aviailability of petroleum products in India during FY : 2015-16 to FY : 2024-25(P)



5.5 Natural Gas Availability

Table 5.3 indicates that In FY 2024-25(P), **natural gas production** decline by **0.34%**, reaching **35.59 BCM**, reflecting a downward trend in domestic production with a **CAGR of 0.95%** over the past decade. At the same time, **net imports** of natural gas increased by **12.34%**, reaching **35.72 BCM** compared to **31.80 BCM** in FY 2023-24, which grew at a **CAGR of 7.52%**. As a result, the **total availability** of natural gas increased by **5.63%** to **71.31 BCM** in FY 2024-25(P). The year wise availability of natural gas during last 10 years is shown below:

Fig 5.5: Yearwise Total Aviailability of Natural Gas in India during FY : 2015-16 to FY : 2024-25(P)



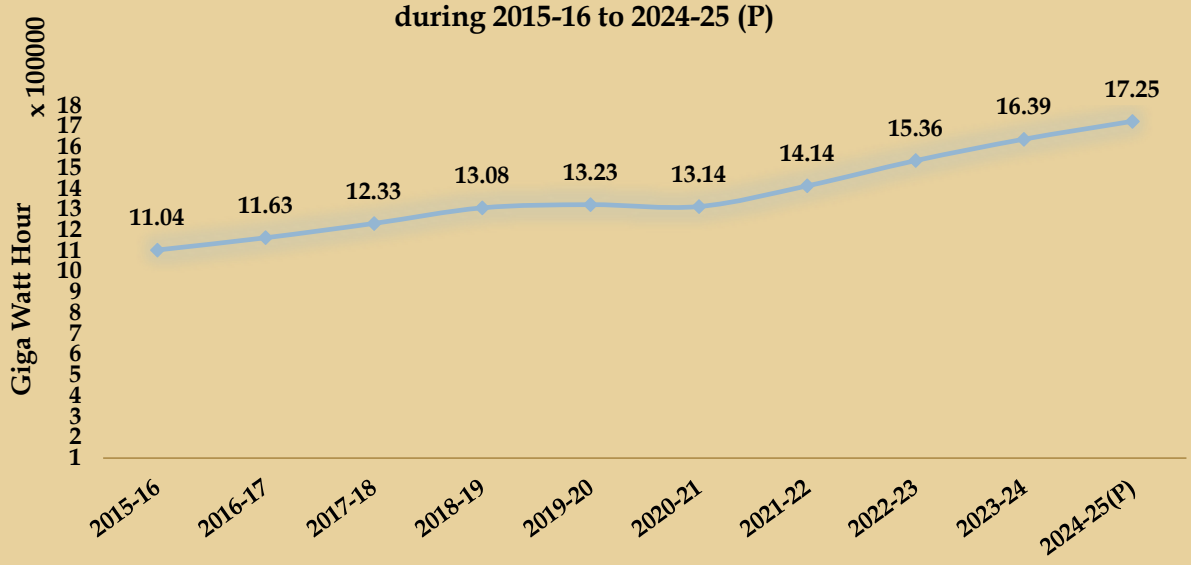
5.6 Electricity Availability

Table 5.4 indicates that from 2015-16 to 2024-25 (P), India's electricity generation and supply have shown consistent growth. Gross electricity generation (utility) increased by **5.18** % in FY 2024-25 (P), reaching **18,24,214 GWh**, with a **CAGR** of **5.08** % over the decade. Similarly, net electricity generated (utility) grew by **5.18** %, reaching **17,12,024 GWh**, driven by both improved generation and efficiency.

Purchases from non-utilities and net imports also increased by **17.58**% to **13,230 GWh**, though their long-term growth has been more modest, with a **CAGR** of **-2.05** %.

Overall, the **net electricity available for supply** rose by **5.26** % to **1,725,254 GWh**, showing a steady rise, with a **CAGR** of **5.08**% from 2015-16 to 2024-25(P). The year wise net availability of electricity during last 10 years is shown below:

Fig 5.6: Trends of Net availability of Electricity in India during 2015-16 to 2024-25 (P)



Chapter 5: Availability of Energy Resources

Table 5.1: Yearwise Availability of Energy Resources

Year	Coal (Million Tonnes)	Lignite (Million Tonnes)	Crude Oil (Million Tonnes)	Natural Gas (Billion Cubic Metres)
2015-16	835.63	42.21	239.79	52.51
2016-17	836.46	43.17	249.94	55.70
2017-18	896.06	46.32	256.12	59.17
2018-19	967.16	45.76	260.70	60.79
2019-20	954.59	42.23	259.12	64.14
2020-21	900.76	38.24	226.95	60.82
2021-22	1025.68	49.08	242.07	64.14
2022-23	1114.18	45.55	242.07	64.14
2023-24	1236.48	42.64	263.62	67.51
2024-25(P)	1267.09	44.56	271.93	71.31
Growth rate of 2023-24 over 2022-23(%)	**2.48**	**4.48**	**3.15**	**5.63**
CAGR 2014-15 to 2023-24 (%)	**4.73**	**0.60**	**1.41**	**3.46**

(P): Provisional

Note: Availability is defined as below:

Coal/lignite: Production+ Import -Export- change in stocks (Figure for 2014-15 to 2022-23 stand modified due to correction in formula)

Natural gas: Net Production i.e. (Gross production -Flared - Losses) + Net imports

Sources: 1. *Ministry of Coal*
2. *Ministry of Petroleum & Natural Gas*
3. *Central Electricity Authority*

Table 5.2 : Yearwise Availability of Coal and Lignite

(Million Tonnes)

Year	Coal					Lignite				
	Production (Coking + Non-coking)	Imports	Exports	Change of Vendible Stock (Closing stock-Opening stock)	Availability for Consumption*	Production	Imports	Exports	Change of Vendible Stock (closing stock-Opening stock)	Availability for Consumption
1	2	3	4	5	6=2+3-4-5	7	8	9	10	11=7+8-9-10
2015-16	639.23	203.95	1.58	5.97	835.63	43.84	0.00	0.00	1.63	42.21
2016-17	657.87	190.95	1.77	10.59	836.46	45.23	0.02	0.01	2.07	43.17
2017-18	675.40	208.25	1.50	-13.92	896.06	46.64	0.01	0.00	0.33	46.32
2018-19	728.72	235.35	1.31	-4.40	967.16	44.28	0.02	0.08	-1.54	45.76
2019-20	730.87	248.54	1.03	23.79	954.59	42.10	0.05	0.09	-0.18	42.23
2020-21	716.08	215.25	2.95	27.63	900.76	37.90	0.02	0.19	-0.51	38.24
2021-22	778.21	208.63	1.32	-40.16	1025.68	47.49	0.01	0.02	-1.59	49.08
2022-23	893.19	237.67	1.17	15.52	1114.18	44.03	0.02	0.33	-1.83	45.55
2023-24	997.83	264.53	1.55	24.33	1236.48	42.92	0.05	0.00	0.33	42.64
2024-25(P)	1047.52	243.62	1.91	22.14	1267.09	45.13	0.14	0.02	0.70	44.56
Growth rate of 2023-24 over 2022-23(%)	**4.98**	**-7.90**	**23.87**	**-**	**2.48**	**5.15**	**-**	**-**	**-**	**4.48**

(P): Provisional

Total may not tally due to rounding off

Source : Ministry of Coal

Table 5.3 : Yearwise Availability of Crude Oil, Petroleum Products and Natural Gas.

Year	Crude Oil (Million Tonne)			Petroleum Products (Million Tonne)			Natural Gas (Billion Cubic Meter)*		
	Production	Net Imports	Availability	Production	Net Imports	Availability	Production	Net Imports	Availability
1	2	3	4=2+3	5	6	7=5+6	8	9	10 = 8+9
2015-16	36.94	202.85	239.79	231.92	-31.08	200.84	31.12	21.39	52.51
2016-17	36.01	213.93	249.94	243.55	-29.23	214.32	30.85	24.85	55.70
2017-18	35.68	220.43	256.12	254.40	-31.37	223.03	31.73	27.44	59.17
2018-19	34.20	226.50	260.70	262.36	-27.75	234.61	32.05	28.74	60.79
2019-20	32.17	226.95	259.12	262.94	-21.90	241.04	30.26	33.89	64.14
2020-21	30.49	196.46	226.95	233.51	-13.52	219.99	27.78	33.03	60.82
2021-22	29.69	212.38	242.07	254.31	-23.74	230.57	33.12	31.03	64.14
2022-23	29.18	232.70	261.88	266.54	-16.42	250.12	33.65	26.30	59.95
2023-24	29.36	234.26	263.62	276.06	-13.90	262.16	35.72	31.80	67.51
2024-25(P)	28.70	243.22	271.93	283.77	-14.17	269.60	35.59	35.72	71.31
Growth rate of 2023-24 over 2022-23(%)	**-2.22**	**3.83**	**3.15**	**2.79**	**1.96**	**2.84**	**-0.34**	**12.34**	**5.63**
CAGR 2014-15 to 2023-24 (%)	**-2.92**	**2.82**	**2.03**	**2.81**	**-11.52**	**4.69**	**0.95**	**7.52**	**3.73**

* : Availability of natural gas is equal to indigenous net production (Gross production-Flared/Losses) + net imports

(P): Provisional; Total may not tally due to rounding off.

Source : Ministry of Petroleum & Natural Gas.

Table 5.4: Yearwise Availability of Electricity

(in Giga Watt hour = 10^6 Kilo Watt hour)

Year	Gross Electricity Generated from Utilities	Consumption in Power Station Auxiliaries	Net Electricity Generated from Utilities	Purchases from Non-Utilities + Net Import from Other Countries	Net Electricity Available for Supply
1	2	3	4=2-3	5	6=4+5
2015-16	1,167,584	79,302	1,088,282	15,947	1,104,228
2016-17	1,235,358	81,044	1,154,314	8,977	1,163,290
2017-18	1,303,455	82,148	1,221,307	11,198	1,232,505
2018-19	1,371,779	83,386	1,288,393	19,291	1,307,685
2019-20	1,383,417	83,301	1,300,116	22,932	1,323,048
2020-21	1,373,187	80,472	1,292,715	21,310	1,314,025
2021-22	1,484,463	86,756	1,397,707	16,197	1,413,903
2022-23	1,617,905	93,429	1,524,475	11,191	1,535,666
2023-24	1,734,375	106,650	1,627,725	11,252	1,638,977
2024-25(P)	1,824,214	112,190	1,712,024	13,230	1,725,254
Growth rate of 2024-25 over 2023-22(%)	**5.18**	**5.19**	**5.18**	**17.58**	**5.26**
CAGR 2015-16 to 2024-25 (%)	**5.08**	**3.93**	**5.16**	**-2.05**	**5.08**

(P): Provisional

Source: Central Electricity Authority.

Chapter Six

Consumption of Energy Resources

CHAPTER 6
Consumption of Energy Resources

Introduction

The study of energy consumption patterns within any economy is essential to understand how final demand drives energy use. The SEEA – Energy highlights that "resource uses and environmental pressures at the level of production are determined by final use, which initiates the production chain." This implies that final consumption plays a significant role in shaping resource utilization and environmental impact.

In the context of climate change, understanding various consumption activities such as heating of buildings, electricity use, industrial processes, and transportation—activities involving combustion processes—is critical. Global economies are increasingly measuring and tracking energy-related air emissions, as most economic activities are linked to the combustion processes needed for energy production.

Total Energy Consumption (TEC) and Its Importance

The International Energy Agency (IEA), where India has been an associated member since March 2017, defines TEC as the total energy consumed in end-use sectors and for non-energy purposes, excluding energy used in transformation processes. TEC serves as an indicator of energy efficiency and can help identify areas requiring policy adjustments for sustainability. This chapter presents the total consumption of energy resources along with sector wise end use of different energy resources and products in India.

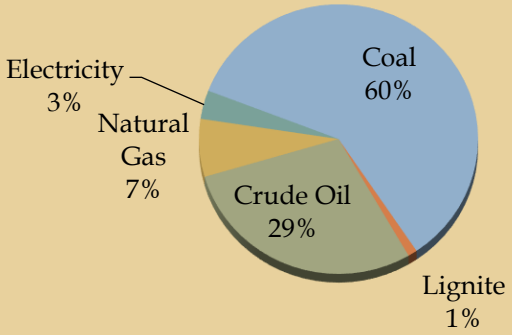
Chapter 6: Consumption of Energy Resources

Key Highlights of Energy Consumption

6.1 Source wise Consumption of Primary Energy Resources

Figure 6.1 shows the consumption of energy in petajoules from Coal which accounted for 60% of the total consumption during 2024-25(P) followed by Crude Oil (29%) and Natural Gas (7%).

Fig 6.1: Sourcewise Consumption of Primary Energy during 2024-25 (P)



Total Energy Consumption = 39,842 PJ

#: Electricity from Hydro, Nuclear and otherRenewable energy sources (Utility)

Fig 6.2 : Growth rate of consumption of Energy Resources during FY:2024-25(P) w.r.t 2023-24

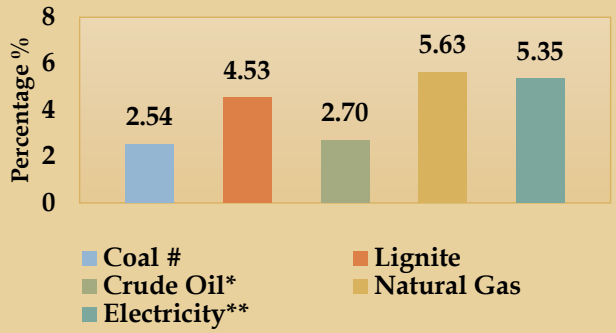
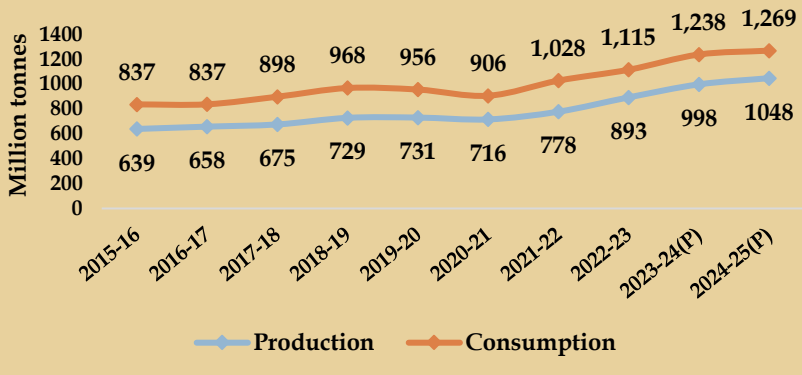


Figure 6.2 shows the India's **overall energy consumption trend** for FY 2024-25 (P), highlighting a steady increase across all major energy resources. The figure shows a significant **growth in natural gas consumption** along with an upward trend in **electricity** and **Lignite** consumption. While **Coal** consumption and **Crude oil** consumption experienced moderate growth.

India, being one of the largest producers and consumers of coal, has witnessed a significant growth in coal consumption over the years as shown in **figure 6.3**. After a notable increase of **10.98**% in FY 2023-24 compared to FY 2022-23, the trend of rising demand and consumption continues.

In FY 2024-25(P), coal consumption has grown by **2.54** % over FY 2023-24, reflecting the ongoing strong demand across various sectors, particularly in power generation (Table 6.1).

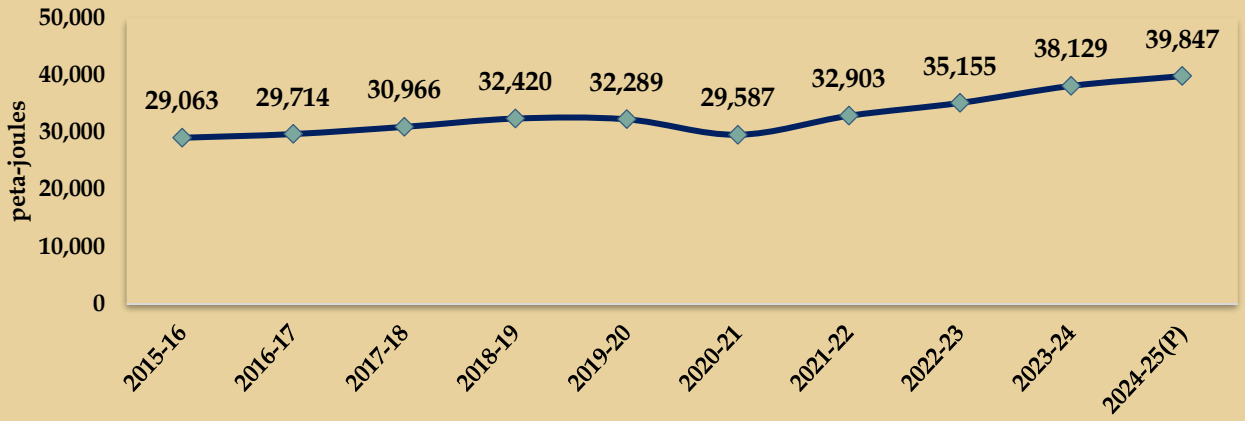
Fig 6.3 : Yearwise Trend of Production and Consumption of Coal in India during FY:2015-16 to FY:2024-25(P)



6.2 Total consumption of Primary Energy in India

Figure 6.4 shows the total energy consumption of Primary energy Resources (Coal, Lignite, Crude Oil, Natural gas and Electricity) increased from **29,063 Petajoules (PJ)** in 2015-16 to **39,847 Petajoules (PJ)** in 2024-25 (P), reflecting a notable rise. From **38,129 PJ** in 2023-24, the consumption surged by **4.51%** in FY 2024-25 (P). Among the various energy resources, **Electricity** accounted for the highest growth, with an increase of **13%** during FY 2024-25 (P) compared to the previous year.

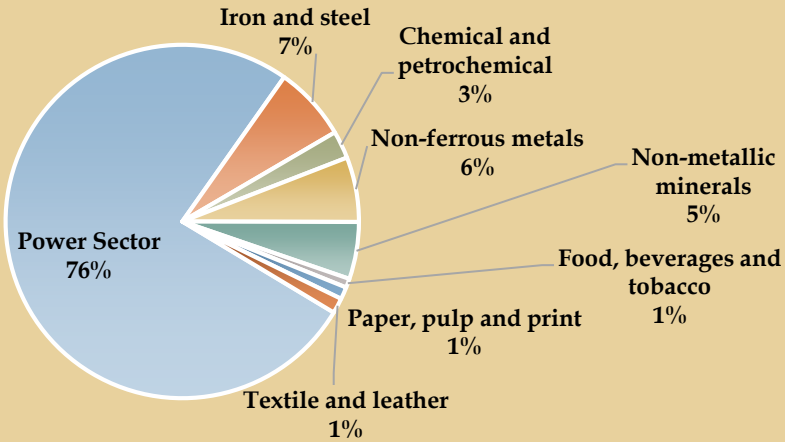
Fig 6.4 : Trend of total consumption of Primary Energy in India



6.3 Sector-wise Consumption of Coal

Figure 6.5 indicates that **Electricity** is the largest consumer, using **76%** of the total coal consumed in the country followed by iron and steel **7%**. The consumption of coal into different sectors is shown below:

Fig 6.5 : Consumption of Coal into different sectors during FY:2024-25(P)

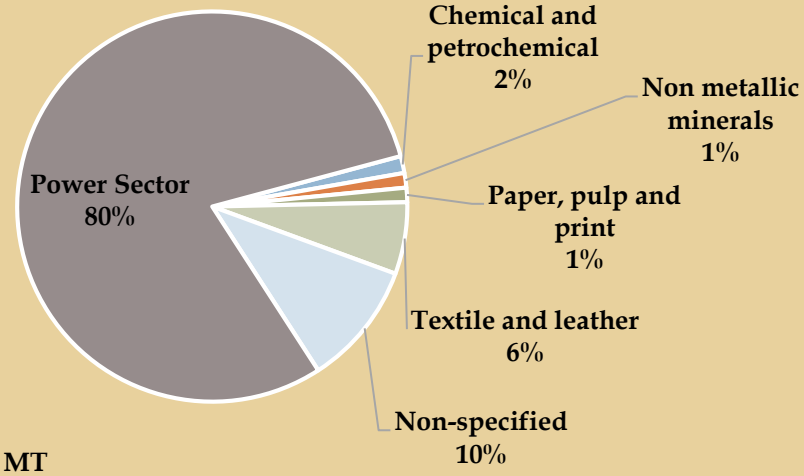


Total Coal Consumption- 1,269 MT

6.4 Sector-wise Consumption of Lignite

Figure 6.6 indicates that electricity is largest consumer, using 80% of the total lignite consumption. The consumption of lignite into different sectors is shown in below:

Fig 6.6: Percentage Consumption of Lignite into different sectors

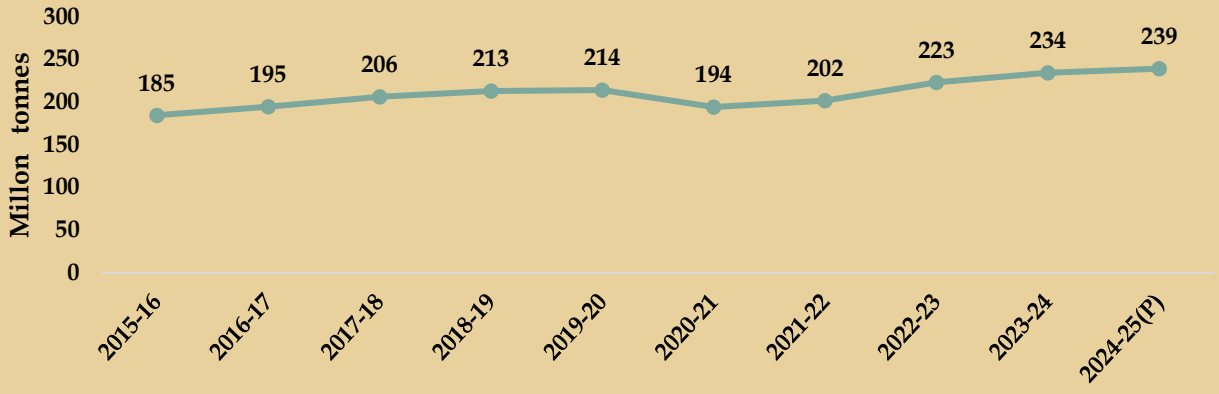


Total Lignite consumption: 44.58 MT

6.5 Consumption of Petroleum products

Petroleum products in India have shown steady growth over time, increasing from **185 MTs** in 2015-16 to **239 MTs** in 2024-25(P), reflecting a CAGR of **2.92** % over a span of 10 years. However, due to the impact of the **COVID-19 pandemic**, consumption dropped by **9.26**% in FY 2020-21. In FY 2024-25 (P), there was a positive rebound, with a growth rate of **2.12**% compared to the previous year, bringing the total to **239.22 MTs (Table 6.5)**.

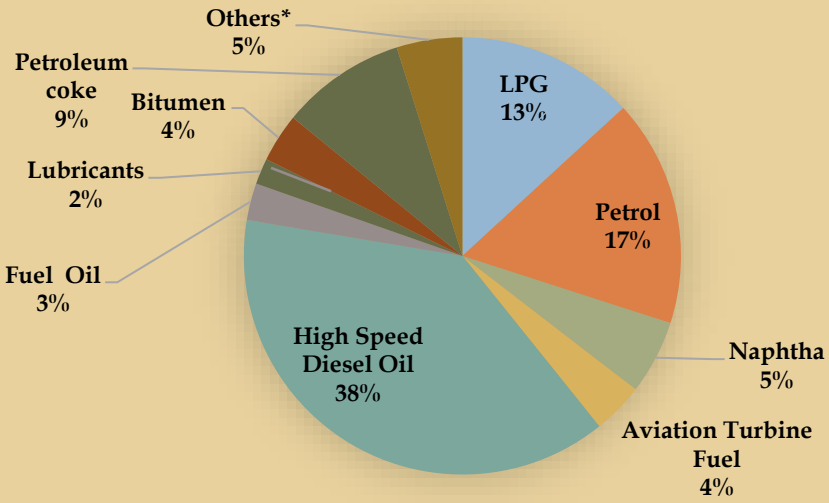
Fig 6.7 : Trend of total consumption of Petroleum Products in India during FY: 2015-16 to FY: 2024-25 (P)



6.5.1 Consumption of petroleum products- by type

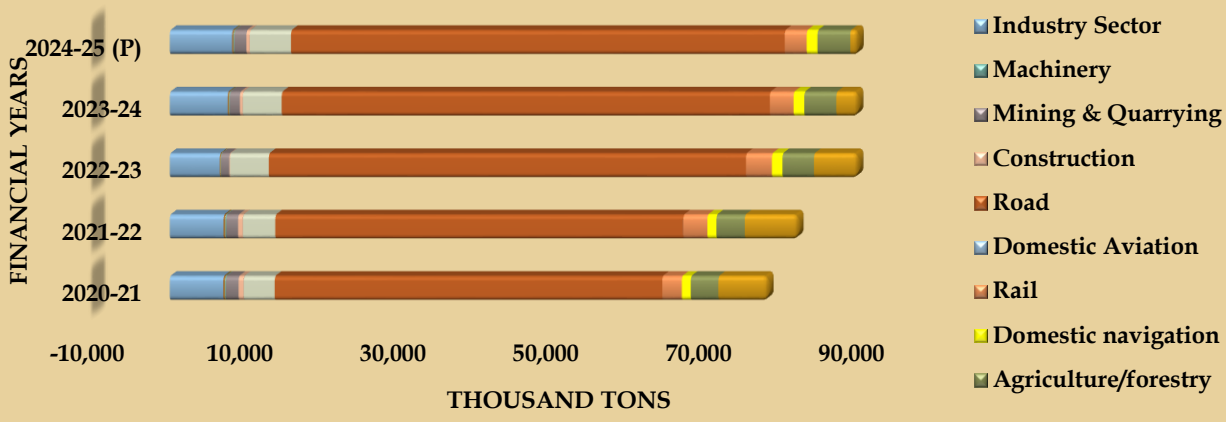
Figure 6.8 shows that the among all the petroleum products the High Speed Diesel Oil(HSDO) accounted for 38% of total consumption,followed by Petrol(17%), LPG(13%) and Petroleum coke(9%).

Fig 6.8 : Consumption of Petroleum Products- By type during FY 2024-25(P)



During FY 2024-25(P), HSDO experienced a positive growth of 1.99% over last year. The Petrol and Pet coke are also having a growth of 7.48% and 8.29% respectively. The sector wise consumption of HSDO during last 5 years is shown in below graph:

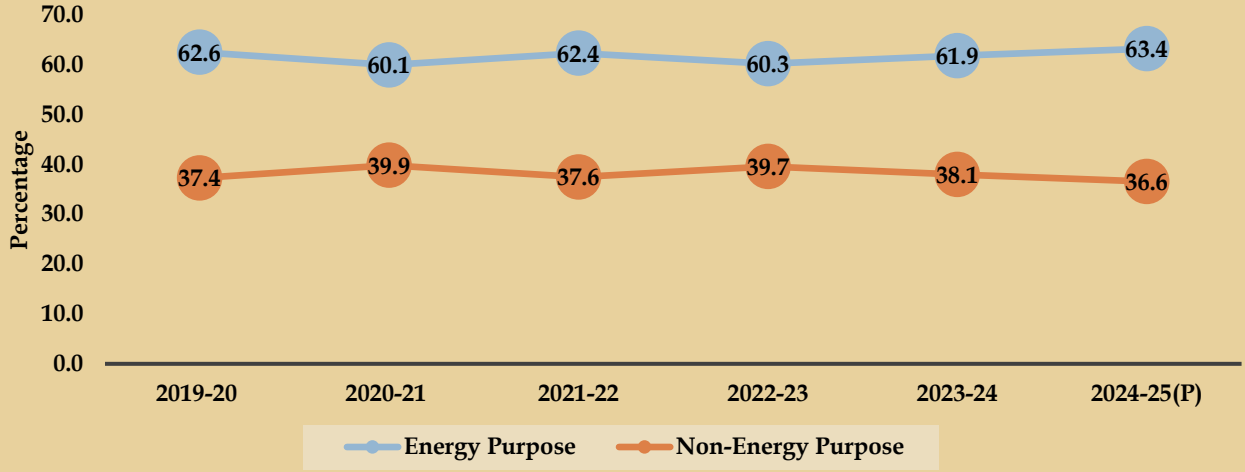
Fig 6.9 :Sector-wise comsumption of HSDO(High Speed Diesel Oil) during last 5 years



6.6 Consumption of Natural Gas

Table 6.7 indicates that the consumption of Natural Gas has experienced a fluctuation over time. During FY: 2024-25(P) the consumption against the *Energy Purpose* has experienced a growth of 5.83% (from 42,621 BCM during 2023-24 to 45,106 BCM during 2024-25(P)); but the *Non-Energy Purpose* has experienced a decline of -0.38% (from 26,188 BCM during 2023-24 to 26,090 BCM during 2024-25(P)). The year wise consumption of Natural Gas (Energy and Non-energy purpose) is shown in below graph:

Fig. 6.10: Trend Consumption of Natural Gas



From the **table 6.7** it is also observed that the maximum use of Natural Gas is in fertilizers industry (28.77%) followed by City or Local Natural Gas Distribution Network incl. Road Transport (21.14%). While 63.36% of natural gas has been used for Energy purposes, 36.64% is used for non-energy purposes.

6.7 Consumption of electricity

From **table 6.8** it can be seen that India's electricity consumption has grown significantly, from **10,01,191 GWh** in FY 2015-16 to **16,22,969 GWh** in FY 2024-25 (P), reflecting a **CAGR of 5.51%**. **Figure 6.11** shows that industrial sector remains the largest consumer of electricity, accounting for **40.39%** of the total consumption, followed by the **domestic sector (25%)**, **agriculture (16%)**, and **commercial sectors (8%)**. The sector wise consumption of electricity during last 5 years is shown in **figure 6.12**.

Fig 6.11: Consumption of Electricity by Sectors in India during 2024-25(P)

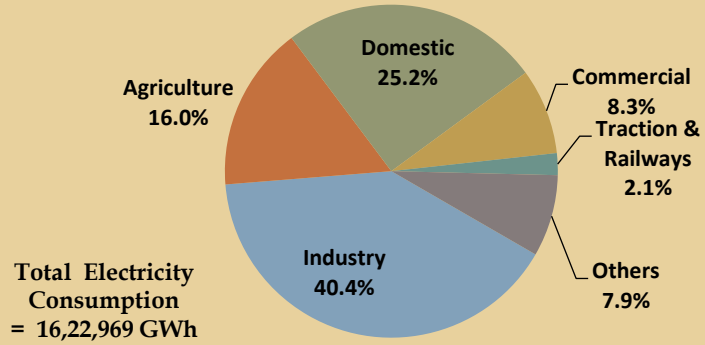
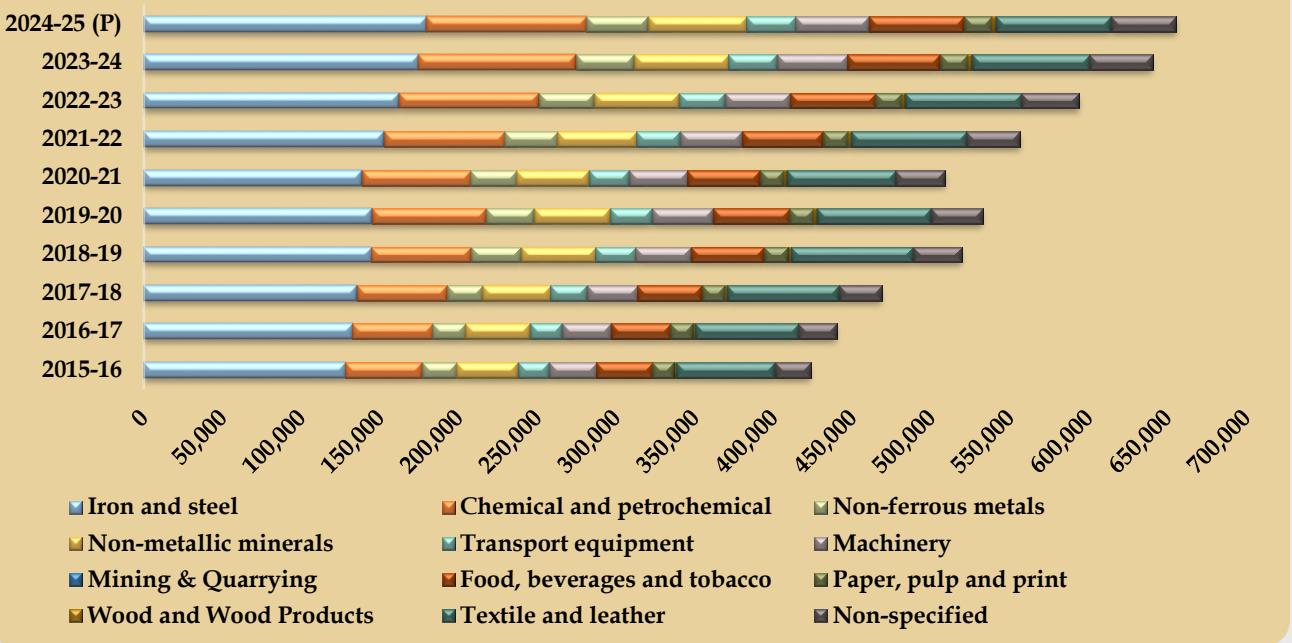


Fig 6.12: Sub-Sector-wise comsumption of Electricity under Indusrty (using ASI data)-last 10 years



Chapter 6: Consumption of Energy Resources

Table 6.1: Yearwise Consumption of Energy Resources in Physical Units

Year	Coal #	Lignite	Crude Oil*	Natural Gas	Electricity**
	(Million Tonnes)		MMT	(Billion Cubic Metres)	(GWh)
2015-16	837	42	233	53	1,001,191
2016-17	837	43	245	56	1,061,183
2017-18	898	46	252	59	1,123,427
2018-19	968	46	257	61	1,209,972
2019-20	956	42	254	64	1,248,086
2020-21	906	39	222	61	1,230,208
2021-22	1,028	49	242	64	1,316,765
2022-23	1,115	47	255	60	1,440,311
2023-24	1,238	43	262	68	1,540,587
2024-25(P)	1,269	45	269	71	1,622,969
Growth rate of 2024-25 over 2023-24(%)	**2.54**	**4.53**	**2.70**	**5.63**	**5.35**
CAGR 2015-16 to 2024-25(P) (%)	**4.74**	**0.61**	**1.60**	**3.46**	**5.51**

P: Provisional GWh = Giga Watt hour = 10^6 x Kilo Watt hour # Does not include Lignite
*Crude oil in terms of refinery crude throughput.
** Total Electricity Consumed
Sources: *1. Ministry of Coal*
2. Ministry of Petroleum & Natural Gas.
3. Central Electricity Authority.

Table 6.2: Yearwise Consumption of Primary Energy Resources in Energy Units

(In Petajoules)

Year	Coal	Lignite	Crude Oil *	Natural Gas	Electricity #	Total
1	2	3	4	5	6	7
2015-16	16,041	403	9,964	2,023	632	29,063
2016-17	15,973	412	10,499	2,145	684	29,714
2017-18	16,707	442	10,780	2,279	757	30,966
2018-19	17,780	437	11,006	2,342	855	32,420
2019-20	17,554	404	10,885	2,471	975	32,289
2020-21	16,402	368	9,489	2,356	972	29,587
2021-22	18,533	469	10,342	2,485	1,074	32,903
2022-23	20,245	447	10,921	2,322	1,219	35,155
2023-24	22,706	407	11,191	2,615	1,209	38,129
2024-25(P)	23,799	426	11,494	2,762	1,367	39,847
% Share in total consumption for 2024-25 (P)	**59.73**	**1.07**	**28.84**	**6.93**	**3.43**	**100.00**
Growth rate of 2024-25 over 2023-24 (%)	**4.81**	**4.53**	**2.70**	**5.63**	**13.01**	**4.51**
CAGR 2015-16 to 2024-25(%)	**4.48**	**0.61**	**1.60**	**3.52**	**8.95**	**3.57**

*: Crude oil in terms of refinery crude processed. P: Provisional.
#: Electricity from Hydro, Nuclear and other Renewable energy sources (Utility)
Note: The figure against electricity has been calculated using the following formula:
Generation from Electricity (Utility) from Hydro, Nuclear and other RE - Losses
Sources: *1. Ministry of Coal*
2. Ministry of Petroleum & Natural Gas.
3. Central Electricity Authority.

Table 6.3: Yearwise Consumption of Coal - Industrywise

(in million tonnes)

Financial Year / End-use Sectors	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25(P)	Percentage share in total consumption for 2024-25(P)	Growth rate of 2024-25 over 2023-24(%)	CAGR 2015-16 to 2024-25(%)
Power sector	**517.77**	**535.04**	**585.49**	**706.08**	**695.37**	**638.76**	**737.05**	**841.03**	**925.07**	**964.54**	**76.00**	**4.27**	**7.16**
Industry Sector	**318.83**	**302.11**	**312.96**	**262.26**	**260.54**	**267.57**	**290.98**	**274.18**	**312.63**	**304.56**	**24.00**	**-2.58**	**-0.51**
Iron and steel	61.39	50.91	59.49	50.65	49.37	53.17	64.78	62.08	79.01	85.13	**6.71**	**7.74**	**3.70**
Chemical and petrochemical	36.60	41.66	42.69	34.59	34.19	33.56	30.69	29.62	33.09	31.60	**2.49**	**-4.51**	**-1.62**
Non-ferrous minerals	54.60	48.30	47.56	41.88	50.75	56.32	72.64	69.14	77.88	74.30	**5.85**	**-4.60**	**3.48**
Non-metallic minerals	105.82	84.89	81.94	66.46	60.14	58.74	70.67	65.55	71.63	65.39	**5.15**	**-8.70**	**-5.21**
Transport equipment	0.19	0.14	0.15	0.09	0.10	0.10	0.11	0.08	0.08	0.06	**0.00**	-	-
Machinery	1.71	1.16	1.23	0.87	0.74	0.67	0.68	0.58	0.67	0.54	**0.04**	**-18.95**	**-12.00**
Mining & Quarrying	0.17	2.57	2.90	2.44	2.44	2.44	0.32	0.09	0.09	0.08	**0.01**	**-16.47**	**-8.23**
Food, beverages and tobacc	9.41	13.12	15.25	12.80	12.60	12.86	10.31	9.76	10.70	10.38	**0.82**	**-2.98**	**1.10**
Paper, pulp and print	19.61	18.16	18.59	15.62	13.78	13.78	14.70	13.75	14.62	13.98	**1.10**	**-4.38**	**-3.69**
Wood and wood products	0.27	0.21	0.23	0.18	0.16	0.18	0.21	0.19	0.18	0.18	**0.01**	-	-
Construction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	-	-
Textile and leather	23.85	35.95	37.83	32.11	31.11	31.86	20.74	17.94	19.10	17.54	**1.38**	**-8.20**	**-3.36**
Non-specified Industry	5.20	5.04	5.11	4.58	5.17	3.89	5.13	5.40	5.57	5.37	**0.42**	**-3.52**	**0.36**
Transport Sector	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	-	-
Road	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	-	-
Domestic Aviation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	-	-
Rail	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	-	-
Pipeline transport	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	-	-
Domestic navigation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	-	-
Non-specified	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	-	-
Other Sectors	**0.13**	**0.12**	**0.04**	**0.02**	**0.01**	**0.00**	**0.00**	**0.00**	**0.01**	**0.01**	**0.00**	-	-
Residential	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	-	-
Comm. And public services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	-	-
Agriculture/forestry	0.13	0.12	0.04	0.02	0.01	0.00	0.00	0.00	0.01	0.01	**0.00**	-	-
Non-specified	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	-	-
Total Consumption	**836.73**	**837.28**	**898.49**	**968.36**	**955.92**	**906.33**	**1028.03**	**1115.22**	**1237.70**	**1269.10**	**100.00**	**2.54**	**4.74**

Source: Ministry of Coal
Annual Survey of Industry

Table 6.4: Yearwise Consumption of Lignite - Industrywise

(in million tonnes)

Financial Year / End use sectors	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25 (P)	Percentage share in total consumption for 2024-25(P)	Growth rate of 2024-25 over 2023-24(%)	CAGR 2015-16 to 2024-25(%)
Power sector	**37.56**	**38.82**	**38.84**	**37.73**	**36.33**	**32.94**	**38.76**	**38.95**	**35.70**	**35.62**	**79.92**	**-0.20**	**-0.58**
Industry Sector	**4.66**	**4.35**	**7.49**	**8.10**	**5.99**	**5.57**	**10.33**	**7.90**	**6.95**	**8.95**	**20.08**	**28.79**	**7.53**
Iron and steel	0.01	0.07	0.21	0.14	0.04	0.02	0.27	0.12	0.09	0.03	0.07	-	11.12
Chemical and petrochemical	0.23	0.20	0.22	0.33	0.30	0.37	0.38	1.00	0.14	0.63	1.41	-	11.79
Non-ferrous metals	1.02	0.00	0.00	0.19	0.04	0.00	0.00	0.02	0.00	0.00	0.00	-	-
Non metallic minerals	0.62	0.71	1.47	2.44	1.46	1.24	2.68	1.45	0.57	0.54	1.21	-	-1.51
Transport equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
Machinery	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	-
Mining & Quarrying	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	-
Food, beverages and tobacco	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
Paper, pulp and print	0.43	0.53	0.76	0.60	0.55	0.57	2.11	0.89	1.04	0.53	1.20	-	2.49
Wood and wood products	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
Construction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	-
Textile and leather	1.73	1.29	2.46	2.61	0.16	0.29	2.08	1.85	0.99	2.65	5.94	166.60	4.87
Non-specified	0.62	1.56	2.37	1.79	3.44	3.09	2.81	2.56	4.12	4.57	10.26	10.92	24.79
Transport Sector	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**-**	**-**
Road	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	-
Domestic Aviation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	-
Rail	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	-
Pipeline transport	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	-
Domestic navigation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	-
Non-specified	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	-
Other Sectors	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**-**	**-**
Residential	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	-
Comm. And public services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	-
Agriculture/forestry	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	-
Non-specified	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	-
Total consumption	**42.21**	**43.18**	**46.33**	**45.83**	**42.32**	**38.51**	**49.08**	**46.85**	**42.65**	**44.58**	**100.00**	**4.53**	**0.61**

(P): Provisional

Source : Ministry of Coal

Table 6.5 : Yearwise Consumption of Petroleum Products - Categorywise

(Million Tonnes)

Year	Light Distillates			Middle Distillates				Heavy Ends					Total Consumption	Refinery Fuel and Losses	Total including Refinery Fuel and losses
	LPG	Petrol	Naphtha	Kerosene	Aviation Turbine Fuel	High Speed Diesel Oil	Light Diesel Oil	Fuel Oil	Lubricants	Bitumen	Petroleum coke	Others*			
1	2	3	4	5	6	7	8	9	10	11	12	13	14=2 to13	15	16
2015-16	19.62	21.85	13.27	6.83	6.26	74.65	0.41	6.63	3.57	5.94	19.30	6.35	184.67	18.77	203.45
2016-17	21.61	23.76	13.24	5.40	7.00	76.03	0.45	7.15	3.47	5.94	23.96	6.59	194.60	20.07	214.67
2017-18	23.34	26.17	12.89	3.85	7.63	81.07	0.52	6.72	3.88	6.09	25.66	8.34	206.17	21.16	227.33
2018-19	24.91	28.28	14.13	3.46	8.30	83.53	0.60	6.56	3.67	6.71	21.35	11.72	213.22	21.45	234.67
2019-20	26.33	29.98	14.27	2.40	8.00	82.60	0.63	6.30	3.83	6.72	21.71	11.36	214.13	23.61	237.74
2020-21	27.56	27.97	14.10	1.80	3.70	72.71	0.86	5.59	4.10	7.52	15.61	12.79	194.30	22.81	217.10
2021-22	28.25	30.85	13.25	1.49	5.01	76.66	1.02	6.26	4.54	7.82	14.26	12.30	201.70	23.50	225.19
2022-23	28.50	34.98	12.13	0.49	7.38	85.90	0.73	6.96	3.74	8.04	18.34	15.84	223.02	26.04	249.06
2023-24	29.66	37.22	13.81	0.48	8.25	89.63	0.78	6.52	4.09	8.81	20.32	14.70	234.26	26.65	260.91
2024-25(P)	31.33	40.00	13.03	0.41	8.98	91.41	0.84	6.50	4.58	8.58	22.00	11.56	239.22	27.69	266.91
% Share in total consumption for 2024-25 (P)	**13.10**	**16.72**	**5.45**	**0.17**	**3.76**	**38.21**	**0.35**	**2.72**	**1.91**	**3.59**	**9.20**	**4.83**	**100.00**	**-**	**-**
Growth rate of 2024-25 over 2023-24 (%)	**5.61**	**7.48**	**-5.67**	**-14.89**	**8.94**	**1.99**	**7.20**	**-0.35**	**12.08**	**-2.56**	**8.29**	**-21.34**	**2.12**	**3.91**	**2.30**
CAGR 2015-16 to 2024-25(%)	**5.34**	**6.95**	**-0.20**	**-26.88**	**4.09**	**2.28**	**8.35**	**-0.23**	**2.80**	**4.18**	**1.47**	**6.88**	**2.92**	**4.41**	**3.06**

(P) : Provisional; Consumption includes sales by oil companies, own consumption and direct private imports

* : Includes those of light & middle distillates and heavy ends and sales through private parties.

Total may not tally due to rounding off.

Source: Ministry of Petroleum & Natural Gas.

Table 6.6(A): Yearwise Consumption of Diesel(HSDO)- Sector-wise

('000 tonnes)

Financial Year / End-use Sectors	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25 (P)	Percentage share in total consumption for 2024-25(P)	Growth rate of 2024-25 over 2023-24(%)	CAGR 2015-16 to 2024-25(%)
Power sector	**1,244**	**1,249**	**1,340**	**1,370**	**1,345**	**1,218**	**1,276**	**1,446**	**1,468**	**1,479**	**1.62**	**0.77**	**1.94**
Industry Sector	**6,296**	**6,356**	**6,810**	**7,246**	**7,331**	**6,990**	**7,015**	**6,534**	**7,566**	**8,150**	**8.92**	**7.72**	**2.91**
Iron and steel	170	159	153	148	135	126	136	70	101	118	**0.13**	**16.06**	**-4.04**
Chemical and petrochemical	116	116	127	125	129	111	102	61	76	77	**0.08**	**1.49**	**-4.40**
Non-ferrous metals	18	24	16	16	13	15	20	11	11	10	**0.01**	**-11.75**	**-6.68**
Non-metallic minerals	212	43	193	262	273	271	241	127	505	459	**0.50**	**-9.18**	**8.96**
Machinery	162	159	152	150	130	115	124	53	90	106	**0.12**	**17.07**	**-4.61**
Mining & Quarrying	1184	1224	1255	1465	1542	1642	1540	1053	1328	1556	**1.70**	**17.12**	**3.08**
Paper, pulp and print	0	0	0	0	0	0	0	0	0	0	**0.00**	-	-
Construction	299	317	416	480	582	655	605	86	364	426	**0.47**	**17.13**	**4.04**
Textile and leather	46	159	32	25	20	16	16	3	6	6	**0.01**	**-2.35**	**-20.18**
Non-specified	4090	4156	4466	4574	4506	4039	4229	5070	5084	5393	**5.90**	**6.09**	**3.12**
Transport Sector	**57,214**	**58,171**	**62,365**	**64,069**	**63,069**	**54,399**	**57,677**	**67,189**	**68,367**	**68,883**	**75.36**	**0.75**	**2.08**
Road	52272	53335	57072	58508	57668	50678	53357	62407	63849	64585	**70.66**	**1.15**	**2.38**
Domestic Aviation	1	2	3	3	3	2	3	1	1	1	**0.00**	**-30.85**	**-4.57**
Rail	4065	4017	4102	4221	4024	2553	3143	3396	3119	2892	**3.16**	**-7.29**	**-3.71**
Pipeline transport	0	0	0	0	0	0	0	0	0	0	**0.00**	-	-
Domestic navigation	876	816	1188	1337	1374	1165	1175	1385	1397	1405	**1.54**	**0.57**	**5.39**
Non-specified	0	0	0	0	0	0	0	0	0	0	**0.00**	-	-
Other Sectors	**9,893**	**10,250**	**10,558**	**10,844**	**10,857**	**10,106**	**10,691**	**10,731**	**12,225**	**12,895**	**14.11**	**5.48**	**2.99**
Residential	0	0	0	0	0	0	0	0	0	0	**0.00**	-	-
Comm. And public services	0	0	0	0	0	0	0	0	0	0	**0.00**	-	-
Agriculture/forestry	3690	3731	3971	4080	4010	3613	3718	4140	4211	4309	**4.71**	**2.31**	**1.74**
Non-specified	6203	6520	6587	6764	6847	6494	6973	6591	8013	8586	**9.39**	**7.15**	**3.68**
Total Consumption	**74,647**	**76,027**	**81,073**	**83,528**	**82,602**	**72,713**	**76,659**	**85,901**	**89,626**	**91,407**	**100.00**	**1.99**	**2.28**

Source: Ministry of Petroleum & Natural Gas

Table 6.6(B): Yearwise Consumption of Diesel(LDO)- Sector-wise

('000 tonnes)

Financial Year / End-use Sectors	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25 (P)	Percentage share in total consumption for 2024-25(P)	Growth rate of 2024-25 over 2023-24(%)	CAGR 2015-16 to 2024-25(%)
Power sector	**154.21**	**174.35**	**142.94**	**276.51**	**342.15**	**252.28**	**288.58**	**260.60**	**290.40**	**338.93**	**40.45**	**16.71**	**9.14**
Industry Sector	**63.02**	**61.81**	**154.94**	**197.19**	**167.77**	**316.38**	**307.07**	**245.80**	**224.90**	**182.16**	**21.74**	**-19.00**	**12.52**
Iron and steel	26.84	19.31	54.71	67.68	64.02	78.19	91.76	87.40	78.50	43.82	**5.23**	**-44.18**	**5.60**
Chemical and petrochemical	12.04	8.93	10.83	17.45	16.46	50.43	33.45	24.30	24.60	30.52	**3.64**	**24.06**	**10.89**
Non-ferrous metals	3.32	3.91	31.69	28.38	5.45	5.72	6.93	9.70	8.70	5.55	**0.66**	**-36.25**	**5.86**
Non-metallic minerals	1.29	1.80	8.38	5.21	12.21	17.97	29.87	21.30	34.70	24.76	**2.95**	**-28.65**	**38.82**
Machinery	4.30	2.21	3.64	7.12	6.29	9.78	15.53	11.60	6.10	5.67	**0.68**	**-7.01**	**3.13**
Mining & Quarrying	2.23	2.30	6.12	22.42	14.44	7.71	10.28	12.50	10.60	9.61	**1.15**	**-9.31**	**17.60**
Paper, pulp and print	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	-	-
Construction	10.27	20.16	33.17	41.89	43.14	136.64	101.64	66.10	48.60	52.48	**6.26**	**7.99**	**19.87**
Textile and leather	1.08	1.37	2.09	2.41	1.92	3.92	3.11	2.10	0.80	0.36	**0.04**	**-54.99**	**-11.50**
Non-specified	1.65	1.81	4.32	4.63	3.84	6.01	14.50	10.80	12.30	9.39	**1.12**	**-23.62**	**21.36**
Transport Sector	**3.74**	**7.23**	**7.16**	**9.98**	**4.55**	**5.02**	**6.04**	**7.60**	**11.00**	**16.98**	**2.03**	**54.36**	**18.29**
Road	0.21	0.00	2.56	4.48	1.90	1.53	1.60	1.70	1.50	1.46	**0.17**	**-2.54**	**24.18**
Domestic Aviation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	-	-
Rail	0.59	0.56	0.51	0.50	0.41	0.27	0.28	0.40	0.40	0.35	**0.04**	**-12.54**	**-5.70**
Pipeline transport	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	-	-
Domestic navigation	2.94	6.67	4.08	5.00	2.24	3.23	4.16	5.50	9.10	15.17	**1.81**	**66.68**	**19.99**
Non-specified	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	-	-
Other Sectors	**186.13**	**205.60**	**218.75**	**114.29**	**113.33**	**281.38**	**415.80**	**211.30**	**255.70**	**299.87**	**35.79**	**17.27**	**5.44**
Residential	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	-	-
Comm. And public services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	-	-
Agriculture/forestry	1.26	2.02	9.29	15.65	12.47	15.30	17.75	13.80	11.50	8.91	**1.06**	**-22.48**	**24.34**
Non-specified	184.88	203.58	209.46	98.65	100.86	266.08	398.06	197.50	244.20	290.95	**34.72**	**19.15**	**5.17**
Total consumption	**407.11**	**448.98**	**523.79**	**597.97**	**627.80**	**855.06**	**1017.50**	**725.30**	**782.00**	**837.94**	**100.00**	**7.15**	**8.35**

Source: Ministry of Petroleum & Natural Gas

Table 6.6(C): Yearwise Consumption of Furnace Oil- Sector-wise

('000 tonnes)

Financial Year / End-use Sectors	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25 (P)	Percentage share in total consumption for 2024-25(P)	Growth rate of 2024-25 over 2023-24(%)	CAGR 2015-16 to 2024-25(%)
Power sector	**430.36**	**360.95**	**313.83**	**338.84**	**302.71**	**226.05**	**311.54**	**418.09**	**170.11**	**287.02**	**5.02**	**68.73**	**-4.40**
Industry Sector	**2189.14**	**2563.20**	**2413.78**	**2631.66**	**2226.57**	**1966.19**	**2219.21**	**2060.38**	**1341.36**	**1680.25**	**29.38**	**25.26**	**-2.90**
Iron and steel	763.95	981.72	930.59	885.16	778.45	666.25	758.36	684.36	389.24	393.70	**6.88**	**1.15**	**-7.10**
Chemical and petrochemical	669.59	726.59	761.09	755.64	627.34	521.45	573.96	518.75	395.68	517.97	**9.06**	**30.91**	**-2.81**
Non-ferrous metals	218.48	258.28	238.30	386.41	338.58	348.85	390.34	384.51	233.22	379.03	**6.63**	**62.52**	**6.31**
Non-metallic minerals	157.39	183.03	147.84	222.79	104.36	82.01	122.58	147.07	91.20	93.05	**1.63**	**2.03**	**-5.67**
Machinery	17.67	18.25	16.04	30.73	24.38	18.69	17.08	14.16	9.31	9.05	**0.16**	**-2.83**	**-7.17**
Mining & Quarrying	52.66	71.45	67.90	54.27	84.03	91.70	127.40	94.30	114.94	92.42	**1.62**	**-19.60**	**6.45**
Paper, pulp and print	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	-	-
Construction	47.85	49.63	43.01	52.06	48.82	57.97	52.84	42.08	20.64	30.98	**0.54**	**50.06**	**-4.72**
Textile and leather	68.36	74.12	45.68	48.57	40.97	35.70	26.91	14.17	8.41	10.28	**0.18**	**22.16**	**-18.99**
Non-specified	193.19	200.11	163.34	196.03	179.65	143.57	149.72	160.99	78.70	153.78	**2.69**	**95.39**	**-2.50**
Transport Sector	**379.50**	**444.15**	**600.81**	**786.26**	**849.23**	**1022.40**	**1208.98**	**1561.28**	**1484.22**	**1681.27**	**29.40**	**13.28**	**17.98**
Road	44.97	36.96	20.19	109.95	120.54	132.08	172.39	178.33	173.74	177.33	**3.10**	**2.06**	**16.47**
Domestic Aviation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	-	-
Rail	1.90	0.02	0.00	0.06	0.00	0.00	0.42	0.35	0.09	0.11	**0.00**	**22.38**	**-27.33**
Pipeline transport	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	-	-
Domestic navigation	332.63	407.17	580.62	676.25	728.69	890.32	1036.18	1382.60	1310.39	1503.83	**26.29**	**14.76**	**18.25**
Non-specified	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	-	-
Other Sectors	**3482.93**	**3677.91**	**3276.27**	**2437.76**	**2533.49**	**1993.64**	**2075.37**	**2145.02**	**2651.93**	**2070.93**	**36.21**	**-21.91**	**-5.61**
Residential	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	-	-
Comm. And public services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	-	-
Agriculture/forestry	56.62	51.41	49.83	78.46	70.88	79.98	64.78	50.33	23.69	33.24	**0.58**	**40.28**	**-5.75**
Non-specified	3426.31	3626.50	3226.44	2359.31	2462.62	1913.65	2010.59	2094.69	2628.24	2037.69	**35.63**	**-22.47**	**-5.61**
Total consumption	**6481.93**	**7046.20**	**6604.70**	**6194.53**	**5912.00**	**5208.28**	**5815.10**	**6184.77**	**5647.62**	**5719.47**	**100.00**	**1.27**	**-1.38**

Source: Ministry of Petroleum & Natural Gas

Table 6.6(D): Yearwise Consumption of Low Sulphur Heavy Stock(LSHS)- Sector-wise

('000 tonnes)

Financial Year / End-use Sectors	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25 (P)	Percentage share in total consumption for 2024-25(P)	Growth rate of 2024-25 over 2023-24(%)	CAGR 2015-16 to 2024-25(%)
Power sector	**50.70**	**16.43**	**0.00**	**9.31**	**17.88**	**10.71**	**29.66**	**18.90**	**37.50**	**40.08**	**5.16**	**6.89**	**-0.03**
Industry Sector	**70.45**	**50.88**	**54.09**	**175.13**	**201.93**	**196.23**	**191.26**	**250.30**	**224.80**	**174.63**	**22.46**	**-22.32**	**0.11**
Iron and steel	46.27	45.91	40.25	132.20	164.98	160.09	155.13	186.80	167.90	124.04	**15.96**	-26.12	**0.12**
Chemical and petrochemical	23.99	4.97	6.23	14.14	13.46	10.72	7.14	5.90	12.40	15.45	**1.99**	24.57	**-0.05**
Non-ferrous metals	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	-	-
Non-metallic minerals	0.20	0.00	0.37	0.88	0.77	0.90	0.74	0.00	0.00	0.18	**0.02**	-	-
Machinery	0.00	0.00	0.16	0.52	1.49	2.38	2.39	4.30	5.30	4.56	**0.59**	-13.87	-
Mining & Quarrying	0.00	0.00	0.31	0.00	0.00	0.00	0.00	0.00	0.00	0.22	**0.03**	-	-
Paper, pulp and print	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	-	-
Construction	0.00	0.00	1.12	3.13	6.07	7.40	7.40	4.30	1.70	4.17	**0.54**	145.10	-
Textile and leather	0.00	0.00	0.35	2.73	2.49	3.45	6.47	10.10	10.30	9.86	**1.27**	-4.26	-
Non-specified	0.00	0.00	5.30	21.53	12.67	11.29	12.00	38.90	27.20	16.15	**2.08**	-40.64	-
Transport Sector	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	-	-
Road	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	-	-
Domestic Aviation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	-	-
Rail	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	-	-
Pipeline transport	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	-	-
Domestic navigation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	-	-
Non-specified	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	-	-
Other Sectors	**29.23**	**36.91**	**62.18**	**184.60**	**169.73**	**171.27**	**225.78**	**503.80**	**610.40**	**562.66**	**72.38**	**-7.82**	**0.39**
Residential	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	-	-
Comm. And public services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	-	-
Agriculture/forestry	0.00	0.00	1.18	7.90	6.42	6.79	6.51	3.50	10.90	9.53	**1.23**	-12.59	-
Non-specified	29.23	36.91	61.01	176.71	163.31	164.47	219.27	500.30	599.50	553.13	**71.15**	-7.73	**0.39**
Total consumption	**150.38**	**104.23**	**116.27**	**369.04**	**389.54**	**378.20**	**446.70**	**773.00**	**872.70**	**777.37**	**100.00**	**-10.92**	**0.20**

Source: Ministry of Petroleum & Natural Gas

Table 6.6(E): Yearwise Consumption of Liquified Petroleum Gas -Sectorwise

('000 tonnes)

Financial Year / End-use Sectors	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25 (P)	Percentage share in total consumption for 2024-25(P)	Growth rate of 2024-25 over 2023-24(%)	CAGR 2015-16 to 2024-25(%)
Power sector	**2.68**	**2.19**	**1.25**	**1.77**	**1.49**	**0.35**	**0.41**	**0.61**	**0.29**	**0.02**	**0.00**	**-93.99**	**-42.90**
Industry Sector	**1666.02**	**1995.95**	**2290.39**	**2568.97**	**2767.89**	**2102.44**	**2422.33**	**2839.49**	**3139.87**	**3058.41**	**9.76**	**-2.59**	**6.98**
Iron and steel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	-	-
Chemical and petrochemical	5.21	12.36	6.05	24.21	20.69	36.03	42.35	63.67	170.08	165.19	**0.53**	**-2.88**	**46.81**
Non-ferrous metals	134.09	138.92	131.61	93.95	61.29	108.55	74.99	60.84	66.69	100.24	**0.32**	**50.31**	**-3.18**
Non-metallic minerals	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	-	-
Machinery	18.36	20.15	20.44	27.11	23.86	19.93	14.16	13.00	15.77	13.73	**0.04**	**-12.91**	**-3.18**
Mining & Quarrying	0.00	0.00	0.00	0.35	0.07	1.50	3.48	4.90	4.88	9.01	**0.03**	**84.47**	-
Paper, pulp and print	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	-	-
Construction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	-	-
Textile and leather	2.47	2.30	2.08	2.30	2.59	2.10	2.38	1.42	1.57	0.62	**0.00**	**-60.37**	**-14.22**
Non-specified	1505.88	1822.21	2130.22	2421.04	2659.40	1934.34	2284.98	2695.65	2880.89	2769.62	**8.84**	**-3.86**	**7.00**
Transport Sector	**171.83**	**168.07**	**185.09**	**181.11**	**172.79**	**119.01**	**122.99**	**108.43**	**89.45**	**75.60**	**0.24**	**-15.48**	**-8.72**
Road	170.91	167.28	184.41	180.30	171.87	118.35	122.04	106.74	88.27	73.18	**0.23**	**-17.10**	**-8.99**
Domestic Aviation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	-	-
Rail	0.92	0.79	0.68	0.82	0.92	0.66	0.95	1.69	1.18	2.43	**0.01**	**105.09**	**11.41**
Pipeline transport	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	-	-
Domestic navigation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	-	-
Non-specified	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	-	-
Other Sectors	**17782.68**	**19442.01**	**20865.09**	**22154.93**	**23387.61**	**25336.62**	**25707.76**	**25555.29**	**26434.00**	**28193.88**	**90.00**	**6.66**	**5.25**
Residential	17181.72	18871.36	20351.78	21728.02	23075.97	25128.09	25501.59	25381.61	26207.42	27653.52	**88.27**	**5.52**	**5.43**
Comm. And public services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	-	-
Agriculture/forestry	7.13	7.75	7.46	21.98	25.70	28.11	29.57	21.71	26.50	24.73	**0.08**	**-6.68**	**14.82**
Non-specified	593.84	562.89	505.85	404.93	285.94	180.43	176.60	151.98	200.08	515.63	**1.65**	**157.71**	**-1.56**
Total consumption	**19623.22**	**21608.21**	**23341.82**	**24906.79**	**26329.78**	**27558.43**	**28253.49**	**28503.83**	**29663.62**	**31327.91**	**100.00**	**5.61**	**5.34**

Source: Ministry of Petroleum & Natural Gas

Table 6.6(F): Yearwise Consumption of Naphtha- Sectorwise

('000 tonnes)

Financial Year / End-use Sectors	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25 (P)	Percentage share in total consumption for 2024-25(P)	Growth rate of 2024-25 over 2023-24(%)	CAGR 2015-16 to 2024-25(%)
Power sector	**50.00**	**60.20**	**66.53**	**5.26**	**0.41**	**70.22**	**6.07**	**19.34**	**0.00**	**0.04**	**0.00**	-	**-0.55**
Industry Sector	**13220.00**	**13180.58**	**12822.07**	**14125.97**	**14267.37**	**14030.14**	**13239.52**	**12107.18**	**13812.06**	**13028.40**	**100.00**	**-5.67**	**0.00**
Iron and steel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	-	-
Chemical and petrochemical	10666.00	10559.14	10378.69	10953.24	11024.14	11405.02	11903.71	10402.41	10424.31	11456.68	**87.94**	**9.90**	**0.01**
Non-ferrous metals	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	-	-
Non-metallic minerals	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	-	-
Machinery	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	-	-
Mining & Quarrying	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	-	-
Paper, pulp and print	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	-	-
Construction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	-	-
Textile and leather	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	-	-
Non-specified	2554.00	2621.43	2443.38	3172.74	3243.22	2625.12	1335.82	1704.78	3387.75	1571.72	**12.06**	**-53.61**	**-0.05**
Transport Sector	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	-	-
Road	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	-	-
Domestic Aviation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	-	-
Rail	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	-	-
Pipeline transport	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	-	-
Domestic navigation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	-	-
Non-specified	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	-	-
Other Sectors	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	-	-
Residential	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	-	-
Comm. And public services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	-	-
Agriculture/forestry	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	-	-
Non-specified	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	-	-
Total consumption	**13270.00**	**13240.78**	**12888.61**	**14131.23**	**14267.78**	**14100.36**	**13245.59**	**12126.52**	**13812.06**	**13028.44**	**100.00**	**-5.67**	**0.00**

Source: Ministry of Petroleum & Natural Gas

Table 6.6(G): Yearwise Consumption of Diesel of SKO (Kerosene)- Sectorwise

('000 tonnes)

Financial Year / End-use Sectors	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25 (P)	Percentage share in total consumption for 2024-25(P)	Growth rate of 2024-25 over 2023-24(%)	CAGR 2015-16 to 2024-25(%)
Power sector	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**-**	**-**
Industry Sector	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**-**	**-**
Iron and steel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	**-**	**-**
Chemical and petrochemical	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	**-**	**-**
Non-ferrous metals	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	**-**	**-**
Non-metallic minerals	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	**-**	**-**
Machinery	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	**-**	**-**
Mining & Quarrying	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	**-**	**-**
Paper, pulp and print	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	**-**	**-**
Construction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	**-**	**-**
Textile and leather	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	**-**	**-**
Non-specified	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	**-**	**-**
Transport Sector	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**-**	**-**
Road	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	**-**	**-**
Domestic Aviation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	**-**	**-**
Rail	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	**-**	**-**
Pipeline transport	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	**-**	**-**
Domestic navigation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	**-**	**-**
Non-specified	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	**-**	**-**
Other Sectors	**6826.00**	**5396.81**	**3845.12**	**3459.46**	**2396.82**	**1797.87**	**1493.37**	**489.58**	**479.08**	**408.00**	**100.00**	**-14.84**	**-26.88**
Residential	6649.00	5197.24	3633.59	3231.21	2173.71	1586.61	1291.75	308.24	298.43	230.00	**56.37**	**-22.93**	**-31.19**
Comm. And public services	64.00	84.00	96.99	97.30	86.52	68.61	63.76	62.05	62.24	63.00	**15.44**	**1.22**	**-0.17**
Agriculture/forestry	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	**-**	**-**
Non-specified	113.00	115.58	114.54	130.95	136.60	142.65	137.86	119.29	118.41	115.00	**28.19**	**-2.88**	**0.20**
Total consumption	**6826.00**	**5396.81**	**3845.12**	**3459.46**	**2396.82**	**1797.87**	**1493.37**	**489.58**	**479.08**	**408.00**	**100.00**	**-14.84**	**-26.88**

Source: Ministry of Petroleum & Natural Gas

Table 6.7: Yearwise Consumption of Natural Gas- Sectorwise

(Figures in MMSCM)

Financial Year / End-use Sectors	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25 (P)	Percentage share in total consumption for 2024-25(P)	Growth rate of 2024-25 over 2023-24(%)
Power sector	**10,889**	**11,616**	**12,028**	**12,005**	**11,080**	**10,836**	**10,157**	**8,153**	**9,083**	**8,892**	**14**	**-2**
Industry Sector	**545**	**794**	**999**	**1,086**	**701**	**555**	**949**	**865**	**1,457**	**2,803**	**4**	**92**
Iron and steel	0	0	0	0	0	0	0	0	0	0	-	-
Chemical and petrochemical	0	0	0	0	0	0	0	0	0	0	-	-
Non-ferrous metals	0	0	0	0	0	0	0	0	0	0	-	-
Non-metallic minerals	0	0	0	0	0	0	0	0	0	0	-	-
Machinery	0	0	0	0	0	0	0	0	0	0	-	-
Mining & Quarrying	0	0	0	0	0	0	0	0	0	0	-	-
Paper, pulp and print	0	0	0	0	0	0	0	0	0	0	-	-
Construction	0	0	0	0	0	0	0	0	0	0	-	-
Textile and leather	0	0	0	0	0	0	0	0	0	0	-	-
Non-specified	545	794	999	1,086	701	555	949	865	1,457	2,803	**4.29**	**92.29**
Transport Sector	**5,873**	**7,821**	**9,080**	**9,747**	**11,408**	**9,669**	**12,661**	**13,792**	**15,414**	**17,020**	**26.05**	**10.42**
Road	5,464	7,350	8,585	9,206	10,883	9,229	12,175	12,028	13,492	15,051	**23.04**	**11.56**
Domestic Aviation	0	0	0	0	0	0	0	0	0	0	-	-
Rail	0	0	0	0	0	0	0	0	0	0	-	-
Pipeline transport	410	471	496	541	525	439	486	1,764	1,922	1,968	**3.01**	**2.41**
Domestic navigation	0	0	0	0	0	0	0	0	0	0	-	-
Non-specified	0	0	0	0	0	0	0	0	0	0	-	-
Other Sectors	**4,111**	**3,929**	**3,415**	**3,585**	**4,409**	**4,746**	**9,385**	**8,688**	**11,113**	**10,528**	**16.12**	**-5.26**
Residential	0	0	0	0	0	0	0	0	0	0	-	-
Comm. And public services	0	0	0	0	0	0	0	0	0	0	-	-
Agriculture/forestry	0	0	189	192	200	177	156	154	142	153	**0.23**	**7.72**
Non-specified	4,111	3,929	3,226	3,393	4,209	4,569	9,229	8,534	10,971	10,376	**15.88**	**-5.43**
Non-Energy Use	**21,166**	**21,243**	**20,776**	**20,370**	**21,109**	**22,399**	**23,147**	**23,295**	**26,188**	**26,090**	**39.93**	**-0.38**
Fertilizer Industry	16,135	15,429	14,676	14,987	16,115	17,781	18,079	19,400	21,035	20,483	**31.35**	**-2.62**
Petrochemical	3,733	4,170	4,024	3,386	3,569	3,072	2,864	1,959	2,975	3,355	**5.14**	**12.79**
Sponge Iron	544	885	1,278	1,124	567	647	1,134	960	1,177	1,332	**2.04**	**13.17**
LPG Shrinkage	754	759	798	874	858	900	1,070	976	1,001	919	**1.41**	**-8.20**
Total consumption	**42,586**	**45,404**	**46,299**	**46,793**	**48,706**	**48,205**	**56,299**	**54,793**	**63,255**	**65,332**	**100.00**	**3.28**

Note:

1. Re-classification among the sectors of consumption of natural gas under energy and non-energy sectors, has been done depending on usage. Sectors where natural gas is being used as feedstock are
2. Sectorial Sales/consumption of natural gas includes RLNG.
3. Total may not tally due to rounding off.
4. LPG shrinkage is being shifted from Energy purpose to Non-Energy Purpose.

Source: Ministry of Petroleum and Natural Gas

Chapter 6: Consumption of Energy Resources

Table 6.8: Yearwise Consumption of Electricity- Sectorwise

(in Giga Watt Hour = 106 Kilo Watt Hour)

Financial Year / End-use Sectors	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25 (P)	Percentage share in total consumption for 2024-25(P)	Growth rate of 2024-25 over 2023-24(%)	CAGR 2015-16 to 2024-25(%)
Industry Sector	**423,523**	**440,206**	**468,613**	**519,196**	**532,820**	**508,776**	**556,481**	**593,895**	**640,626**	**655,562**	**40.39**	**2.33**	**4.97**
Iron and steel	122,023	123,165	129,205	140,440	142,526	136,095	150,317	160,096	172,797	177,586	**10.94**	**2.77**	**4.26**
Chemical and petrochemical	46,437	48,919	54,300	60,418	69,227	66,103	75,580	87,876	98,955	100,356	**6.18**	**1.42**	**8.94**
Non-ferrous metals	21,520	21,825	23,692	29,992	30,306	28,939	33,314	34,427	36,508	38,691	**2.38**	**5.98**	**6.73**
Non-metallic minerals	37,114	38,747	41,580	45,855	47,831	45,672	49,596	53,468	59,390	61,872	**3.81**	**4.18**	**5.84**
Transport equipment	18,799	20,531	22,612	25,245	26,886	25,673	27,012	28,727	30,725	30,776	**1.90**	**0.16**	**5.63**
Machinery	27,967	28,426	30,201	33,207	37,574	35,879	38,910	40,785	44,053	45,741	**2.82**	**3.83**	**5.62**
Mining & Quarrying	115	135	162	186	141	134	148	142	164	178	**0.01**	**8.53**	**5.01**
Food, beverages and tobacco	34,125	36,009	39,211	44,123	46,943	44,825	50,622	53,468	58,139	59,809	**3.69**	**2.87**	**6.43**
Paper, pulp and print	12,832	12,779	13,213	14,226	14,864	14,193	15,540	16,164	17,271	17,489	**1.08**	**1.26**	**3.50**
Wood and Wood Products	1,563	1,665	1,860	2,068	2,237	2,136	2,328	2,473	2,697	2,796	**0.17**	**3.66**	**6.68**
Construction	0	0	0	0	0	0	0	0	0	0	**0.00**	-	-
Textile and leather	60,320	63,644	69,116	76,217	73,541	70,223	71,859	72,818	74,163	72,045	**4.44**	**-2.86**	**1.99**
Non-specified	40,708	44,362	43,461	47,219	40,744	38,905	41,253	43,451	45,763	48,223	**2.97**	**5.38**	**1.90**
Transport Sector	**16,594**	**15,683**	**17,433**	**18,837**	**19,148**	**14,668**	**21,935**	**30,028**	**33,918**	**34,500**	**2.13**	**1.72**	**8.47**
Road	0	0	0	0	0	0	0	0	0	0	**0.00**	-	-
Domestic Aviation	0	0	0	0	0	0	0	0	0	0	**0.00**	-	-
Rail	16,594	15,683	17,433	18,837	19,148	14,668	21,935	30,028	33,918	34,500	**2.13**	**1.72**	**8.47**
Pipeline transport	0	0	0	0	0	0	0	0	0	0	**0.00**	-	-
Domestic navigation	0	0	0	0	0	0	0	0	0	0	**0.00**	-	-
Non-specified	0	0	0	0	0	0	0	0	0	0	**0.00**	-	-
Other Sectors	**561,073**	**605,294**	**637,381**	**671,938**	**696,118**	**706,764**	**738,349**	**816,388**	**866,043**	**932,907**	**57**	**7.72**	**5.81**
Residential	238,876	255,826	273,545	288,243	308,745	330,809	339,780	353,156	369,059	408,515	**25.17**	**10.69**	**6.14**
Comm. And public services	86,037	89,825	93,755	98,228	106,047	86,950	97,121	117,231	128,623	135,163	**8.33**	**5.08**	**5.15**
Agriculture/forestry	173,185	191,151	199,247	213,409	211,295	221,303	228,451	243,852	275,485	260,276	**16.04**	**-5.52**	**4.63**
Non-specified	62,976	68,493	70,834	72,058	70,031	67,701	72,996	102,149	92,876	128,953	**7.95**	**38.84**	**8.29**
Total consumption	**1,001,191**	**1,061,183**	**1,123,427**	**1,209,972**	**1,248,086**	**1,230,208**	**1,316,765**	**1,440,311**	**1,540,587**	**1,622,969**	**100.00**	**5.35**	**5.51**

(P): Provisional

Source : Central Electricity Authority.

Table 6.9: Electricity Generated (from Utilities), Distributed, Sold and Transmission & Distribution Losses

(in Giga Watt hour =10^6 Kilo Watt hour)

Year	Net Electricity Generated from Utilities	Purchases from Non-Utilities + Net Import from Other Countries	Net Electricity Available for Supply	Sold to Ultimate Consumers	Loss in transmission & distribution	Loss in transmission & distribution (%)
1	2	3	4=2+3	5	6=4-5	7
2015-16	1,088,282	15,947	1,104,228	863,364	240,864	21.81
2016-17	1,154,314	8,977	1,163,290	914,093	249,197	21.42
2017-18	1,221,307	11,198	1,232,505	973,131	259,375	21.04
2018-19	1,288,393	19,291	1,307,685	1,037,518	270,167	20.66
2019-20	1,300,116	22,932	1,323,048	1,052,346	270,701	20.46
2020-21	1,292,715	21,310	1,314,025	1,041,656	272,369	20.73
2021-22	1,397,707	16,197	1,413,903	1,141,485	272,418	19.27
2022-23	1,524,475	11,191	1,535,666	1,264,103	271,563	17.68
2023-24	1,627,725	11,252	1,638,977	1,350,092	288,885	17.63
2024-25(P)	1,712,024	13,230	1,725,254	1,422,948	302,306	17.52
Growth rate of 2024-25 over 2023-24(%)	**5.18**	**17.58**	**5.26**	**5.40**	**4.65**	**-0.59**
CAGR 2015-16 to 2024-25 (%)	**5.16**	**-2.05**	**5.08**	**5.71**	**2.56**	**-2.40**

(P): Provisional

Source: Central Electricity Authority.

Chapter Seven

Energy Balance and Sankey Diagram

CHAPTER 7
Energy Balance and Sankey Diagram

Introduction

The concept of commodity balance plays a crucial role in understanding the supply and consumption of energy products within a nation. By examining the sources of supply and various uses of specific energy commodities, it becomes possible to track the flow of energy resources across sectors. Energy balance, a broader framework, is designed to provide an overview of all energy products entering and exiting a given country during a reference period, expressed in common energy units for comparison and analysis. This chapter outlines the significance of commodity balance and energy balance, the methodology employed, and the resulting data, with a specific focus on India's energy supply and consumption patterns.

Commodity Balance

The commodity balance presents a comprehensive view of the energy commodities within a country's national territory, based on international guidelines. The **International Recommendations on Energy Statistics (IRES)** ensures that the format and concepts used in compiling the commodity balance are consistent to maintain data consistency. In India, the major sources of commercial energy include coal, oil products, natural gas, and electricity. These resources are used both as final products and intermediates in power generation and other sectors, which may lead to over- or under-estimation of energy consumption. For instance, coal and natural gas are extensively used in power generation, while petroleum products such as High-Speed Diesel Oil (HSDO) and Naphtha are also utilized in various sectors outside energy production.

Energy Balance

Energy balance is an essential tool for monitoring energy supply, consumption, and efficiency within a country. It is formulated as a matrix of products and flows, where all energy data is expressed in unified units, typically kilo-tonnes of oil equivalent (ktoe), to allow for consistent comparison and analysis. The key components of an energy balance are the **Total Primary Energy Supply (TPES)** and **Total Final Consumption (TFC)** of energy commodities. TPES reflects the total energy available within the country, while TFC breaks down the energy usage by various sectors like industry, transport, residential, and services.

The energy balance helps:

- Provide an overview of a country's energy profile.
- Monitor energy security and policy goals.
- Serve as the foundation for socio-economic indicators, including CO2 emissions.
- Facilitate comparisons between countries and across time periods.
- Calculate the efficiency of energy transformation processes.

Methodology for Energy Balance Calculation

Energy balance calculations use conversion factors to standardize different energy products into a common unit. The formula is as follows:

- **Energy (in Ktoe) = Quantity of Commodity × Conversion Factor**
  Where,
  - 1 Toe = 41868 MJ
  - **Conversion Factor** = Net Calorific Value (NCV) ÷ Mega joules per ton of oil equivalent.

The **Net Calorific Value (NCV)** is calculated by subtracting the moisture content from the Gross Calorific Value (GCV).

Sankey Diagram

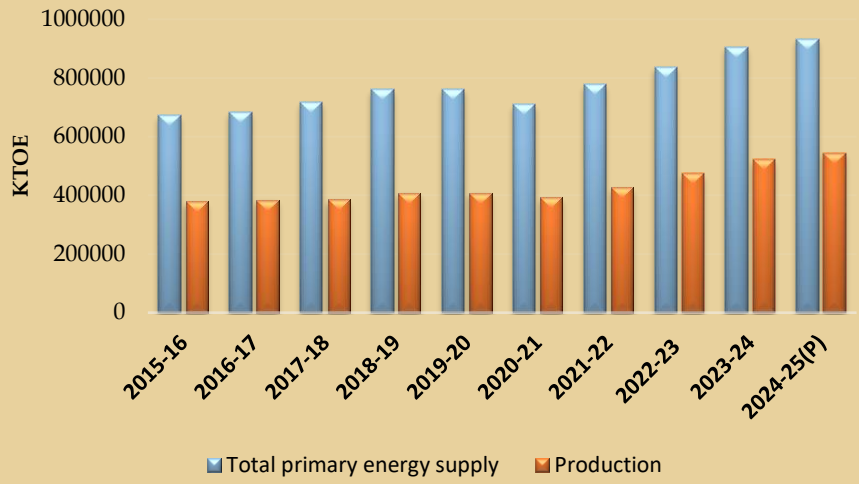
The concept of data visualization in the digital age has revived interest in a style of chart called a Sankey diagram. This style of diagram makes it easy to see the dominant flows within a system and highlights where losses occur. The Sankey diagram is very useful tool to represent an entire input and output energy flow in energy system after carrying out energy balance calculation. The thicker the line, the greater the amount of energy involved. The data of Energy Balance (Table 7.2) is used to construct the Sankey diagram, in which flows of energy are traced from energy sources to end-use consumption. The resulting diagram provides a convenient and clear snapshot of existing energy transformations in India which can usefully be compared with a similar global analysis. It gives a basis for examining and communicating future energy scenarios.

7.1 Total Primary Energy Supply (TPES)

Table 7.6 indicates that in FY 2024-25 (P), India's **Primary Energy Supply** totaled **932,816 Ktoe**, representing an increase of **2.95%** from the previous year. The major contributors to energy supply were **Coal (including Lignite) (59.21%)** and **Crude Oil (29.79%)**.

Figure 7.1 shows the gap between total primary energy supply and production has been steadily widening over the years, suggesting a growing reliance on external sources to meet energy demands.

Fig. 7.1: Trend of Total Primary Energy Supply and Domestic Prduction



7.2 Total Final Consumption (TFC)

Total Final Consumption reached **6,08,578 Ktoe**, an increase of **3.57%** compared to the previous year, indicating robust economic growth in India.

Fig. 7.2:Trend of sector wise consumption of energy resources (in Ktoe)

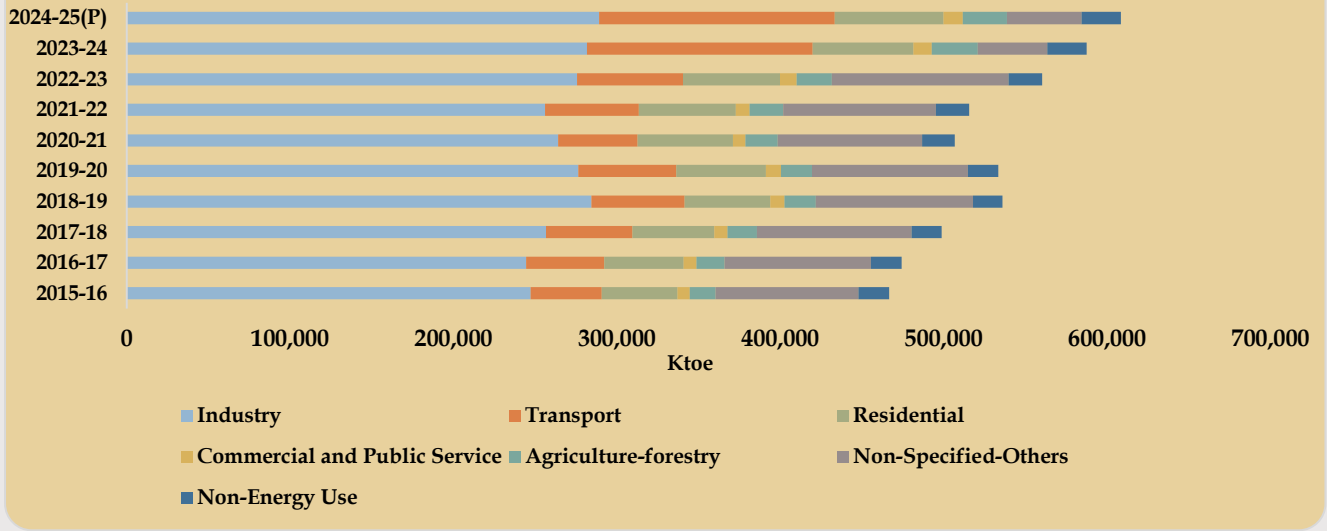


Figure 7.2 shows the industry has always remained the dominating energy-consuming sector in India. The other category has steadily increased and non-energy use has shown a rise in recent years.

7.3 Industry-wise Consumption of Energy during FY: 2024-25(P)

- The **Iron and Steel** industry accounted for **22.42%** of industrial energy consumption.
- The section **Non-ferrous metal** has consumed **16.04%** of the total energy, and
- **Non-metallic mineral** is having a share of **15.05%**
- **Chemical and petrochemical consumed 13.86%**.
- Other sectors, including **residential, agriculture, commercial & public services**, and **non-specified**, contributed to **17.31%** of the total final energy consumption.
- The **transport sector** accounted for **23.68%** of the total final consumption.

7.4 Energy Balance

The 33rd edition of the Energy Statistics publication contains the energy balance table, reflecting final audited figures from various ministries and utilizing domestic conversion factors, from FY 2015-16 to FY 2024-25(P). The, Energy Commodity Balance, Energy Balance (in KToE and PJ) and Energy Balance of Petroleum products for the year 2023-24 (F) and 2024-25 (P) have been placed within the present chapter whereas the Energy Balance tables pertaining to FY: 2015-16 onwards can be found in Annexure – IV previous.

The end-use sectors under the major sector Industry has been updated from previously nine (9) sub-sectors to presently thirteen (13) sub-sectors in all the Energy Balance tables from FY: 2015-16 onwards and the same has been placed under Annexure-IV.

Table-7.1 : Energy Commodity Balance for 2023-24 (Final)

Supply	Coal	Lignite	LPG	Naphtha	Kerosene	Diesel (HSD+ LDO)	Fuel Oil	Lubricants	Bitumin	Petrol/Motor Spirit	ATF	Petroleum Coke	Other Petroleum Products*	Natural Gas	Electricity
	(000 tonnes)													MMSCM	(GWh)
Production	997826	42921	12777	18274	983	116600	10442	1352	5240	45081	17124	15054	33129	36438	1734375
From Other Sources															223903
Imports	264531	52	18514	1211	0	42	9053	2412	3244	717	0	10956	2544	31795	6147
Exports	-1545	-2	-525	-5275	-11	-28204	-2103	-15	-18	-13472	-8579	-28	-4362	0	-11295
International marine bunkers						867									
International aviation bunkers											2057				
Stock changes	-24330	-327													
Domestic Supply	**1236482**	**42644**	**30766**	**14210**	**972**	**89305**	**17392**	**3749**	**8466**	**32325**	**10602**	**25982**	**31311**	**68233**	**1953130**
Transfer															
Statistical difference	-1217	-2	1102	398	493	-1103	10872	-338	-341	-4894	2355	5664	16615	-6878	17007
Transformation	**925065**	**35695**	**0**	**0**	**0**	**1759**	**208**	**0**	**0**	**0**	**0**	**0**	**0**	**9083**	**0**
Electricity plants	925065	35695	0	0	0	1759	208							9083	
Energy industry own use	**0.2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**11136**	**106650**
Oil and Gas extraction														5581	
Petroleum refineries														5554	
Own use in electricity, CHP and heat plants	0.2	0.0													106650
Other energy sector															
Distribution losses														**721**	**288885**
Final Consumption	**312634**	**6951**	**29663**	**13812**	**479**	**88649**	**6313**	**4087**	**8807**	**37219**	**8247**	**20319**	**14696**	**54172**	**1540587**
Industry Sector	**312629**	**6951**	**3140**	**13812**	**0**	**7791**	**1566**	**0**	**0**	**0**	**0**	**20319**	**14696**	**1457**	**640626**
Iron and steel	79009	86	0	0	0	180	557							0	172797
Chemical and petrochemical	33089	140	170	10424	0	101	408							0	98955
Non-ferrous metals	77879	0	67	0	0	20	233							0	36508
Non-metallic minerals	71629	569	0	0	0	540	91							0	59390
Transport equipment	82	0													30725
Machinery	668	0	16	0	0	96	15							0	44053
Mining & Quarrying	94	0	5	0	0	1339	115							0	164
Food, beverages and tobacco	10702	0													58139
Paper, pulp and print	14620	1039	0	0	0	0	0							0	17271
Wood and wood products	184	0													2697
Construction	0	0	0	0	0	413	22							0	0
Textile and leather	19103	994	2	0	0	7	19							0	74163
Non-specified	5569	4123	2881	3388	0	5096	106					20319	14696	1457	45763
Transport Sector	**0**	**0**	**89**	**0**	**0**	**68378**	**1484**	**0**	**0**	**37219**	**8247**	**0**	**0**	**15414**	**33918**
Road	0	0	88	0	0	63851	174			37219				13492	0
Domestic Aviation	0	0	0	0	0	1	0							0	0
Rail	0	0	1	0	0	3120	0							0	33918
Pipeline transport	0	0	0	0	0	0	0							1922	0
Domestic navigation	0	0	0	0	0	1406	1310				8247			0	0
Non-specified	0	0	0	0	0	0	0							0	0
Other Sectors	**5**	**0**	**26434**	**0**	**479**	**12480**	**3262**	**4087**	**8807**	**0**	**0**	**0**	**0**	**11113**	**866043**
Residential	0	0	26207	0	298	0	0							0	369059
Comm. And public services	0	0	0	0	62	0	0							0	128623
Agriculture/forestry	5	0	26	0	0	4223	35							142	275485
Non-specified	0	0	200	0	118	8258	3228	4087	8807					10971	92876
Non-Energy Use														**26188**	

Statistical Difference is defined as final consumption + use for transformation processes and consumption by energy industry own use + losses - domestic supply

Final consumption = Total Consumption in Transport + Total Industrial Consumption+Consumption by Other sectors+Non energy Use

* Inclusе Paraffin waxes, petroleum jelly, LSWR, MTBE and reformate, BGO, Benzene, MTO, CBFS and Sulfur etc.

Import Non-cooking coal to power sectore has been sifted from Industry Sector to Electricity Plants.

Table-7.2 : Energy Balance of India for 2023-24 (Final)

All figures in KToE

	Coal	Lignite	Crude Oil	Oil Products	Natural Gas	Nuclear	Large Hydro	Solar, Wind, Others	Electricity	Total
Production	403,797	9,786	30,002	0	33,705	12,493	11,552	20,170	0	521,505
Imports	141,642	12	239,415	48,203	29,410	0	0	0	529	459,210
Exports	-1,041	0	0	-65,333	0	0	0	0	-971	-67,346
International marine bunkers				897						897
International aviation bunkers				2,191						2,191
Stock changes	-10,299	-75	0	0	0	0	0	0	0	-10,374
Total primary energy supply	**534,099**	**9,723**	**269,417**	**-14,042**	**63,115**	**12,493**	**11,552**	**20,170**	**-443**	**906,084**
Statistical differences	8,214	0	25,117	-28,648	6,362	0	0	0	-1,463	9,583
Main activity producer electricity plants	-376,274	-8,139	0	-2,025	-8,401	-12,493	-11,529	-19,422	149,156	-289,126
Autoproducer electricity plants	0	0	0	0	0	0	-24	-748	19,256	18,484
Oil refineries	0	0	-267,299	282,097	0	0	0	0	0	14,798
Energy industry own use	0	0	0	0	-10,300	0	0	0	-9,172	-19,472
Losses	0	0	-27,235	0	-667	0	0	0	-24,844	-52,746
Final consumption	**166,039**	**1,585**	**0**	**237,382**	**50,110**	**0**	**0**	**0**	**132,490**	**587,606**
Industry	**166,036**	**1,585**	**0**	**57,637**	**1,348**	**0**	**0**	**0**	**55,094**	**281,700**
Iron and steel	41,962	20	0	735	0	0	0	0	14,861	57,577
Chemical and petrochemical	17,574	32	0	11,903	0	0	0	0	8,510	38,018
Non-ferrous metals	41,361	0	0	325	0	0	0	0	3,140	44,826
Non-metallic minerals	38,042	130	0	649	0	0	0	0	5,108	43,928
Transport equipment	43	0	0	0	0	0	0	0	2,642	2,686
Machinery	355	0	0	132	0	0	0	0	3,789	4,275
Mining and quarrying	50	0	0	1,504	0	0	0	0	14	1,568
Food, beverages and tobacco	5,684	0	0	0	0	0	0	0	5,000	10,684
Paper, pulp and print	7,765	237	0	0	0	0	0	0	1,485	9,487
Wood and wood products	98	0	0	0	0	0	0	0	232	330
Construction	0	0	0	449	0	0	0	0	0	449
Textile and leather	10,145	227	0	27	0	0	0	0	6,378	16,777
Non-specified (industry)	2,958	940	0	41,912	1,348	0	0	0	3,936	51,094
Transport	**0**	**0**	**0**	**120,946**	**14,259**	**0**	**0**	**0**	**2,917**	**138,122**
Road	0	0	0	106,183	12,479	0	0	0	0	118,662
Domestic aviation	0	0	0	8,786	0	0	0	0	0	8,786
Rail	0	0	0	3,230	0	0	0	0	2,917	6,147
Pipeline transport	0	0	0	0	1,779	0	0	0	0	1,779
Domestic navigation	0	0	0	2,746	0	0	0	0	0	2,746
Non-specified (transport)	0	0	0	0	0	0	0	0	0	0
Other	**2**	**0**	**0**	**58,799**	**10,279**	**0**	**0**	**0**	**74,480**	**143,560**
Residential	0	0	0	29,919	0	0	0	0	31,739	61,659
Commercial and public services	0	0	0	65	0	0	0	0	11,062	11,127
Agriculture/forestry	2	0	0	4,435	131	0	0	0	23,692	28,260
Non-specified (other)	0	0	0	24,380	10,148	0	0	0	7,987	42,515
Non-energy use	**0**	**0**	**0**	**0**	**24,224**	**0**	**0**	**0**	**0**	**24,224**
Non-energy use industry/transformation/energy	0	0	0	0	24,224	0	0	0	0	24,224
Non-energy use in transport	0	0	0	0	0	0	0	0	0	0
Non-energy use in other	0	0	0	0	0	0	0	0	0	0
Elect. output in GWh	**0**	**0**	**0**	**0**	**0**	**47,937**	**134,327**	**234,536**	**0**	**416,801**
Elec output-main activity producer ele plants	0	0	0	0	0	47,937	134,054	225,835	0	407,826
Elec output-autoproducer electricity plants	0	0	0	0	0	0	274	8,701	0	8,974

Final consumption refers to End Use Consumption

Table-7.3 : Energy Balance of India for 2023-24 (Final)

All figures in Peta Joule

	Coal	Lignite	Crude Oil	Oil Products	Natural Gas	Nuclear	Large Hydro	Solar, Wind, Others	Electricity	Total
Production	16,906	410	1,256	0	1,411	523	484	844	0	21,834
Imports	5,930	0	10,024	2,018	1,231	0	0	0	22	19,226
Exports	-44	0	0	-2,735	0	0	0	0	-41	-2,820
International marine bunkers				38						
International aviation bunkers				92						
Stock changes	-431	-3	0	0	0	0	0	0	0	-434
Total primary energy supply	**22362**	**407**	**11280**	**-588**	**2643**	**523**	**484**	**844**	**-19**	**37936**
Statistical differences	344	0	1,052	-1,199	266	0	0	0	-61	401
Main activity producer electricity plants	-15,754	-341	0	-85	-352	-523	-483	-813	6,245	-12,105
Autoproducer electricity plants	0	0	0	0	0	0	-1	-31	806	774
Oil refineries	0	0	-11,191	11,811	0	0	0	0	0	620
Energy industry own use	0	0	0	0	-431	0	0	0	-384	-815
Losses	0	0	-1,140	0	-28	0	0	0	-1,040	-2,208
Final consumption	**6952**	**66**	**0**	**9939**	**2098**	**0**	**0**	**0**	**5547**	**24602**
Industry	**6952**	**66**	**0**	**2413**	**56**	**0**	**0**	**0**	**2307**	**11794**
Iron and steel	1,757	1	0	31	0	0	0	0	622	2,411
Chemical and petrochemical	736	1	0	498	0	0	0	0	356	1,592
Non-ferrous metals	1,732	0	0	14	0	0	0	0	131	1,877
Non-metallic minerals	1,593	5	0	27	0	0	0	0	214	1,839
Transport equipment	2	0	0	0	0	0	0	0	111	112
Machinery	15	0	0	6	0	0	0	0	159	179
Mining and quarrying	2	0	0	63	0	0	0	0	1	66
Food, beverages and tobacco	238	0	0	0	0	0	0	0	209	447
Paper, pulp and print	325	10	0	0	0	0	0	0	62	397
Wood and wood products	4	0	0	0	0	0	0	0	10	14
Construction	0	0	0	19	0	0	0	0	0	19
Textile and leather	425	9	0	1	0	0	0	0	267	702
Non-specified (industry)	124	39	0	1,755	56	0	0	0	165	2,139
Transport	**0**	**0**	**0**	**5064**	**597**	**0**	**0**	**0**	**122**	**5783**
Road	0	0	0	4,446	522	0	0	0	0	4,968
Domestic aviation	0	0	0	368	0	0	0	0	0	368
Rail	0	0	0	135	0	0	0	0	122	257
Pipeline transport	0	0	0	0	75	0	0	0	0	75
Domestic navigation	0	0	0	115	0	0	0	0	0	115
Non-specified (transport)	0	0	0	0	0	0	0	0	0	0
Other	**0**	**0**	**0**	**2462**	**430**	**0**	**0**	**0**	**3118**	**6011**
Residential	0	0	0	1,253	0	0	0	0	1,329	2,582
Commercial and public services	0	0	0	3	0	0	0	0	463	466
Agriculture/forestry	0	0	0	186	5	0	0	0	992	1,183
Non-specified (other)	0	0	0	1,021	425	0	0	0	334	1,780
Non-energy use	**0**	**0**	**0**	**0**	**1014**	**0**	**0**	**0**	**0**	**1014**
Non-energy use industry/transformation/energy	0	0	0	0	1,014	0	0	0	0	1,014
Non-energy use in transport	0	0	0	0	0	0	0	0	0	0
Non-energy use in other	0	0	0	0	0	0	0	0	0	0
Elect. output in GWh	**0**	**0**	**0**	**0**	**0**	**47,937**	**134,327**	**234,536**	**0**	**416,801**
Elec output-main activity producer ele plants	0	0	0	0	0	47,937	134,054	225,835	0	407,826
Elec output-autoproducer electricity plants	0	0	0	0	0	0	274	8,701	0	8,974

Final consumption refers to End Use Consumption

Table 7.4: Energy Balance of Petroleum Products for 2023-24(Final)

All figures in KToE

	LPG	Naphtha	Kerosene	Diesel (HSD+ LDO)	Fuel Oil	Lubricants	Bitumin	Petrol/Motor Spirit	ATF	Petroleum Coke	Other Petroleum Products*	Petroleum Products Total
Production	14,435	19,641	1,027	120,683	10,286	1,356	4,881	48,238	18,241	11,506	31,804	282,097
Imports	20,916	1,301	0	44	8,917	2,420	3,021	768	0	8,374	2,442	48,203
Exports	-594	-5,670	-11	-29,192	-2,071	-15	-16	-14,416	-9,139	-21	-4,188	-65,333
International marine bunkers				897								897
International aviation bunkers									2,191			2,191
Stock changes	0	0	0	0	0	0	0	0	0	0	0	0
Total primary energy supply	**34,757**	**15,273**	**1,016**	**92,432**	**17,131**	**3,761**	**7,886**	**34,589**	**11,293**	**19,859**	**30,058**	**268,055**
Statistical differences	-1,245	-427	-515	1,142	-10,709	339	318	5,237	-2,508	-4,329	-15,950	-28,648
Main activity producer electricity plants	0	0	0	-1,820	-204	0	0	0	0	0	0	-2,025
Autoproducer electricity plants	0	0	0	0	0	0	0	0	0	0	0	0
Oil refineries	14,435	19,641	1,027	120,683	10,286	1,356	4,881	48,238	18,241	11,506	31,804	282,097
Energy industry own use	0	0	0	0	0	0	0	0	0	0	0	0
Losses	0	0	0	0	0	0	0	0	0	0	0	0
Final consumption	**33,512**	**14,845**	**501**	**91,753**	**6,218**	**4,100**	**8,204**	**39,826**	**8,785**	**15,530**	**14,108**	**237,382**
Industry	**3,547**	**14,845**	**0**	**8,064**	**1,543**	**0**	**0**	**0**	**0**	**15,530**	**14,108**	**57,637**
Chemical and petrochemical	192	11,204	0	104	402	0	0	0	0	0	0	11,903
Non-ferrous metals	75	0	0	20	230	0	0	0	0	0	0	325
Non-metallic minerals	0	0	0	559	90	0	0	0	0	0	0	649
Transport equipment	0	0	0	0	0	0	0	0	0	0	0	0
Machinery	18	0	0	100	14	0	0	0	0	0	0	132
Mining and quarrying	6	0	0	1,386	113	0	0	0	0	0	0	1,504
Food, beverages and tobacco	0	0	0	0	0	0	0	0	0	0	0	0
Paper, pulp and print	0	0	0	0	0	0	0	0	0	0	0	0
Wood and wood products	0	0	0	0	0	0	0	0	0	0	0	0
Construction	0	0	0	427	22	0	0	0	0	0	0	449
Textile and leather	2	0	0	7	18	0	0	0	0	0	0	27
Non-specified (industry)	3,255	3,641	0	5,275	104	0	0	0	0	15,530	14,108	41,912
Transport	**101**	**0**	**0**	**70,772**	**1,462**	**0**	**0**	**39,826**	**8,785**	**0**	**0**	**120,946**
Road	100	0	0	66,086	171	0	0	39,826	0	0	0	106,183
Domestic aviation	0	0	0	1	0	0	0	0	8,785	0	0	8,786
Rail	1	0	0	3,229	0	0	0	0	0	0	0	3,230
Pipeline transport	0	0	0	0	0	0	0	0	0	0	0	0
Domestic navigation	0	0	0	1,455	1,291	0	0	0	0	0	0	2,746
Non-specified (transport)	0	0	0	0	0	0	0	0	0	0	0	0
Other	**29,864**	**0**	**501**	**12,917**	**3,213**	**4,100**	**8,204**	**0**	**0**	**0**	**0**	**58,799**
Residential	29,608	0	312	0	0	0	0	0	0	0	0	29,919
Commercial and public services	0	0	65	0	0	0	0	0	0	0	0	65
Agriculture/forestry	30	0	0	4,371	34	0	0	0	0	0	0	4,435
Non-specified (other)	226	0	124	8,547	3,179	4,100	8,204	0	0	0	0	24,380
Non-energy use	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Non-energy use industry/transformation/energy	0	0	0	0	0	0	0	0	0	0	0	0
Non-energy use in transport	0	0	0	0	0	0	0	0	0	0	0	0
Non-energy use in other	0	0	0	0	0	0	0	0	0	0	0	0
Elect. output in GWh	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Elec output-main activity producer ele plants	0	0	0	0	0	0	0	0	0	0	0	0
Elec output-autoproducer electricity plants	0	0	0	0	0	0	0	0	0	0	0	0

Final consumption refers to End Use Consumption

* Incluse Paraffin waxes, petroleum jelly, LSWR, MTBE and reformate, BGO, Benzene, MTO, CBFS and Sulfur etc.

Table 7.5 : Energy Commodity Balance for 2024-25(P)

Supply	Coal	Lignite	LPG	Naphtha	Kerosene	Diesel (HSD+ LDO)	Fuel Oil	Lubricants	Bitumin	Petrol/Motor Spirit	ATF	Petroleum Coke	Other Petroleum Products*	Natural Gas	Electricity
	(000 tonnes)													MMSCM	(GWh)
Production	1047523	45133	12788	17924	1008	118853	10859	1300	5303	48265	17755	14963	34753	36110	1824214
From Other Sources															235098
Imports	243622	140	20667	941	0	42	7674	2864	2900	235	0	13153	2428	35720	7457
Exports	-1914	-20	-551	-5169	-12	-28027	-2413	-17	-23	-15830	-8554	-692	-3786	0	-10621
International marine bunkers						974									
International aviation bunkers											2303				
Stock changes	-22141	-697													
Domestic Supply	**1267090**	**44556**	**32903**	**13696**	**997**	**91842**	**16120**	**4147**	**8180**	**32669**	**11504**	**27424**	**33395**	**71830**	**2056148**
Transfer															
Statistical difference	-2014	-21	1576	668	589	-404	9609	-434	-401	-7336	2519	5421	21834	-5432	18683
Transformation	**964538**	**35625**	**0**	**0**	**0**	**1818**	**327**	**0**	**0**	**0**	**0**	**0**	**0**	**8892**	**0**
Electricity plants	964538	35625	0.017	0	0	1818	327							8892	
Energy industry own use	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**11410**	**112190**
Oil and Gas extraction														5547	
Petroleum refineries														5864	
Own use in electricity, CHP and heat plants	0.15														112190
Other energy sector															
Distribution losses														**520**	**302306**
Final Consumption	**304566**	**8952**	**31328**	**13028**	**408**	**90427**	**6183**	**4581**	**8582**	**40005**	**8985**	**22002**	**11561**	**56440**	**1622969**
Industry Sector	**304557**	**8952**	**3058**	**13028**	**0**	**8333**	**1868**	**0**	**0**	**0**	**0**	**22002**	**11561**	**2803**	**655562**
Iron and steel	85129	31	0	0	0	161	518								177586
Chemical and petroleum	31596	627	165	11457	0	108	533								100356
Non-ferrous metals	74298	0	100	0	0	15	379								38691
Non-metallic minerals	65395	538	0	0	0	484	93								61872
Transport equipment	62	0													30776
Machinery	542	0	14	0	0	111	14								45741
Mining & Quarrying	79	0	9	0	0	1565	93								178
Food, beverages and tobacco	10384	0													59809
Paper, pulp and print	13979	533	0	0	0	0	14								17489
Wood and wood products	184	0													2796
Construction	0	0	0	0	0	479	35								0
Textile and leather	17537	2650	1	0	0	6	20								72045
Non-specified	5373	4573	2770	1572	0	5403	170					22002	11561	2803	48223
Transport Sector	**0**	**0**	**76**	**0**	**0**	**68900**	**1681**	**0**	**0**	**40005**	**8985**	**0**	**0**	**17020**	**34500**
Road	0	0	73	0	0	64586	177			40005				15051	0
Domestic Aviation	0	0	0	0	0	1	0								0
Rail	0	0	2	0	0	2892	0								34500
Pipeline transport	0	0	0	0	0	0	0							1968	0
Domestic navigation	0	0	0	0	0	1420	1504				8985				0
Non-specified	0	0	0	0	0	0	0								0
Other Sectors	**9**	**0**	**28194**	**0**	**408**	**13195**	**2634**	**4581**	**8582**	**0**	**0**	**0**	**0**	**10528**	**932907**
Residential	0	0	27654	0	230	0	0								408515
Comm. And public services	0	0	0	0	63	0	0								135163
Agriculture/forestry	9	0	25	0	0	4318	43							153	260276
Non-specified	0	0	516	0	115	8877	2591	4581	8582					10376	128953
Non-Energy Use														**26090**	

P: Provisional

Statistical Difference is defined as final consumption + use for transformation processes and consumption by energy industry own use + losses - domestic supply

Final consumption = Total Consumption in Transport + Total Industrial Consumption+Consumption by Other sectors+Non energy Use

* Incluse Paraffin waxes, petroleum jelly, LSWR, MTBE and reformate, BGO, Benzene, MTO, CBFS and Sulfur etc.

Table 7.6: Energy Balance of India for 2024-25 (P)

All figures in KToE

	Coal	Lignite	Crude Oil	Oil Products	Natural Gas	Nuclear	Large Hydro	Solar, Wind, Others	Electricity	Total
Production	421,681	10,291	29,335	0	33,401	14,771	12,815	23,032	0	545,326
Imports	131,053	32	248,575	50,171	33,041	0	0	0	641	463,513
Exports	-1,289	-5	0	-67,830	0	0	0	0	-913	-70,037
International marine bunkers				1,008						1,008
International aviation bunkers				2,453						2,453
Stock changes	-9,288	-159	0	0	0	0	0	0	0	-9,447
Total primary energy supply	**542,156**	**10,159**	**277,910**	**-14,198**	**66,442**	**14,771**	**12,815**	**23,032**	**-272**	**932,816**
Statistical differences	26,273	5	24,911	-31,289	5,024	0	0	0	-1,607	23,318
Main activity producer electricity plants	-396,061	-8,123	0	-2,204	-8,225	-14,771	-12,783	-21,931	156,882	-307,215
Autoproducer electricity plants	0	0	0	0	0	0	-33	-1,101	20,218	19,085
Oil refineries	0	0	-274,522	290,077	0	0	0	0	0	15,555
Energy industry own use	0	0	0	0	-10,554	0	0	0	-9,648	-20,203
Losses	0	0	-28,299	0	-481	0	0	0	-25,998	-54,778
Final consumption	**172,369**	**2,041**	**0**	**242,386**	**52,207**	**0**	**0**	**0**	**139,575**	**608,578**
Industry	**172,365**	**2,041**	**0**	**55,838**	**2,592**	**0**	**0**	**0**	**56,378**	**289,215**
Iron and steel	48,179	7	0	677	0	0	0	0	15,272	64,135
Chemical and petrochemical	17,882	143	0	13,137	0	0	0	0	8,631	39,793
Non-ferrous metals	42,049	0	0	502	0	0	0	0	3,327	45,879
Non-metallic minerals	37,010	123	0	593	0	0	0	0	5,321	43,047
Transport equipment	35	0	0	0	0	0	0	0	2,647	2,682
Machinery	307	0	0	144	0	0	0	0	3,934	4,384
Mining and quarrying	44	0	0	1,721	0	0	0	0	15	1,781
Food, beverages and tobacco	5,877	0	0	0	0	0	0	0	5,144	11,020
Paper, pulp and print	7,912	122	0	13	0	0	0	0	1,504	9,551
Wood and wood products	104	0	0	0	0	0	0	0	240	345
Construction	0	0	0	530	0	0	0	0	0	530
Textile and leather	9,925	604	0	27	0	0	0	0	6,196	16,752
Non-specified (industry)	3,041	1,043	0	38,492	2,592	0	0	0	4,147	49,315
Transport	**0**	**0**	**0**	**125,431**	**15,743**	**0**	**0**	**0**	**2,967**	**144,141**
Road	0	0	0	109,911	13,922	0	0	0	0	123,834
Domestic aviation	0	0	0	9,572	0	0	0	0	0	9,572
Rail	0	0	0	2,996	0	0	0	0	2,967	5,963
Pipeline transport	0	0	0	0	1,821	0	0	0	0	1,821
Domestic navigation	0	0	0	2,951	0	0	0	0	0	2,951
Non-specified (transport)	0	0	0	0	0	0	0	0	0	0
Other	**4**	**0**	**0**	**61,118**	**9,739**	**0**	**0**	**0**	**80,230**	**151,090**
Residential	0	0	0	31,482	0	0	0	0	35,132	66,614
Commercial and public services	0	0	0	66	0	0	0	0	11,624	11,690
Agriculture/forestry	4	0	0	4,539	141	0	0	0	22,384	27,068
Non-specified (other)	0	0	0	25,032	9,598	0	0	0	11,090	45,719
Non-energy use	**0**	**0**	**0**	**0**	**24,133**	**0**	**0**	**0**	**0**	**24,133**
Non-energy use industry/transformation/energy	0	0	0	0	24,133	0	0	0	0	24,133
Non-energy use in transport	0	0	0	0	0	0	0	0	0	0
Non-energy use in other	0	0	0	0	0	0	0	0	0	0
Elect. output in GWh	**0**	**0**	**0**	**0**	**0**	**56,681**	**149,014**	**267,809**	**0**	**473,504**
Elec output-main activity producer ele plants	0	0	0	0	0	56,681	148,634	255,009	0	460,324
Elec output-autoproducer electricity plants	0	0	0	0	0	0	380	12,800	0	13,180

Final consumption refers to End Use Consumption

P: Provisional

Table 7.7: Energy Balance of India for 2024-25 (P)

All figures in Peta Joule

	Coal	Lignite	Crude Oil	Oil Products	Natural Gas	Nuclear	Large Hydro	Solar, Wind, Others	Electricity	Total
Production	17,655	431	1,228	0	1,398	618	537	964	0	22,832
Imports	5,487	1	10,407	2,101	1,383	0	0	0	27	19,406
Exports	-54	0	0	-2,840	0	0	0	0	-38	-2,932
International marine bunkers				42						
International aviation bunkers				103						
Stock changes	-389	-7	0	0	0	0	0	0	0	-396
Total primary energy supply	**22,699**	**425**	**11,636**	**-594**	**2,782**	**618**	**537**	**964**	**-11**	**39,055**
Statistical differences	1,100	0	1,043	-1,310	210	0	0	0	-67	976
Main activity producer electricity plants	-16,582	-340	0	-92	-344	-618	-535	-918	6,568	-12,862
Autoproducer electricity plants	0	0	0	0	0	0	-1	-46	847	799
Oil refineries	0	0	-11,494	12,145	0	0	0	0	0	651
Energy industry own use	0	0	0	0	-442	0	0	0	-404	-846
Losses	0	0	-1,185	0	-20	0	0	0	-1,088	-2,293
Final consumption	**7,217**	**85**	**0**	**10,148**	**2,186**	**0**	**0**	**0**	**5,844**	**25,480**
Industry	**7,217**	**85**	**0**	**2,338**	**109**	**0**	**0**	**0**	**2,360**	**12,109**
Iron and steel	2,017	0	0	28	0	0	0	0	639	2,685
Chemical and petrochemical	749	6	0	550	0	0	0	0	361	1,666
Non-ferrous metals	1,761	0	0	21	0	0	0	0	139	1,921
Machinery	13	0	0	6	0	0	0	0	165	184
Mining and quarrying	2	0	0	72	0	0	0	0	1	75
Paper, pulp and print	331	5	0	1	0	0	0	0	63	400
Construction	0	0	0	22	0	0	0	0	0	22
Textile and leather	416	25	0	1	0	0	0	0	259	701
Non-specified (industry)	127	44	0	1,612	109	0	0	0	174	2,065
Transport	**0**	**0**	**0**	**5,252**	**659**	**0**	**0**	**0**	**124**	**6,035**
Road	0	0	0	4,602	583	0	0	0	0	5,185
Domestic aviation	0	0	0	401	0	0	0	0	0	401
Rail	0	0	0	125	0	0	0	0	124	250
Pipeline transport	0	0	0	0	76	0	0	0	0	76
Domestic navigation	0	0	0	124	0	0	0	0	0	124
Non-specified (transport)	0	0	0	0	0	0	0	0	0	0
Other	**0**	**0**	**0**	**2,559**	**408**	**0**	**0**	**0**	**3,359**	**6,326**
Residential	0	0	0	1,318	0	0	0	0	1,471	2,789
Commercial and public services	0	0	0	3	0	0	0	0	487	489
Agriculture/forestry	0	0	0	190	6	0	0	0	937	1,133
Non-specified (other)	0	0	0	1,048	402	0	0	0	464	1,914
Non-energy use	**0**	**0**	**0**	**0**	**1,010**	**0**	**0**	**0**	**0**	**1,010**
Non-energy use industry/transformation/energy	0	0	0	0	1,010	0	0	0	0	1,010
Non-energy use in transport	0	0	0	0	0	0	0	0	0	0
Non-energy use in other	0	0	0	0	0	0	0	0	0	0
Elect. output in GWh	**0**	**0**	**0**	**0**	**0**	**56,681**	**149,014**	**267,809**	**0**	**473,504**
Elec output-main activity producer ele plants	0	0	0	0	0	56,681	148,634	255,009	0	460,324
Elec output-autoproducer electricity plants	0	0	0	0	0	0	380	12,800	0	13,180

Final consumption refers to End Use Consumption

P: Provisional

Table 7.8 : Energy Balance of Petroleum Products for 2024-25(P)

All figures in KToE

	LPG	Naphtha	Kerosene	Diesel (HSD+ LDO)	Fuel Oil	Lubricants	Bitumin	Petrol/Motor Spirit	ATF	Petroleum Coke	Other Petroleum Products*	Petroleum Products Total
Production	14,447	19,265	1,054	123,015	10,696	1,304	4,940	51,645	18,913	11,437	33,362	290,077
Imports	23,348	1,011	0	43	7,559	2,873	2,701	251	0	10,053	2,331	50,171
Exports	-623	-5,556	-12	-29,009	-2,377	-17	-21	-16,939	-9,112	-529	-3,635	-67,830
International marine bunkers				1,008								
International aviation bunkers									2,453			
Stock changes	0	0	0	1,008	0	0	0	0	0	0	0	1,008
Total primary energy supply	**37,172**	**14,721**	**1,041**	**96,066**	**15,878**	**4,160**	**7,620**	**34,956**	**12,254**	**20,960**	**32,059**	**276,887**
Statistical differences	-1,780	-718	-615	-590	-9,465	435	374	7,850	-2,683	-4,144	-20,961	-32,297
Main activity producer electricity plants	0	0	0	-1,882	-322	0	0	0	0	0	0	-2,204
Autoproducer electricity plants	0	0	0	0	0	0	0	0	0	0	0	0
Oil refineries	14,447	19,265	1,054	123,015	10,696	1,304	4,940	51,645	18,913	11,437	33,362	290,077
Energy industry own use	0	0	0	0	0	0	0	0	0	0	0	0
Losses	0	0	0	0	0	0	0	0	0	0	0	0
Final consumption	**35,392**	**14,003**	**426**	**93,593**	**6,090**	**4,595**	**7,994**	**42,806**	**9,571**	**16,816**	**11,098**	**242,386**
Industry	**3,455**	**14,003**	**0**	**8,624**	**1,840**	**0**	**0**	**0**	**0**	**16,816**	**11,098**	**55,838**
Iron and steel	0	0	0	167	510	0	0	0	0	0	0	677
Chemical and petrochemical	187	12,314	0	112	525	0	0	0	0	0	0	13,137
Non-ferrous metals	113	0	0	16	373	0	0	0	0	0	0	502
Non-metallic minerals	0	0	0	501	92	0	0	0	0	0	0	593
Transport equipment	0	0	0	0	0	0	0	0	0	0	0	0
Machinery	16	0	0	115	13	0	0	0	0	0	0	144
Mining and quarrying	10	0	0	1,620	91	0	0	0	0	0	0	1,721
Food, beverages and tobacco	0	0	0	0	0	0	0	0	0	0	0	0
Paper, pulp and print	0	0	0	0	13	0	0	0	0	0	0	13
Wood and wood products	0	0	0	0	0	0	0	0	0	0	0	0
Construction	0	0	0	496	35	0	0	0	0	0	0	530
Textile and leather	1	0	0	7	20	0	0	0	0	0	0	27
Non-specified (industry)	3,129	1,689	0	5,592	167	0	0	0	0	16,816	11,098	38,492
Transport	**85**	**0**	**0**	**71,312**	**1,656**	**0**	**0**	**42,806**	**9,571**	**0**	**0**	**125,431**
Road	83	0	0	66,848	175	0	0	42,806	0	0	0	109,911
Domestic aviation	0	0	0	1	0	0	0	0	9,571	0	0	9,572
Rail	3	0	0	2,994	0	0	0	0	0	0	0	2,996
Pipeline transport	0	0	0	0	0	0	0	0	0	0	0	0
Domestic navigation	0	0	0	1,470	1,481	0	0	0	0	0	0	2,951
Non-specified (transport)	0	0	0	0	0	0	0	0	0	0	0	0
Other	**31,852**	**0**	**426**	**13,657**	**2,594**	**4,595**	**7,994**	**0**	**0**	**0**	**0**	**61,118**
Residential	31,241	0	240	0	0	0	0	0	0	0	0	31,482
Commercial and public services	0	0	66	0	0	0	0	0	0	0	0	66
Agriculture/forestry	28	0	0	4,469	42	0	0	0	0	0	0	4,539
Non-specified (other)	583	0	120	9,188	2,552	4,595	7,994	0	0	0	0	25,032
Non-energy use	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Non-energy use industry/transformation/energy	0	0	0	0	0	0	0	0	0	0	0	0
Non-energy use in transport	0	0	0	0	0	0	0	0	0	0	0	0
Non-energy use in other	0	0	0	0	0	0	0	0	0	0	0	0
Elect. output in GWh	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Elec output-main activity producer ele plants	0	0	0	0	0	0	0	0	0	0	0	0
Elec output-autoproducer electricity plants	0	0	0	0	0	0	0	0	0	0	0	0

Final consumption refers to End Use Consumption

P: Provisional

* Incluse Paraffin waxes, petroleum jelly, LSWR, MTBE and reformate, BGO, Benzene, MTO, CBFS and Sulfur etc.

Fig. 7.3: Sankey Diagram on Overall Flow of Energy in India during FY: 2023-24 (Final) (in KToe)

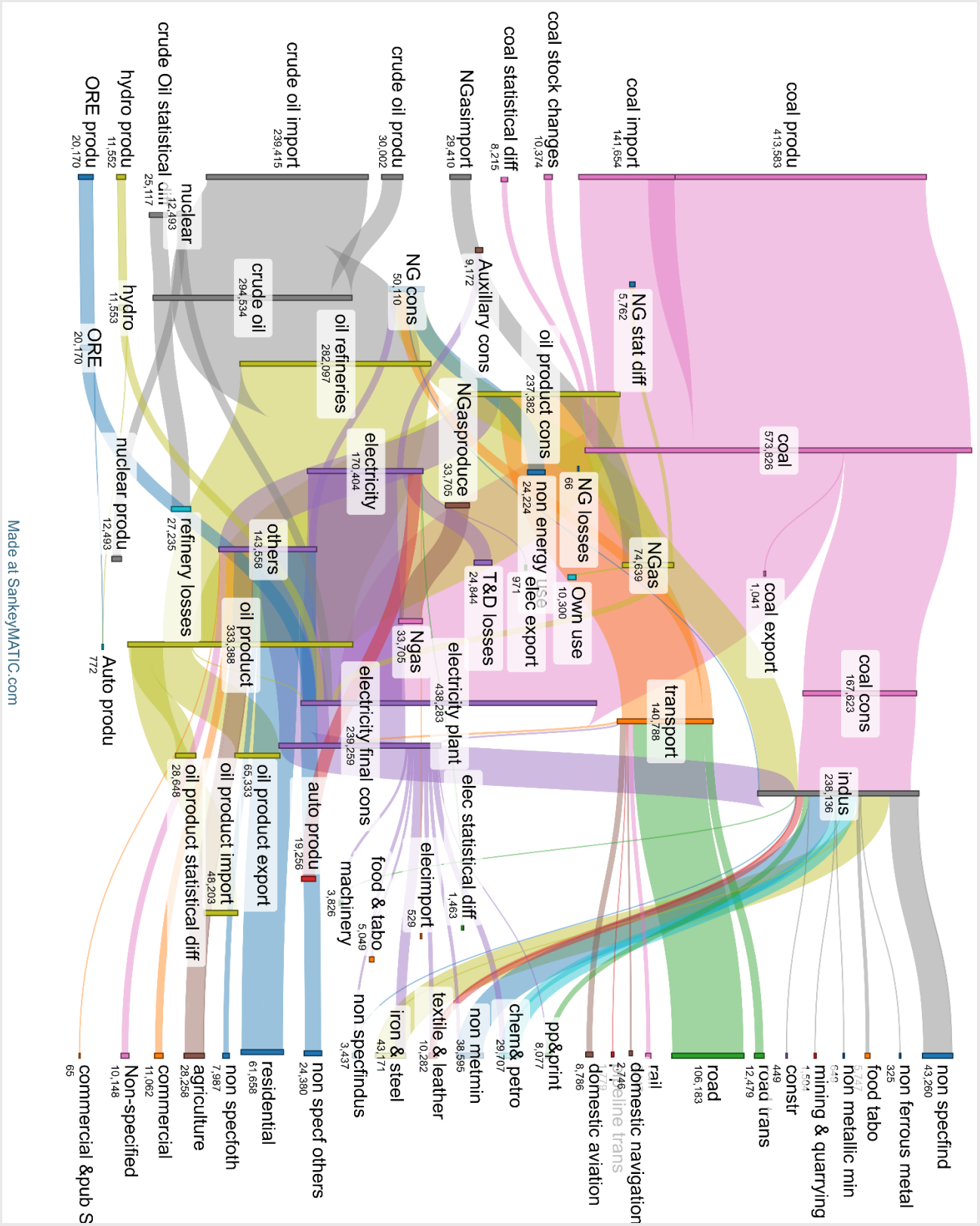


Fig. 7.4: Sankey Diagram on Final Consumption by sectors in India during FY: 2023-24 (Final) (in KToe)

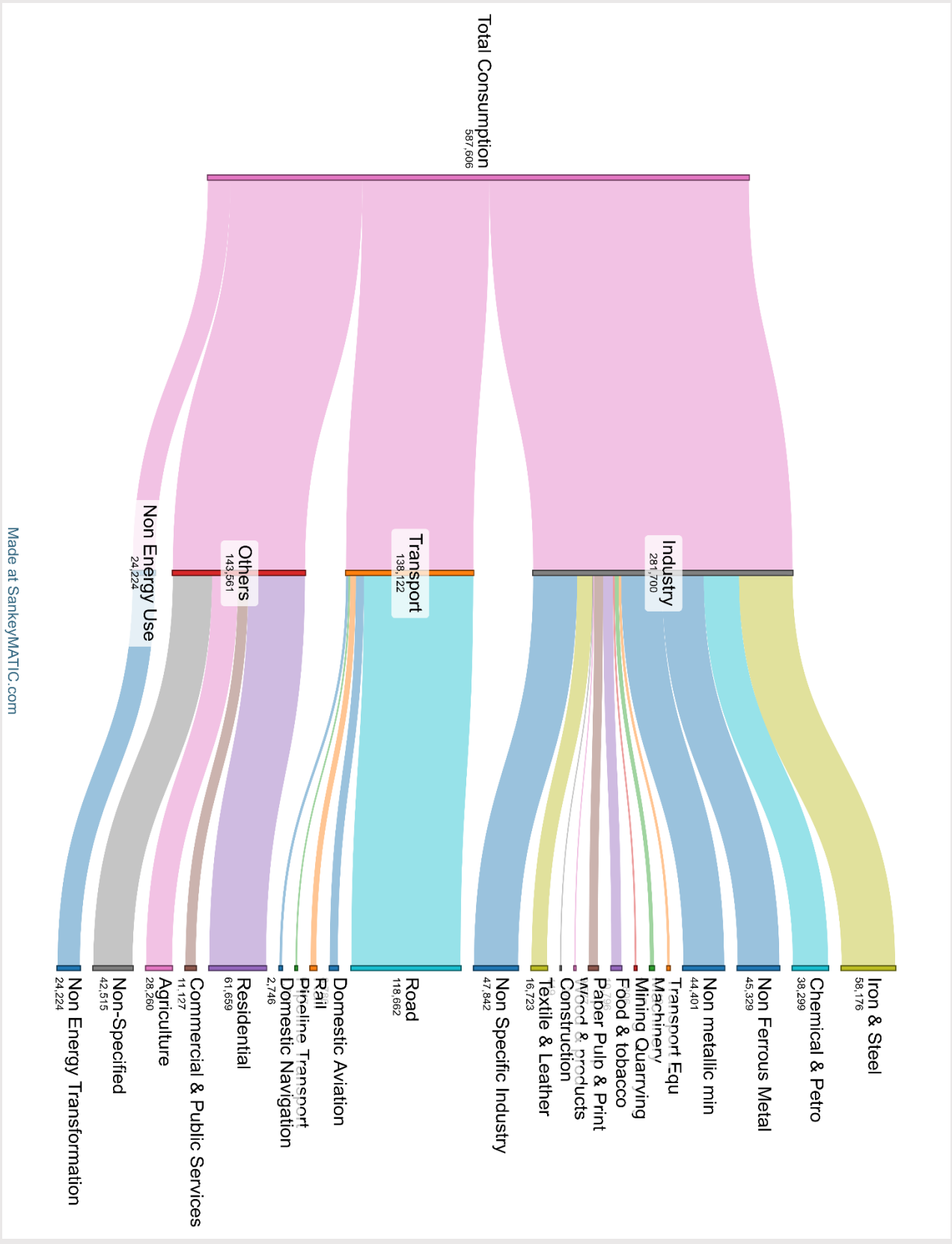


Fig. 7.5: Sankey Diagram on Overall Flow of Energy in India during FY: 2024-25(P) (in KToe)

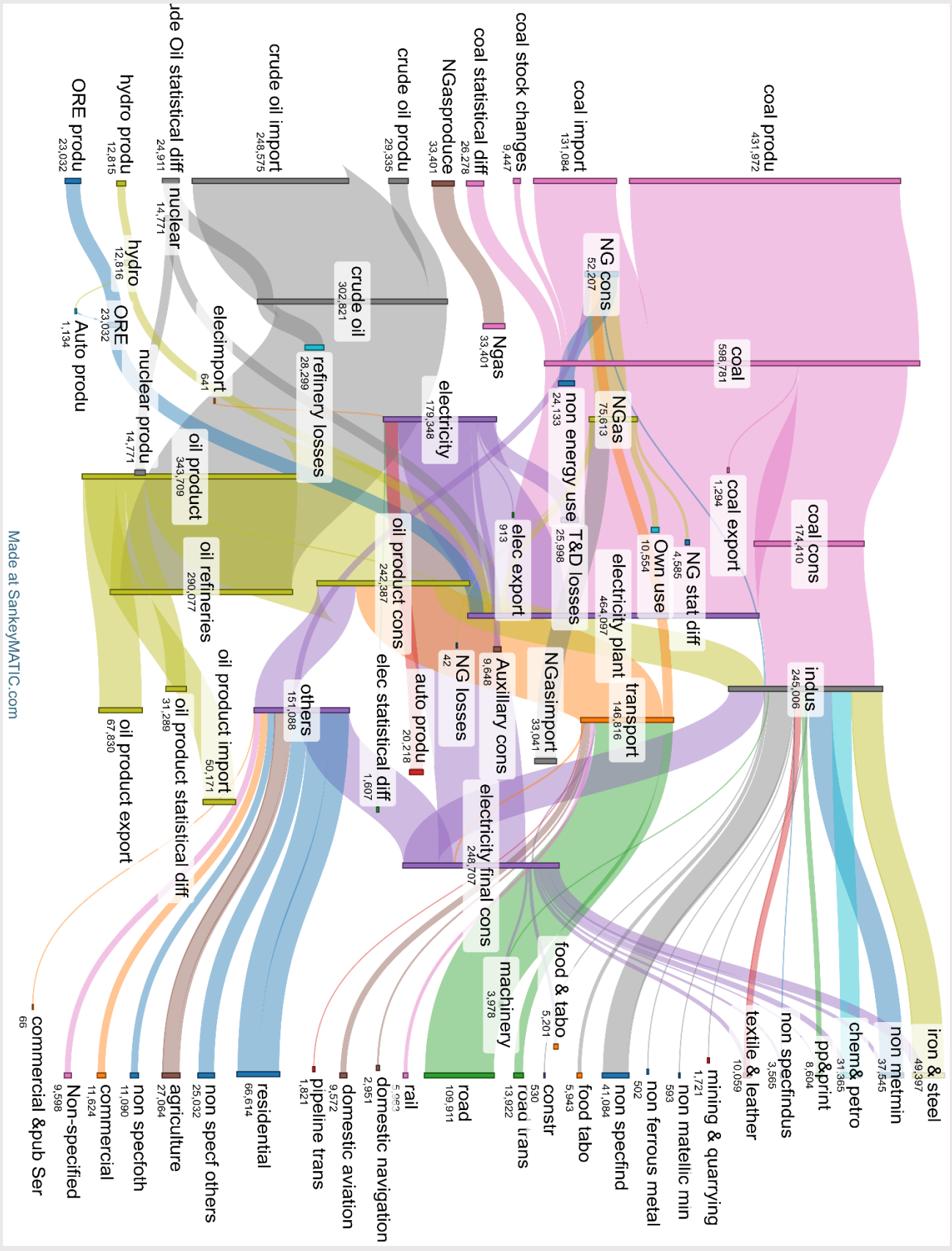
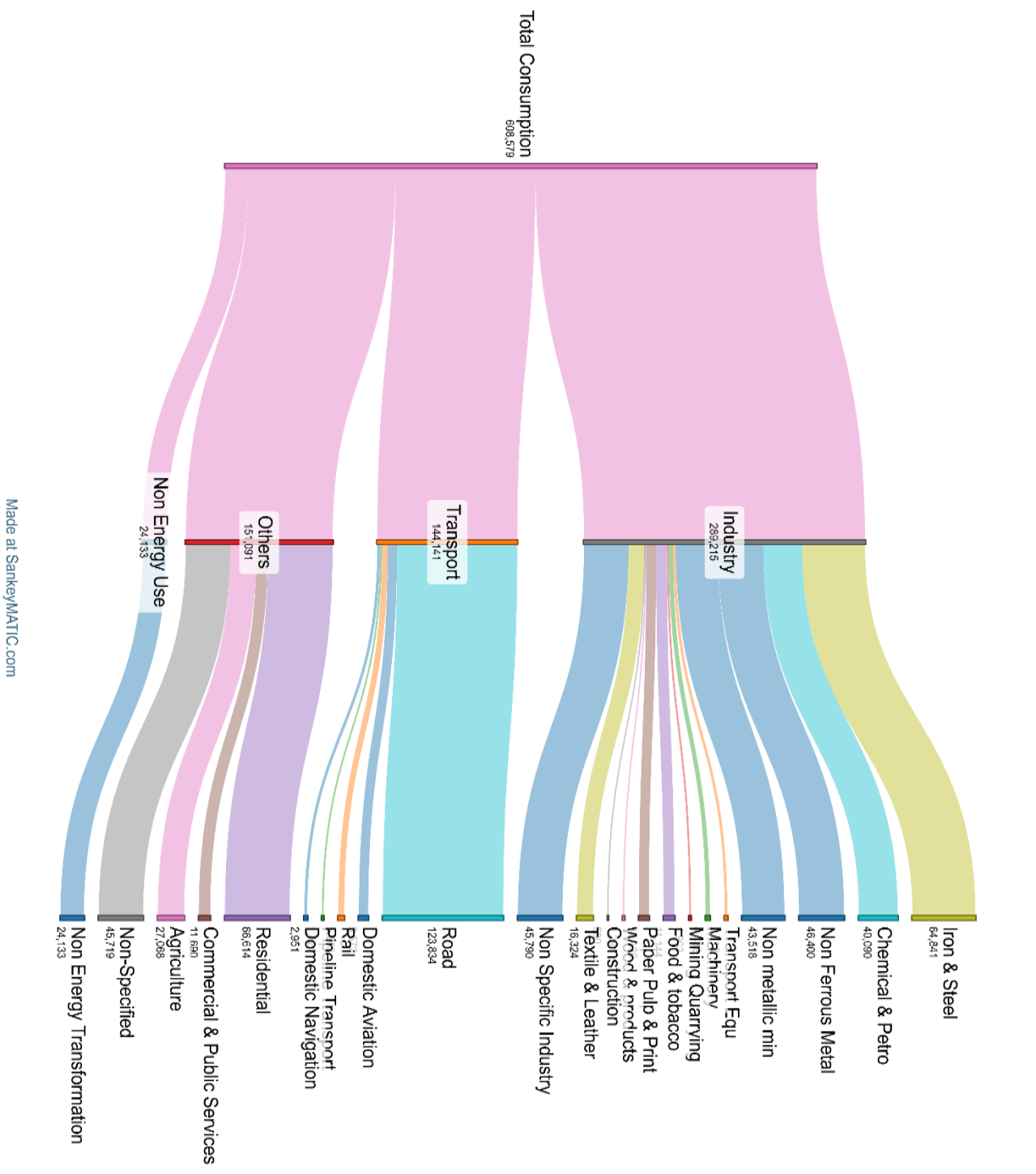


Fig. 7.6: Sankey Diagram on Final Consumption by sectors in India during FY: 2024-25 (P) (in KToe)



Chapter Eight

Sustainability and Energy

CHAPTER 8
Sustainability and Energy

8.1 Sustainable Development Goals and Energy Security

Sustainability has become an essential global objective, underlined by the **United Nations (UN) 2030 Agenda for Sustainable Development. SDG 7** outlines specific targets to promote sustainability through energy access and efficiency improvements. These targets include:

- By 2030, ensure universal access to affordable, reliable, and modern energy services.
- By 2030, increase substantially the share of renewable energy in the global energy mix.
- By 2030**,** double the global rate of improvement in energy efficiency.
- By 2030**,** enhance international cooperation to facilitate access to clean energy research and technology, including renewable energy, energy efficiency and advanced and cleaner fossil fuel technology, and promote investment in energy infrastructure and clean energy technology.
- By 2030, expand infrastructure and upgrade technology for supplying modern and sustainable energy services for all in developing countries, in particular least developed countries, small island developing States, and land-locked developing countries, in accordance with their respective programmes of support.

8.2 Energy security

Energy security is an important paradigm in the sustainable development economies in many countries. Interruptions in energy supply can cause serious financial and economic risks. To support sustainable goals, energy must be available at all times, in sufficient quantities and at affordable prices. The continuous monitoring of the Sustainable Energy Indicators is the key to ensure the same. Secured energy supplies are essential to provide reliable energy services to the society for maintaining the economic activity. The monitoring of trends of net energy imports and the availability of appropriate stocks of critical fuels are important for assessing energy security.

8.3 Energy Indicators for Sustainable Development

To support the achievement of these targets, the **International Atomic Energy Agency**, **United Nations Department of Economic and Social Affairs**, **International Energy Agency**, **Eurostat**, and **European Environment Agency** have established core **Energy Indicators for Sustainable Development**. These indicators are designed to provide valuable insights on current energy trends, helping nations assess and formulate effective energy policies.

Energy indicators describe the links between energy use and human activity in a disaggregated framework. They are essential measures of energy consumption and identifying the underlying factors driving that consumption; using these data the analyst commonly constructs ratios of the energy consumed per unit of a given output (energy intensities) in order to calculate changes in energy efficiency. Using index number methodologies, the indicators can be used to measure the impact of changes in energy intensities or changes in mix of activities on total energy use. The indicators are not meant to be normative; they are descriptive and analytical. Indicators help to show how energy use is shaped by economic and technical factors, such as energy prices, economic growths and new technologies. Disaggregated measures of energy intensities are necessary to determine the impact of prices, policies or other factors on reducing energy consumption and hence transcending the system from efficient to sustainable.

8.4 Economic Dimension Indicators

The publication "*Energy Indicators for Sustainable Development: Guidelines and Methodology, Vienna, 2005, IAEA*" presents a list of indicators on Social, Economic and Environment dimensions associated with sustainability in Energy. While the importance of these various indicators is recognized and since Social and Environmental indicators require additional levels of details than that are presented in Energy Statistics, thus this report is restricted to the economic dimension only. The Sustainable Energy Indicators used below are useful to determine and evaluate the sectorial energy intensity, fuel-specific energy dependency, import dependency and sustainable energy policies of a country.

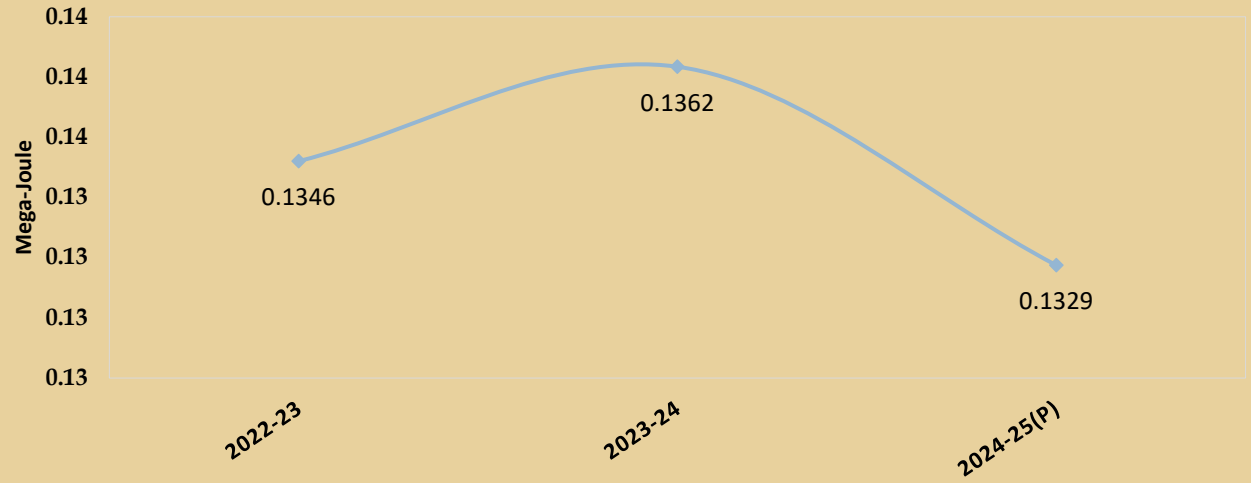
List of Sustainability Energy Indicators of Economic Dimension: Themes and Sub-Themes

Themes	Sub-theme	Indicator
Use and Production Pattern	Overall Use	Energy use per capita
	Overall Productivity	Energy use per unit of GDP
	Supply Efficiency	Efficiency of energy conversion and distribution
	Production	Reserves-to-production ratio
		Resources-to-production ratio
	End Use	Industrial energy intensities
		Agricultural energy intensities
		Transport energy intensities
	Diversification (Fuel Mix)	Fuel shares in energy and electricity
		Non-carbon energy share in energy and electricity
		Renewable energy share in energy and electricity
	Prices	WPI of energy sources
Security	Imports	Net Energy Import Dependency
	Strategic fuel stocks	Stocks of critical fuels per corresponding fuel consumption

8.4.1 Energy Intensity and Per Capita Energy Consumption

Energy intensity is defined as the amount of energy consumed to generate one unit of GDP at constant prices. It is a crucial metric for evaluating the energy efficiency of a country's economy. **Per Capita Energy Consumption (PEC)** is computed by dividing total energy consumption for the year by the mid-year population of that year. While both of these indicators are typically based on conventional energy consumption, it is important to note that they may not fully account for the consumption of non-conventional energy sources, especially in rural areas.

Fig 8.1 : Energy Intensity in Megajoule per rupee

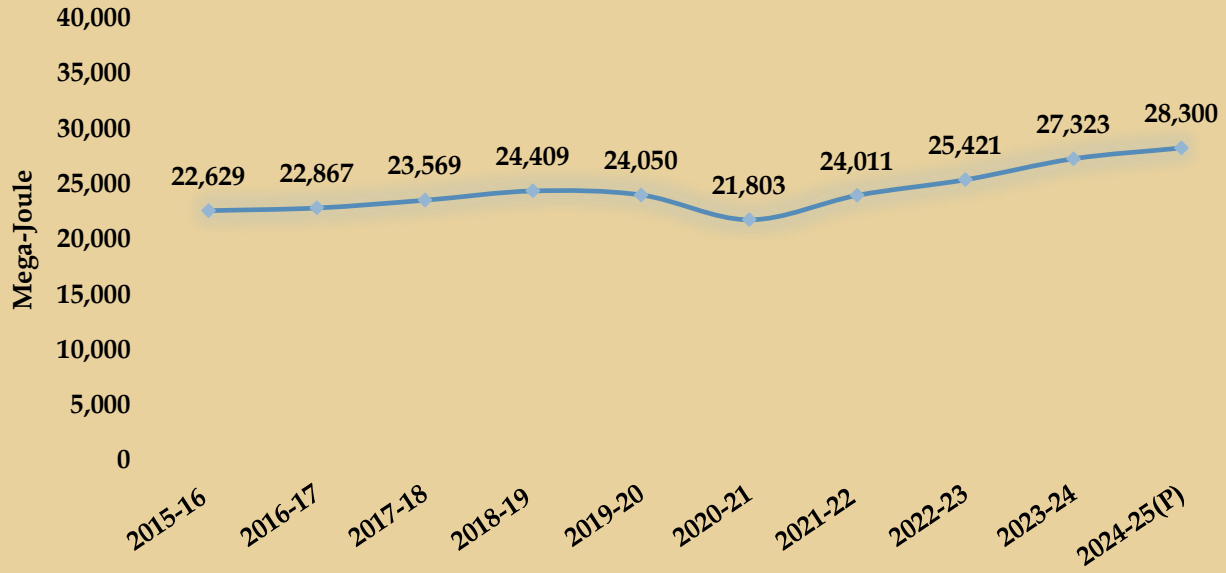


Note: The figures of FY 2022-23 to 2024-25 have been derived using GDP with base year- 2022-23.

Figure 8.1 depicts the fluctuation of the energy intensity in India during the FY: 2022-23 to FY: 2024-25(P).

Figure 8.2 shows the India's per capita primary energy consumption increased from **22,629 Mega joules/person** in 2015-16 to **28,300 Mega joules/person** in FY 2024-25(P), indicating a growing demand for energy.

Fig 8.2 :Per Capita Energy Consumption in India (Megajoule/Person)



8.4.2 Emissions from the Energy Sector

India's **total CO2 emissions related to energy sector** increased from **19,09,766 GgCO2 equivalent** in 2014 to **22,38,409 GgCO2 equivalent** in 2020, based on the latest estimates by the Ministry of Environment, Forest and Climate Change (MoEFCC). The **Energy Industries** sector continues to be the largest contributor to these emissions, although its share decreased slightly from **59.74**% in 2014 to **56.53**% in 2020, reflecting progress toward cleaner energy sources (**Table 8.2**).

8.5 Overview of Sustainability Energy Indicators: Economic Dimension

8.5.1 Theme- Use and Production Pattern

(i) Sub Theme-Overall Use

Energy Indicator- Energy Use per Capita

This indicator measures the level of energy use on per capita basis and reflects the energy-use patterns and aggregated energy intensity of a society. The indicator is defined as:

(Total annual supply or use of energy) / (mid-year population)

It may be further classified into three (3) categories, which are given as below:
a) Total Primary Energy Supply (TPES) per capita

b) Total Final Energy Consumption (TFEC) of energy per capita
c) Electricity consumption per capita.

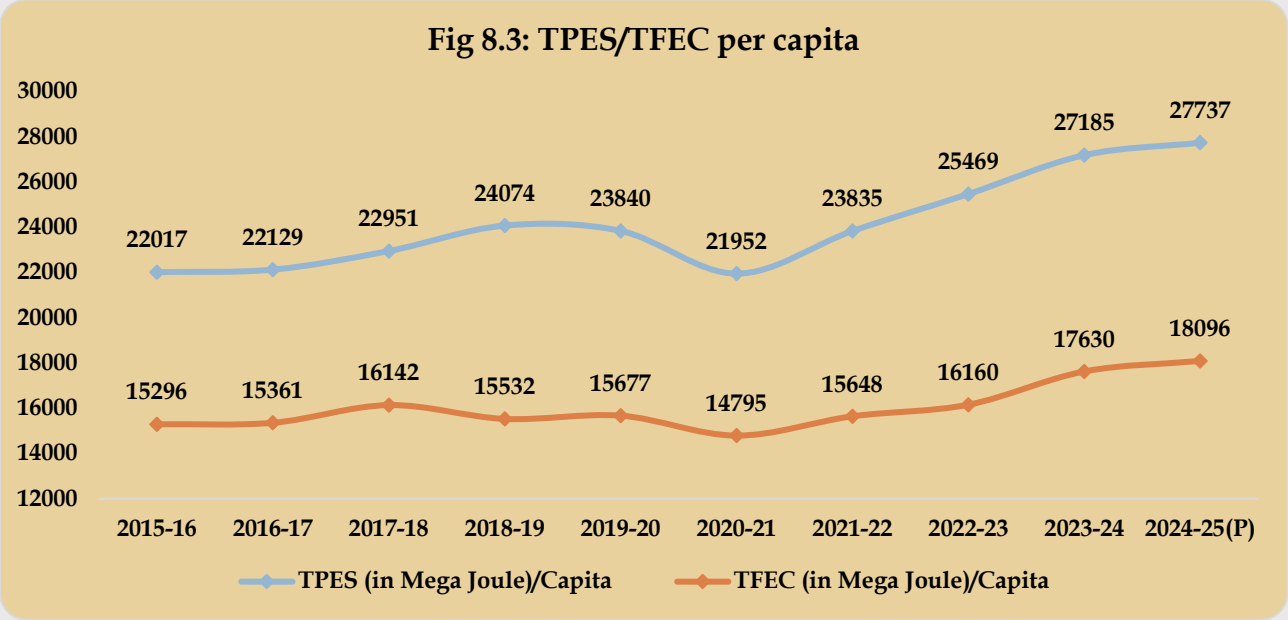


Figure 8.3 shows, from 2015 to 2025, the Total Primary Energy Supply (TPES) increased from **22,017 MJ** to **27,737 MJ**. Similarly, Total Final Energy Consumption (TEFC) grew from **15,296 MJ** in 2015-16 to **18,096 MJ** in 2024-25.

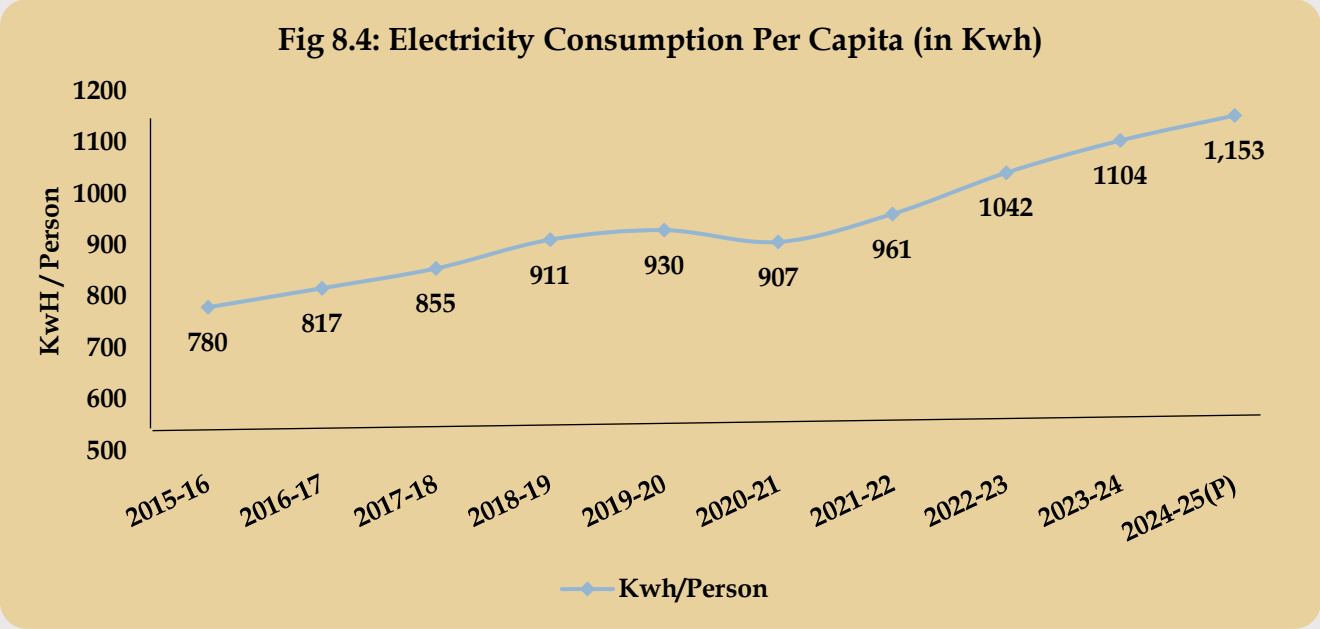


Figure 8.4 shows that the steady increase in electricity consumption per capita from **780 Kwh** in 2015-16 to **1,153 KWh** in 2024-25(P).

(ii) Sub theme -Overall Productivity

Energy Indicator-Energy Use per Unit of GDP

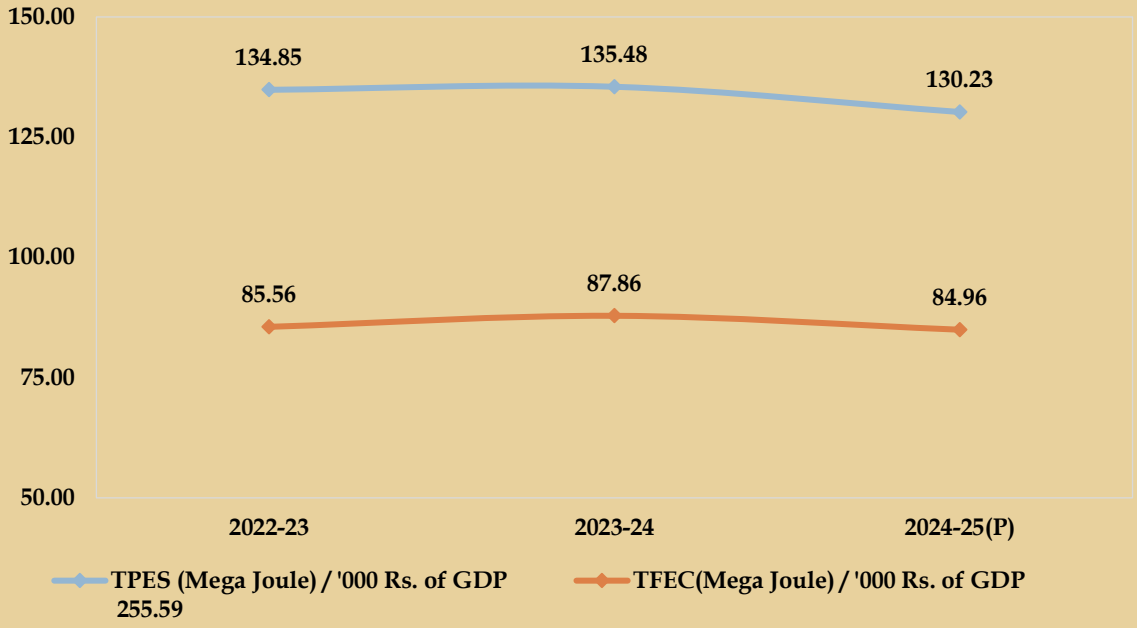
This indicator reflects the trends in overall energy use relative to GDP and is defined as:

(Total supply or use of energy / GDP at constant price)

It has been further classified into three (3) categories, given below:

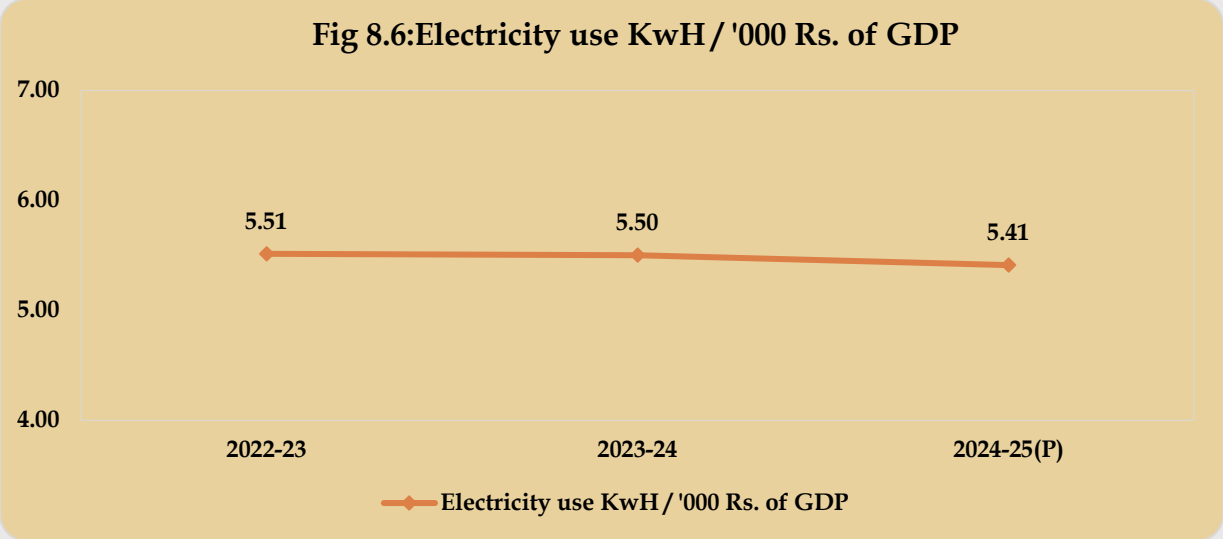
a) Total Primary Energy Supply (TPES) per 000' rupees of GDP
b) Total Final Energy Consumption (TFEC) per 000'rupees of GDP
c) Electricity Use per 000' rupees of GDP

Fig 8.5: TPES/TEFC per 000' rupees of GDP



Note: The figures of FY 2022-23 to 2024-25 have been derived using GDP with base year- 2022-23.

Figure 8.5 displays the overall Productivity of Energy in India has remained consistent over the recent years.



Note: The figures of FY 2022-23 to 2024-25 have been derived using GDP with base year- 2022-23.

Figure 8.6 depicts a consistent pattern of electricity use KwH/'000 Rs. over the recent years.

(iii) Sub theme- Supply Efficiency

Energy Indicator-Efficiency of Energy Conversion and Distribution

This indicator measures the efficiency of energy conversion and distribution systems in various energy supply chains including losses occurring during electricity transmission and distribution, and gas transportation and distribution. Due to constraint of data availability only the losses in transmission of electricity are used. The indicator is calculated as:

(Sold to Ultimate Consumer / Net electricity available for Supply)

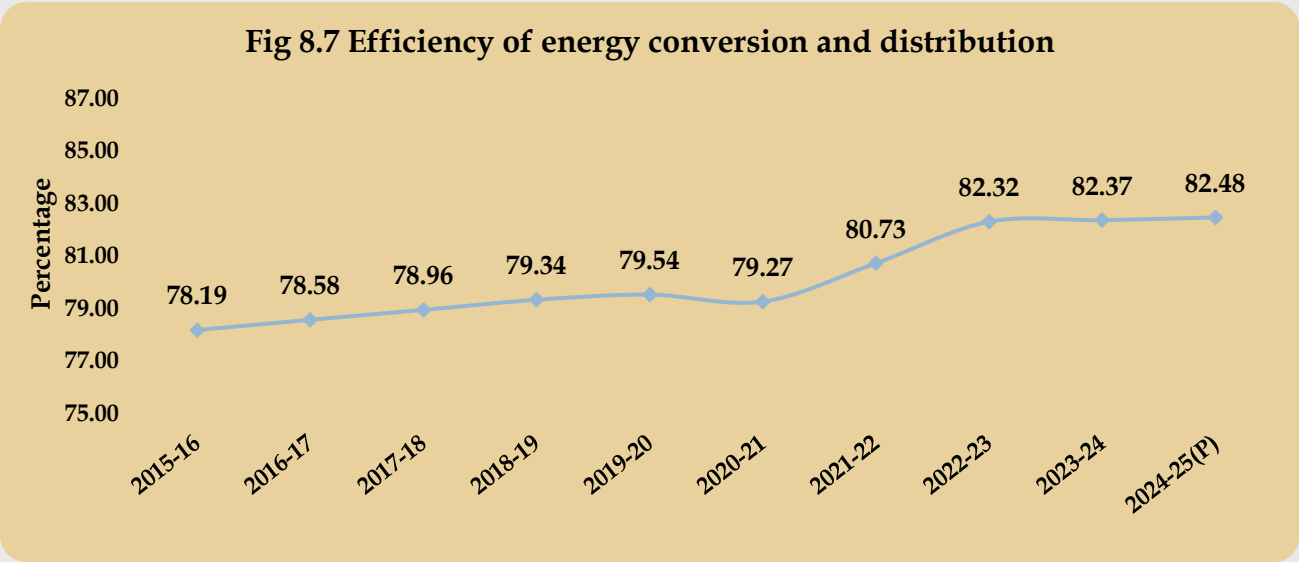


Figure 8.7 shows that the steady incline in Efficiency of energy conversion and distribution from **78.19**% in 2015-16 to **82.48**% in 2024-25 indicates improved efficiency in the electricity grid.

(iv) Sub theme- Production

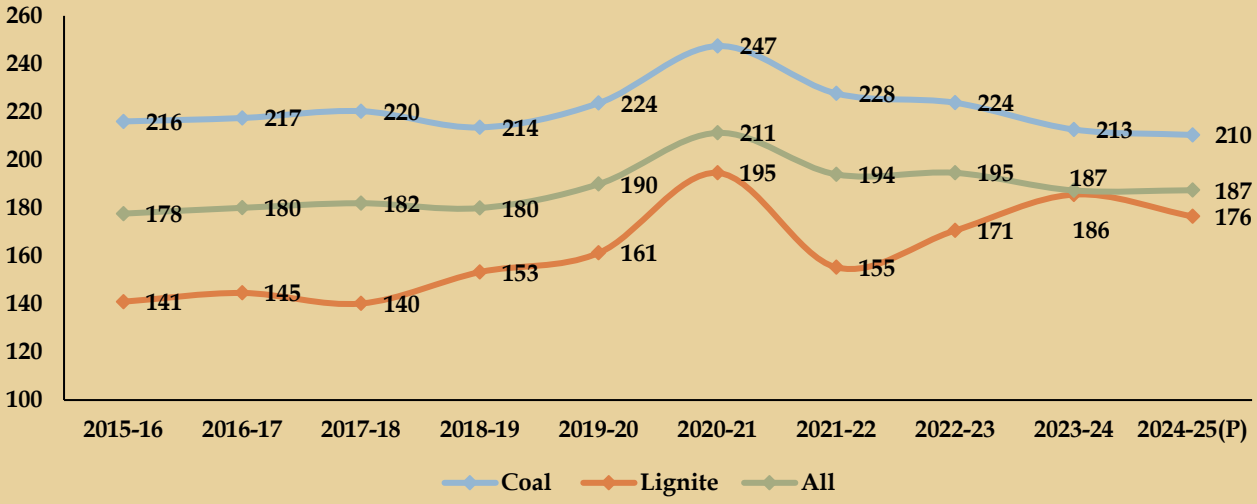
Energy Indicator- Reserve-to-Production Ratio

The purpose of this indicator is to measure the availability of national energy reserves with respect to corresponding fuel production. Reserves are generally defined as *identified resources* (demonstrated and inferred) that are economically recoverable at the time of assessment. The indicator provides a basis for estimating future energy supplies in years with respect to current availability of energy reserves and levels of production. The indicator is computed as:

(Proven energy reserves of a commodity at the end of a year / Total production of that commodity in that year)

Figure 8.8 shows that the coal reserves-to-production ratio, peaked at 247 in FY-2020-21, indicates sufficient long-term coal availability. The lignite ratio steadily increased from 141 in 2015-16 to peaked at 195 in FY-2020-21 and is now at 176 in 2024-25(P), while the combined ratio of coal, lignite, crude oil, and natural gas rose from 178 in 2015-16 to 211 in 2020-21 and is now at 187 in 2024-25.

Fig 8.8: Reserves to Production Ratio



Note: All incudes coal, lignite, Crude Oil and natural Gas

(v) Sub theme- Production

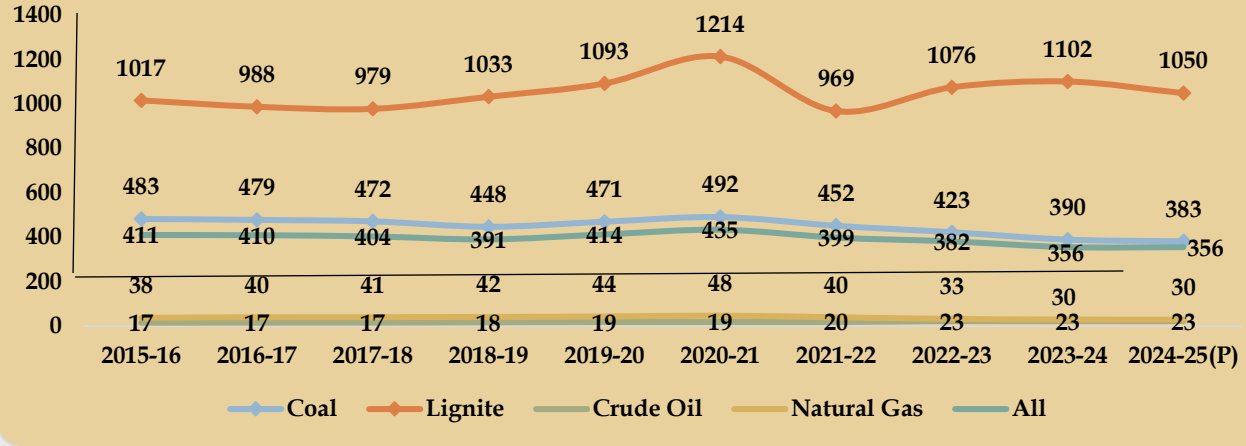
Energy indicator- Resources-to-Production Ratio

The purpose of this indicator is to measure the availability of national energy resources with respect to corresponding fuel production. *Total resources include reserves, and hypothetical and speculative undiscovered resources*. It provides a relative measure of the length of time that resources would last if production were to continue at current levels. The indicator is measured as:

(Total energy resources of a commodity at the end of a year / Total production of that commodity in that year)

Figure 8.9 shows that the resource-to-production ratio increase for crude oil (from 17 in 2015-16 to 23 in 2024-25), indicating more resources available for production. Natural gas fluctuated, peaking at 48 in 2020-21 before decreasing to 30 in 2024-25. Coal's ratio decreased from 483 in 2015-16 to 383 in 2024-25, suggesting improved efficiency or reduced resources. Lignite's ratio increased from 1017 in 2015-16 to 1050 in 2024-25, indicating growing reliance or reduced production efficiency.

Fig 8.9: Resources to Production Ratio



Note: All incudes coal, lignite, Crude Oil and natural Gas

(vi) Sub theme- End use

Energy Indicator- Sectoral Energy Intensities

This indicator measures the sectoral energy-intensity of major energy-consuming sectors. How efficiently the technologies are being used in different sectors to improve the efficiency of energy-generation, gets captured in this Indicator. The use of sophisticated and

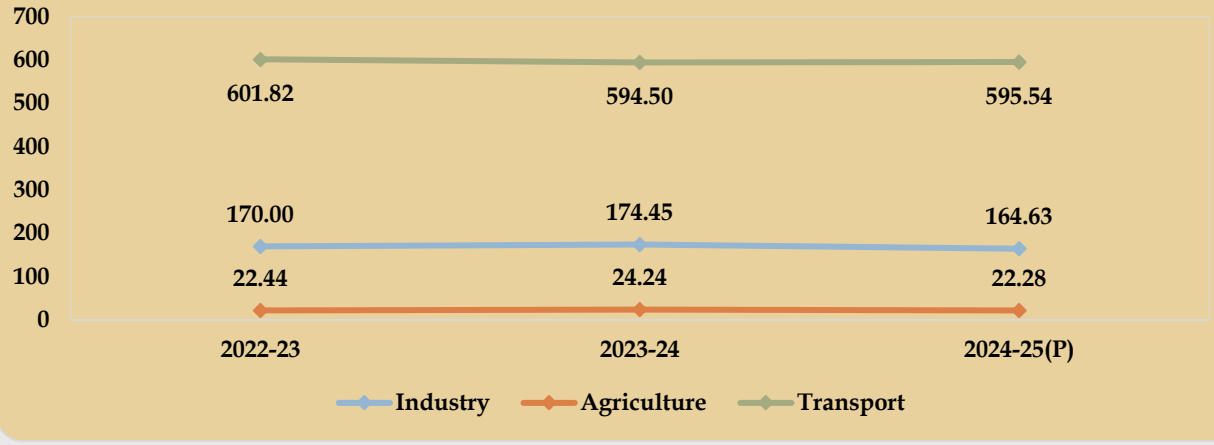
environment-friendly technology in generating the revenue of any sector will imply lesser use of energy to do so. The indicator has been measured as:

(Amount of energy consumed by a sector / GVA of that sector)

Trends in Energy Intensities-

Figure 8.10 provides trends on energy intensity of Industry, agriculture and transport sectors. We can witness a consistent movement of the graphs pertaining to the Energy intensity for agriculture, industry and transport sector over the past three years.

Fig 8.10. : Energy Intensity (in MJ/'000 Rs. of GVA) of major sectors



Note: The figures of FY 2022-23 to 2024-25 have been derived using GDP with base year- 2022-23.

(vii) Sub theme- End use

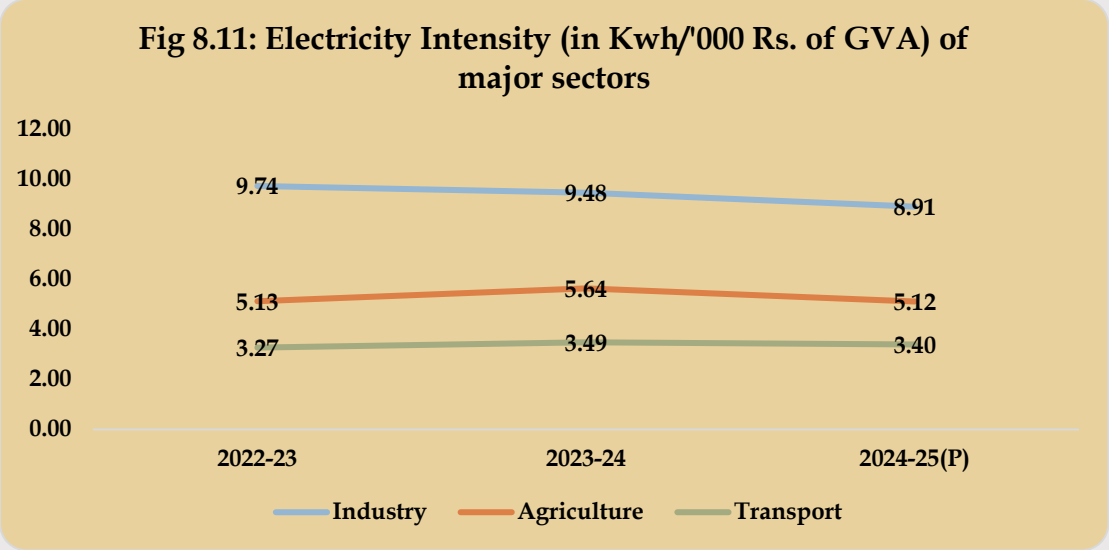
Energy Indicator- Sectoral Electricity Intensities

This indicator measures the sectoral electricity-intensity of major energy-consuming sectors. The indicator is closely related to the *Sectoral Energy Indicator*. It aims to measure how efficiently the technologies are being used in different sectors to improve the efficiency of electricity consumed. The indicator has been measured as:

(Amount of electricity consumed against a sector / GVA of that sector)

Trends in Electricity Intensities-

Figure 8.11 shows trends in electricity intensity of industry, agriculture and transport sectors during the period 2022-23 to 2024-25(P)-



Note: The figures of FY 2022-23 to 2024-25 have been derived using GDP with base year- 2022-23.

(viii) Sub theme- Diversification (Fuel Mix)

Energy Indicator- Fuel share in Total Primary Energy Supply (TPES)

This indicator measures the share of different energy-commodities in the Total Primary Energy Supply (TPES) and it also helps us to understand the dependencies on specific commodities over time and shift from fossil fuel to non-fossil fuel. This indicator is measured as:

Energy supplied by a particular energy-commodity / Total Primary Energy Supply

Fig 8.12: Fuel Share of energy commodities in TPES

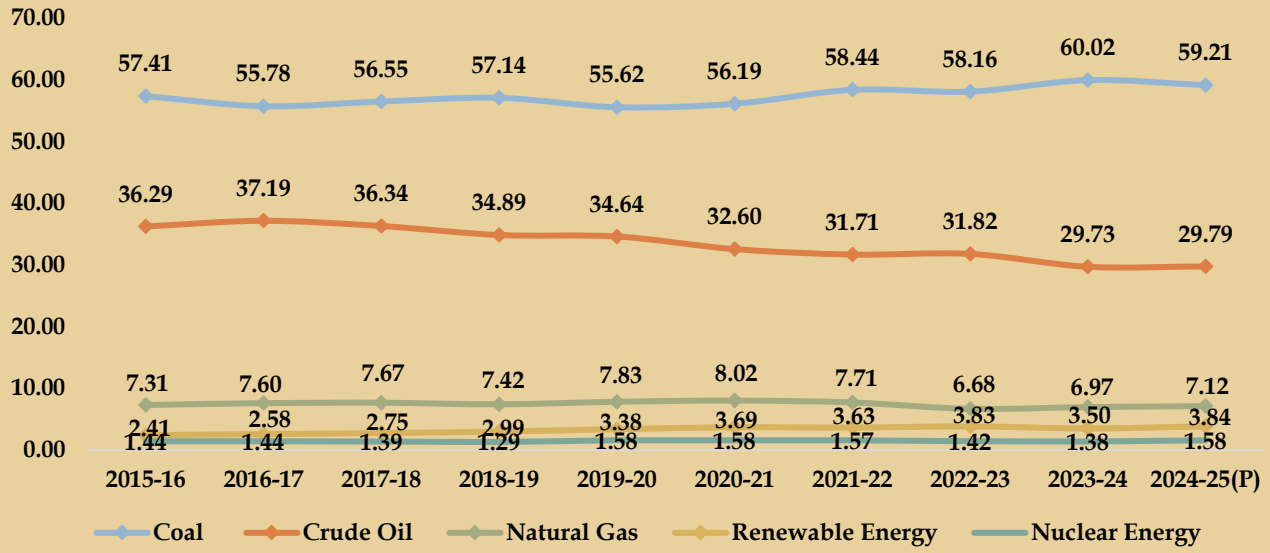


Figure 8.12 shows that coal remains the dominant energy source in India's TPES, while crude oil's share has gradually decreased. Natural gas remains at 7.12% in FY 2024-25(P), nuclear energy and renewable energy contribution has remained low and stable.

(ix) Sub theme- Diversification (Fuel Mix)

Energy Indicator- Fuel share in Total Final Energy Consumption (TFEC)

This indicator measures the share of different energy-commodities in the total final consumption of energy. The indicator depicts the dependency of the nation over a particular fuel and also helps us to understand that in a country like Indian where we are having an increasing demand of energy, how much we have able to meet from which energy-commodity. This indicator is measured as:

Energy consumed from a particular energy-commodity / Total Final Energy Consumption (TFEC)

Fig 8.13 : Fuel Share of energy commodities in TFEC

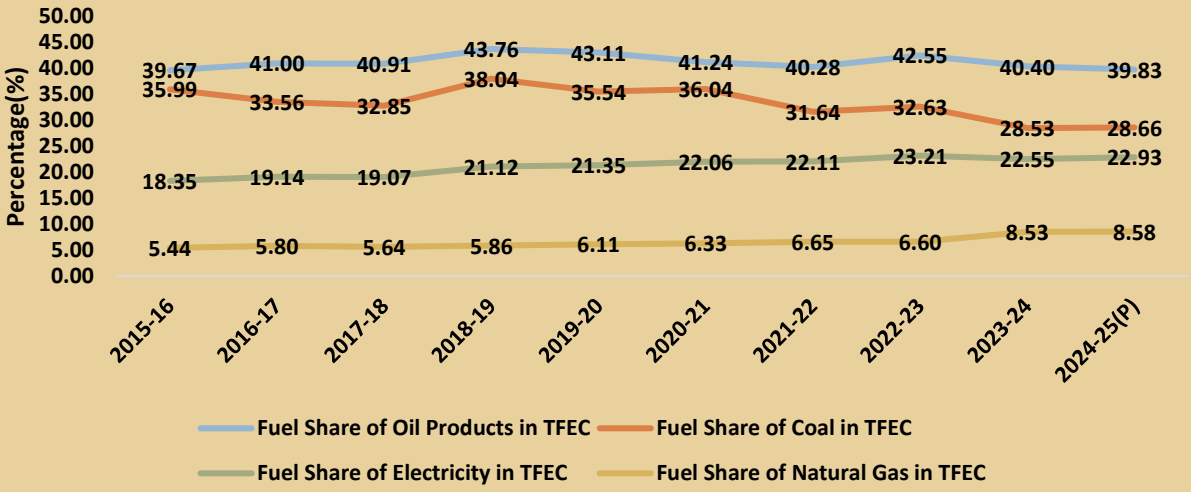


Figure 8.13 shows a gradual shift in India's Total Final Energy Consumption, with a slight decline in oil products and coal use, an increase in electricity consumption, and a modest rise in natural gas usage, indicating a move toward cleaner energy sources.

(x) Sub theme- Diversification (Fuel Mix)
Energy Indicator-Fuel share in electricity

This indicator measures the share of different energy-commodities in the total generation of electricity. The indicator depicts the dependency of the nation over a fossil fuel, what is the trend of use of thermal/non-thermal source in the generation of the electricity in India.

Table 8.13 shows that thermal energy's share in electricity generation decreased from 83% in 2015-16 to 77% in 2024-25. Nuclear energy remained stable at 2%-3%, while hydro energy's share declined from around 9% in 2015-16 to 7% in 2024-25. Renewable energy (excluding hydro) grew significantly from 5% in 2015-16 to 13% by 2024-25, reflecting a shift towards cleaner energy sources.

8.4.2 Theme- Security

(i) Sub theme- Imports

Energy Indicator- Net energy import dependency

This indicator measures the extent to which a country relies on imports to meet its energy requirements. This indicator is computed as:

(Net imports of the energy commodity / Total Supply of that energy commodity)

Petroleum products are excluded as India is net exporter of them and have considered only the import value of different energy sources to calculate the indicator.

Fig. 8.14: Energy Import Dependency of major energy commodities

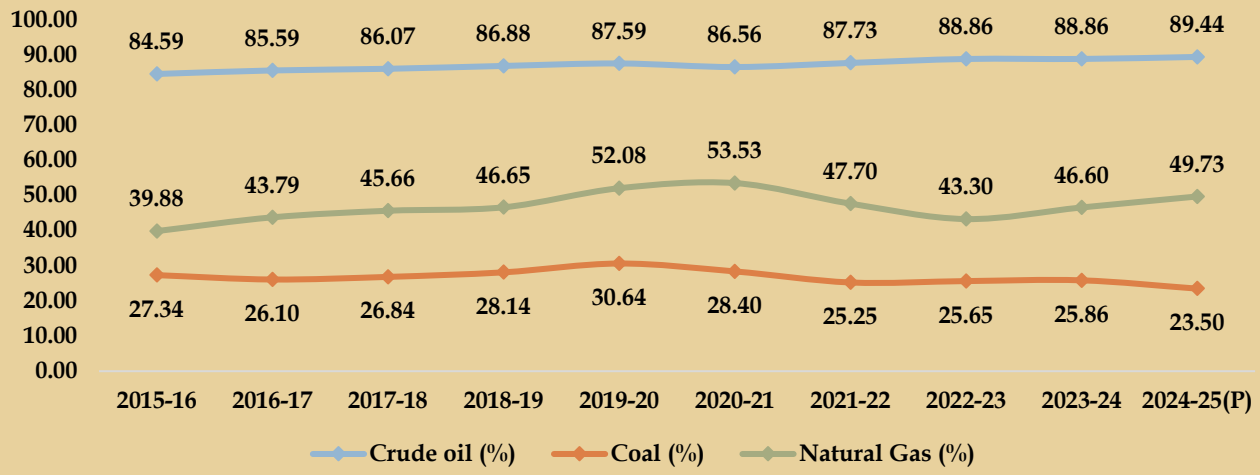


Figure 8.14 shows that India's dependency on energy imports remains high for crude oil, with a slight increase over the years, reaching **89.44**% in 2024-25. The import dependency for coal fluctuates but decreases slightly over time, from **27.34**% in 2015-16 to **23.50**% in 2024-25. Natural gas import dependency rises significantly from **39.88**% in 2015-16 to **49.73**% in 2024-25, reflecting growing reliance on imported natural gas.

Table 8.1: Per-Capita Primary Energy Consumption and Energy Intensity

Year	Energy Consumption# in petajoules	Mid year population* (in Thousands)	GDP at 2011-12 prices** (Rs. crore)	Per Capita Energy Consumption (in Megajoules)	Energy Intensity*** (Megajoules per rupee)
2015-16	29,063	1,284,350	11,369,493	22,629	0.2556
2016-17	29,714	1,299,434	12,308,193	22,867	0.2414
2017-18	30,966	1,313,815	13,144,582	23,569	0.2356
2018-19	32,420	1,328,206	13,992,914	24,409	0.2317
2019-20	32,289	1,342,586	14,534,641	24,050	0.2222
2020-21	29,587	1,356,980	13,694,869	21,803	0.2160
2021-22	32,903	1,370,311	15,021,846	24,011	0.2190
2022-23	35,155	1,382,894	26,117,627	25,421	0.1346
2023-24	38,129	1,395,478	28,000,767	27,323	0.1362
2024-25(P)	39,847	1,408,054	29,988,619	28,300	0.1329
Growth rate of 2023-24 over 2022-23 (%)	**8.46**	**0.91**	**7.21**	**7.48**	**1.16**
CAGR 2014-15 to 2023-24(P) (%)	**3.31**	**1.07**	**11.48**	**2.21**	**-7.33**

P: Provisional

Energy Intensity=Amount of energy consumed for producing one unit of Gross Domestic Product.

* *Mid-Year (as on 1st October) population has been taken from Population Projections for India and states 2011 – 2036*; *Report of the Technical Group on Population Projections, July, 2020*

** GDP estimates are at base 2011-12 price for FY-2015-15 to 2021-22 and at base 2022-23 price for FY 2022-23 to 2024-25 as per the National Accounts Divisions's, NSO, MoSPI.

*** The abrupt change in the Intensity figure from FY: 2022-23 onwards is due to shifting of base year of GDP from FY: 2011-12 to FY: 2022-23. The figures of the previous years will be updated once the back-series data of GDP will be finalized.

Energy consumption from Primary Energy Resources

Table 8.2 India's Total Emissions related to Energy Sector

(GgCO2 Equivalent)*

GHG sources and removals	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
A. Fuel Combustion activities	**1,604,503**	**1,704,639**	**1,774,788**	**1,871,709**	**2,055,017**	**2,092,250**	**2,168,704**	**2,307,753**	**2,338,432**	**2,211,513**
1. Energy Industries	924,258	1,005,813	1,053,981	1,140,983	1,197,123	1,206,587	1,255,716	1,324,177	1,331,901	1,265,328
2. Manufacturing industries & construction	338,816	343,603	356,771	351,910	394,092	397,739	393,312	412,086	404,676	390,667
3. Transport	221,202	236,020	241,253	250,173	261,517	274,434	290,732	307,328	314,817	297,371
4. Other sectors	120,228	119,202	122,783	128,643	202,286	213,490	228,944	264,162	287,039	258,147
B. Fugitive emission from fuels	**47,426**	**43,047**	**38,771**	**38,057**	**37,084**	**37,179**	**35,559**	**36,572**	**35,898**	**26,896**
1. Solid fuels	16,388	16,086	15,568	16,547	16,614	17,121	16,065	16,862	17,017	16,709
2. Oil and natural gas	31,037	26,961	23,203	21,511	20,470	20,058	19,494	19,710	18,880	10,187
Total Energy (A+B)	**1,651,928**	**1,747,686**	**1,813,559**	**1,909,766**	**2,092,102**	**2,129,428**	**2,204,263**	**2,344,325**	**2,374,330**	**2,238,409**

Source: India Fourth Biennial Update Report to The United Nations Framework Convention on Climate Change, Ministry of Environment, Forest and Climate Change, December 2024

*GgCO2 Equivalent : Gigagrams of carbon dioxide equivalent

Table 8.3 Energy Indicators (Economic Dimension) for Sustainability from FY : 2015-16 to FY : 2024-25(P)

Theme	Sub-theme	Indicator	Category	Unit	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25(P)
Use and Production Pattern	Overall Use	Energy use per capita	TPES	toe/person	0.5245	0.5267	0.5467	0.5733	0.5676	0.5233	0.5680	0.6058	0.6493	0.6625
			TFC	toe/person	0.3653	0.3669	0.3856	0.3710	0.3744	0.3534	0.3738	0.3860	0.4211	0.4322
			Electricity	Kwh/person	779.53	816.65	855.09	910.98	929.61	906.58	960.92	1041.52	1103.99	1152.63
	Overall Productivity	Energy use per unit of GDP	TPES	toe/000'rupees	0.0059	0.0056	0.0055	0.0054	0.0052	0.0052	0.0052	0.0052	0.0032	0.0031
			TFC	toe/000'rupees	0.0041	0.0039	0.0039	0.0035	0.0035	0.0035	0.0034	0.0020	0.0021	0.0020
			Electricity	Kwh/000'rupees	8.81	8.62	8.55	8.65	8.59	8.98	8.77	8.91	5.50	5.41
	Supply Efficiency	Efficiency of energy conversion and distribution	All	%	78.19	78.58	78.96	79.34	79.54	79.27	80.73	82.32	82.37	82.48
	Production	Reserves-to-production ratio	All	years	178	180	182	180	190	211	194	195	187	187
			coal	years	216	217	220	214	224	247	228	224	213	210
			lignite	years	141	145	140	153	161	195	155	171	186	176
		Resources-to-production ratio	All	years	411	410	404	391	414	435	399	382	356	353
			Crude oil	years	17	17	17	18	19	19	20	23	23	23
			Natural Gas	years	38	40	41	42	44	48	40	33	30	30
			Coal	years	483	479	472	448	471	492	452	423	390	383
			Lignite	years	1017	988	979	1033	1093	1214	969	1076	1102	1050
	End Use	Sectoral Energy Intensities	Industry	toe/000'rupees	0.00814	0.00749	0.00745	0.00662	0.00674	0.00658	0.00607	0.00406	0.00417	0.00393
			Agriculture	toe/000'rupees	0.00117	0.00119	0.00117	0.00122	0.00113	0.00111	0.00110	0.00054	0.00058	0.00053
			Transport	toe/000'rupees	0.01844	0.01868	0.01990	0.01886	0.01954	0.02110	0.01895	0.01437	0.01420	0.01422
		Sectoral Electricity Intensities	Industry	Kwh/000'rupees	13.72	13.26	13.38	14.10	14.72	14.07	13.69	14.35	9.48	8.91
			Agriculture	Kwh/000'rupees	10.72	11.07	10.83	11.36	10.59	10.67	10.53	10.57	5.64	5.12
			Transport	Kwh/000'rupees	3.17	2.87	2.96	3.04	3.05	3.05	3.60	4.56	3.49	3.40
	Diversification (Fuel Mix)	Fuel shares in TPES	Crude Oil	%	36.38	37.32	36.44	34.99	34.75	32.67	31.79	31.95	29.73	29.79
			Natural Gas	%	7.32	7.63	7.70	7.44	7.85	8.04	7.73	6.71	6.97	7.12
			Coal	%	57.56	55.97	56.70	57.31	55.79	56.30	58.57	58.40	60.02	59.21
			Nuclear	%	1.45	1.44	1.39	1.29	1.59	1.58	1.58	1.43	1.38	1.58
			Renewable Energy	%	2.42	2.59	2.76	3.00	3.39	3.69	3.64	3.85	3.50	3.84
		Fuel share in TFC	Oil Products	%	39.67	41.00	40.91	43.76	43.11	41.24	40.28	42.55	40.40	39.83
			Natural Gas	%	5.44	5.80	5.64	5.86	6.11	6.33	6.65	6.60	8.53	8.58
			Coal	%	35.99	33.56	32.85	38.04	35.54	36.04	31.64	32.63	28.53	28.66
			Electricity	%	18.35	19.14	19.07	21.12	21.35	22.06	22.11	23.21	22.55	22.93
		Fuel share in electricity	Thermal	%	83.03	82.64	81.88	80.86	78.61	78.22	77.75	77.02	78.72	77.01
			Nuclear	%	2.80	2.69	2.59	2.39	2.86	2.69	2.78	2.51	2.45	2.75
			Hydro	%	9.09	8.71	8.51	8.53	9.62	9.43	8.97	8.87	6.86	7.24
			RE (other than Hydro)	%	5.08	5.96	7.02	8.23	8.91	9.66	10.49	11.60	11.98	13.00
Security	Imports	Net energy import dependency	Overall	%	37.95	38.85	39.61	40.35	42.53	42.12	40.31	39.37	40.26	40.63
			Crude Oil	%	84.59	85.59	86.07	86.88	87.59	86.56	87.73	88.86	88.86	89.44
			Natural gas	%	39.88	43.79	45.66	46.65	52.08	53.53	47.70	43.30	46.60	49.73
			Coal	%	27.34	26.10	26.84	28.14	30.64	28.40	25.25	25.65	25.86	23.50
			Electricity	%	0.01	-0.08	-0.14	-0.26	-0.19	0.00	-0.08	-0.34	-0.26	-0.15
	Strategic Fuel Stocks	Stocks of critical fuels per corresponding fuel consumption	Coal	%	7.81	9.18	6.90	5.95	8.52	12.03	10.61	7.57	8.79	10.31

Note: The difference in the figures (net energy import dependency- crude oil) computed by MoPNG and MoSPI arises due to methodolgical differences - MoSPI using data from supply side and MoPNG using consumption side.

Table 8.4: Energy Use per Capita in India			
Year	**TPES (in Mega Joule)/Capita**	**TFEC (in Mega Joule)/Capita**	**Electricity Consumption per capita (Kwh)***
2015-16	22017	15296	780
2016-17	22129	15361	817
2017-18	22951	16142	855
2018-19	24074	15532	911
2019-20	23840	15677	930
2020-21	21952	14795	907
2021-22	23835	15648	961
2022-23	25469	16160	1042
2023-24	27185	17630	1104
2024-25(P)	27737	18096	1153
*End use			

Table 8.5: Energy Consumption per 000'rupees of GDP			
Year	****TPES (Mega Joule) / '000 Rs. of GDP**	****TFEC(Mega Joule) / '000 Rs. of GDP**	****Electricity use KwH / '000 Rs. of GDP**
2015-16	248.71	172.79	8.81
2016-17	233.63	162.18	8.62
2017-18	229.40	161.34	8.55
2018-19	228.51	147.43	8.65
2019-20	220.21	144.81	8.59
2020-21	217.51	146.60	8.98
2021-22	217.42	142.75	8.77
2022-23	134.85	85.56	5.51
2023-24	135.48	87.86	5.50
2024-25(P)	130.23	84.97	5.41
** The abrupt change in the figure from FY: 2022-23 onwards is due to shifting of base year of GDP from FY: 2011-12 to FY: 2022-23. The figures of the previous years will be updated once the back-series data of GDP will be finalized.			

Table 8.6: Efficiency of energy conversion and distribution			
Year	**Net Electricity Available for Supply**	**Sold to Ultimate Consumers**	**Efficiency of energy conversion and distribution (%)**
2015-16	1,104,228	863,364	78.19
2016-17	1,163,290	914,093	78.58
2017-18	1,232,505	973,131	78.96
2018-19	1,307,685	1,037,518	79.34
2019-20	1,323,048	1,052,346	79.54
2020-21	1,314,025	1,041,656	79.27
2021-22	1,413,903	1,141,485	80.73
2022-23	1,535,666	1,264,103	82.32
2023-24	1,638,977	1,350,092	82.37
2024-25(P)	1,725,254	1,422,948	82.48

Table 8.7 Reserves to Production Ratio of Coal, Lignite and All			
Year	**Coal**	**Lignite**	**All**
2014-15	216	128	175
2015-16	216	141	178
2016-17	217	145	180
2017-18	220	140	182
2018-19	214	153	180
2019-20	224	161	190
2020-21	247	195	211
2021-22	228	155	194
2022-23	224	171	195
2023-24	213	186	187
2024-25(P)	210	176	187
Note : All incudes Coal, Lignite, Crude Oil and Natural Gas			

Table 8.8: Resources to Production Ratio of all Energy Commodities					
Year	**Coal**	**Lignite**	**Crude Oil**	**Natural Gas**	**All**
2015-16	483	1017	17	38	411
2016-17	479	988	17	40	410
2017-18	472	979	17	41	404
2018-19	448	1033	18	42	391
2019-20	471	1093	19	44	414
2020-21	492	1214	19	48	435
2021-22	452	969	20	40	399
2022-23	423	1076	23	33	382
2023-24	390	1102	23	30	356
2024-25(P)	383	1050	23	30	356
Note: All includes coal, lignite, Crude Oil and Natural Gas					

Table 8.9 Energy Intensity (in MJ/'000 Rs. of GVA) of major sectors			
Year	****Industry**	****Agriculture**	****Transport**
2015-16	340.86	48.85	771.96
2016-17	313.50	49.63	782.17
2017-18	311.98	48.95	833.03
2018-19	277.20	50.98	789.48
2019-20	282.02	47.48	818.18
2020-21	275.50	46.55	883.62
2021-22	254.32	45.85	793.46
2022-23	170.00	22.44	601.82
2023-24	174.45	24.24	594.50
2024-25(P)	164.63	22.28	595.54
** The abrupt change in the figure from FY: 2022-23 onwards is due to shifting of base year of GDP from FY: 2011-12 to FY: 2022-23. The figures of the previous years will be updated once the back-series data of GDP will be finalized.			

Table 8.10: Electricity Intensity (in Kwh/'000 Rs. of GVA) of major sectors			
Year	**Industry	**Agriculture	**Transport
2015-16	13.72	10.72	3.17
2016-17	13.26	11.07	2.87
2017-18	13.38	10.83	2.96
2018-19	14.10	11.36	3.04
2019-20	14.72	10.59	3.05
2020-21	14.07	10.67	3.05
2021-22	13.69	10.53	3.60
2022-23	9.74	5.13	3.27
2023-24	9.48	5.64	3.49
2024-25(P)	8.91	5.12	3.40

** The abrupt change in the figure from FY: 2022-23 onwards is due to shifting of base year of GDP from FY: 2011-12 to FY: 2022-23. The figures of the previous years will be updated once the back-series data of GDP will be finalized.

Table 8.11 Fuel Share of major Energy Commodities in Total Primary Energy Supply (TPES)					
Year	Coal	Crude Oil	Natural Gas	Renewable Energy	Nuclear Energy
2015-16	57.41	36.29	7.31	2.41	1.44
2016-17	55.78	37.19	7.60	2.58	1.44
2017-18	56.55	36.34	7.67	2.75	1.39
2018-19	57.14	34.89	7.42	2.99	1.29
2019-20	55.62	34.64	7.83	3.38	1.58
2020-21	56.19	32.60	8.02	3.69	1.58
2021-22	58.44	31.71	7.71	3.63	1.57
2022-23	58.16	31.82	6.68	3.83	1.42
2023-24	60.02	29.73	6.97	3.50	1.38
2024-25(P)	59.21	29.79	7.12	3.84	1.58

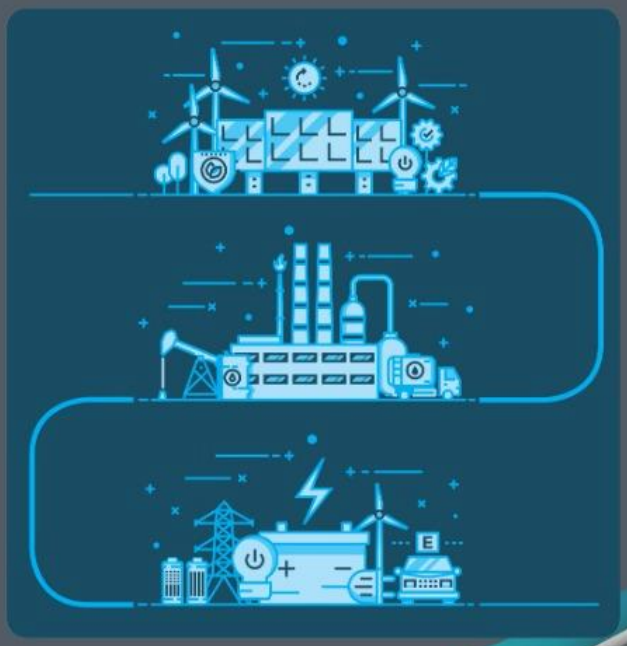
Table 8.12: Fuel share of different energy commodities in Total Final Energy Consumption (TFEC)				
Year	**Oil Products**	**Coal#**	**Electricity**	**Natural Gas**
2015-16	39.67	35.99	18.35	5.44
2016-17	41.00	33.56	19.14	5.80
2017-18	40.91	32.85	19.07	5.64
2018-19	43.76	38.04	21.12	5.86
2019-20	43.11	35.54	21.35	6.11
2020-21	41.24	36.04	22.06	6.33
2021-22	40.28	31.64	22.11	6.65
2022-23	42.55	32.63	23.21	6.60
2023-24	40.40	28.53	22.55	8.53
2024-25(P)	39.83	28.66	22.93	8.58
# includes lignite				

Table 8.13: Share of different fuel in Total Generation of Electricity (in percentage)						
	Non-Renewable			**Renewable**		
Year	**Thermal**	**Nuclear**	**Total**	**Hydro**	**RE (other than hydro)**	**Total**
2015-16	83.03	2.80	85.83	9.09	5.08	14.17
2016-17	82.64	2.69	85.34	8.71	5.96	14.66
2017-18	81.88	2.59	84.47	8.51	7.02	15.53
2018-19	80.86	2.39	83.24	8.53	8.23	16.76
2019-20	78.61	2.86	81.47	9.62	8.91	18.53
2020-21	78.22	2.69	80.91	9.43	9.66	19.09
2021-22	77.75	2.78	80.53	8.97	10.49	19.47
2022-23	77.02	2.51	79.53	8.87	11.60	20.47
2023-24	78.54	2.46	81.00	6.90	12.10	19.00
2024-25(P)	77.01	2.75	79.76	7.24	13.00	20.24

Table 8.14: Energy Import Dependency of energy commodities					
Year	**Crude oil (%)**	**Coal (%)**	**Natural Gas (%)**	**Electricity (%)**	**Overall (%)**
2015-16	84.59	27.34	39.88	0.01	37.95
2016-17	85.59	26.10	43.79	-0.08	38.85
2017-18	86.07	26.84	45.66	-0.14	39.61
2018-19	86.88	28.14	46.65	-0.26	40.35
2019-20	87.59	30.64	52.08	-0.19	42.53
2020-21	86.56	28.40	53.53	0.00	42.12
2021-22	87.73	25.25	47.70	-0.08	40.15
2022-23	88.86	25.65	43.30	-0.34	39.37
2023-24	88.86	25.86	46.60	-0.26	40.26
2024-25(P)	89.44	23.50	49.73	-0.15	40.63

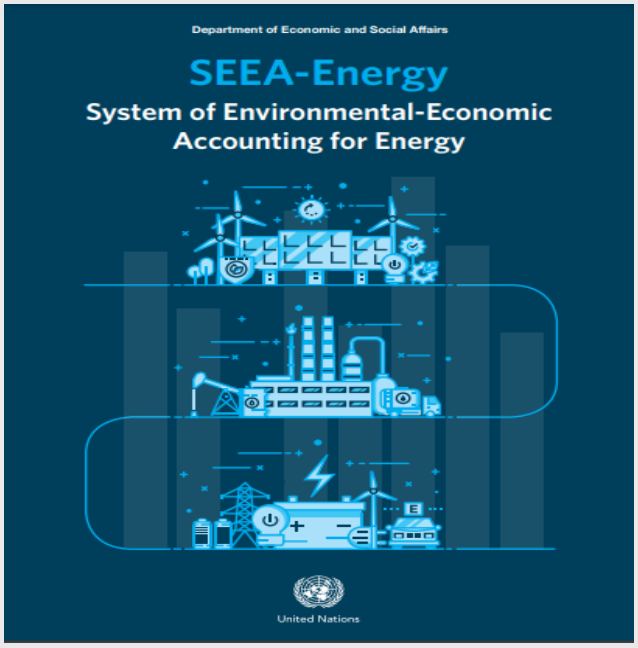
Chapter Nine

Energy Accounts



CHAPTER 9
Energy Accounts

9.1 SEEA-Energy



With the enormous potential of India's energy sector, comes a sense of responsibility towards the nation and the globe, at large. Tapping into energy resources while ignoring the environmental concerns will serve good to none. Therefore, the effect of energy supply and use on the environment has emerged as a critical policy issue. Hence, it becomes pertinent to know the proper supply and usage of energy especially in the context of sustainable development. The SEEA-Energy provides the framework for the compilation of the physical and monetary supply and use tables and also for having an idea about the stock of energy available in the country at a particular point of time.

For the purpose of compiling Energy Accounts for the country, the standard framework accepted internationally is the SEEA-Energy Framework. It is entirely consistent with the SEEA Central Framework and follows a similar accounting structure to the System of National Accounts (SNA). By doing so, the SEEA-Energy allows us to develop indicators and conduct analysis on the economy-environment nexus, with a focus on energy.

The System of Environmental Economic Accounting for Energy (SEEA-Energy[7]) is a multipurpose conceptual framework for organizing energy-related statistical information. It supports analysis of both the role of energy within the economy and the relationship between energy-related activities and the environment. At the core of SEEA-Energy is an accounting approach that records the stocks and flows of energy within the territory of reference. The value added of SEEA-Energy lies in its ability to bring a broader and more structured perspective to bear on the already available energy related information. Through their coherence with the SNA, the data in the Energy Accounts can be easily linked with other information collected for national accounts, which allows for a more detailed and policy-relevant analysis of energy information.

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The capacity of SEEA-Energy to link energy accounts with economic and other environmental accounts underlines its power. Indicators/statistics generated from SEEA-Energy Accounts can also enhance the understanding of issues related to the effects of using economic instruments (such as tradable carbon emission permits) on both the economy and the environment. Those effects may include impacts on energy prices, household spending and business profitability and, crucially, on emissions of carbon generated by domestic producers and as embodied in imports.

SEEA-Energy has a close relationship with IRES (International Recommendation on Energy Statistics)[10], which contributes valuable inputs into the production of the tables and accounts of SEEA-Energy. In particular, IRES supports the use of the harmonized definitions of energy products in accordance with the Standard International Energy Product Classification (SIEC)[11] and offer guidance regarding data sources and data compilation.

The Energy Accounts, as described in SEEA, comprise three types of accounts, namely: Asset Accounts, Physical Supply and Use Tables (PSUT) and Monetary Supply and Use Tables (MSUT).

9.1.1 Asset Accounts for Energy

The purpose of an asset account is to record the opening and closing stock of the assets and the various types of changes in stock over an accounting period. The asset accounts in SEEA-Energy are compiled only for minerals and energy resources. These accounts provide valuable information to assess the fact whether the current patterns of economic activity are depleting and/or degrading the available mineral and energy resources. In addition, the information on the asset accounts can help in the management of mineral and energy resources.

Mineral and energy resources within SEEA-Energy include known deposits of oil resources, natural gas resources, coal and peat resources, and uranium and thorium resources, including those with no current economic value. These resources are defined more broadly than in the SNA 2008, which includes only those inputs that meet the definition of an economic asset. In the SEEA Central Framework, mineral and energy resources include known deposits of oil resources, natural gas resources, coal and peat resources, non-metallic minerals and metallic minerals. In SEEA-Energy, mineral and energy resources are restricted to those resources that can become energy products.

[10] https://unstats.un.org/unsd/energystats/methodology/documents/IRES-web.pdf
[11] https://unstats.un.org/unsd/classifications/Family/Detail/2007

Known deposits of minerals and energy resources are categorized into three classes, based on criteria from the United Nations Framework Classification (UNFC) 2009[12]:

(a) **Class A**: Commercially Recoverable Resources which includes on-production projects, projects approved for development and projects justified for development;
(b) **Class B:** Potentially Commercially Recoverable Resources which includes economic and marginal development projects pending and development projects on hold; and
(c) **Class C:** Non-Commercial and other known deposits which includes unclarified development projects, non-viable development projects, additional quantities in place.

The basic form of the Asset Account is shown in Figure 9.1. It begins with the opening stock of resources and ends with the closing stock of resources. In physical terms, the changes between the beginning and the end of the accounting period are recorded either as additions to or as reductions in the stock. Wherever possible, the nature of the addition or reduction is recorded.

Fig 9.1: Basic Form of an Asset Account

Basic Form of Asset Account
Opening stock of resources
Additions to the stock of resources
Growth in stock
Discoveries of new stock
Upward reappraisals
Reclassifications
Total additions to stock
Reductions in the stock of resources
Extractions
Normal loss of stock
Catastrophic losses
Downward reappraisals
Reclassifications
Total reductions in stock
Revaluation of the stock of resources*
Closing stock of resources

**Applicable only for Asset Accounts in monetary terms. Source: SEEA-Energy*

[12] https://unece.org/fileadmin/DAM/energy/se/pdfs/UNFC/unfc2009/UNFC2009_ES39_e.pdf

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According to SEEA-Energy, there are three types of additions to the stock of the Energy Assets:

- **Discoveries:** Discoveries should incorporate estimates of the quantity of new deposits found during an accounting period. To be regarded as a discovery, the new deposit must be a known deposit – i.e., in Class A, B or C. In situations, in which a quantity of potential deposits becomes known to a higher degree of confidence, this increase should be treated as discoveries. Discoveries should be recorded by type of resource and by category of resource.

- **Upward reappraisals:** Reappraisals should only pertain to known deposits. They will relate to additions in the estimated available stock of a specific deposit, or to changes in the categorization of specific deposits between Class A, B or C based on changes in geological information, technology, resource price or a combination of these factors.

- **Reclassifications:** Reclassifications may occur if certain deposits are opened or closed to mining operations due to a government decision concerning the access rights to a deposit. All other changes in the quantity of known deposits should be treated as reappraisals. Reclassifications may conceivably be recorded if asset accounts for energy resources are being compiled by institutional sector.

There are four types of reductions in the stock of energy assets:

- **Extraction:** Estimates of extraction should reflect the quantity of the resource physically removed from the deposit. It should exclude mining overburden, i.e., the quantity of soil and other material moved in order to extract the resource. The quantity should also be estimated before any refinement or processing of the resource is undertaken. Estimates of extraction should include estimates of illegal extraction, either by residents or non-residents, as these amounts reduce the availability of the resource.

- **Catastrophic losses:** Catastrophic losses are rare for most energy resources. While flooding and collapsing of mines do occur, the deposits continue to exist and can, in principle, be recovered. The issue in this case is one of economic viability of extraction rather than of actual loss of the resource itself. An exception to this general principle concerns oil wells that can be destroyed by fire or become unstable for other reasons, resulting in significant losses of oil resources. Losses of oil and related resources in this situation should be treated as catastrophic losses.

- **Downward reappraisals:** Reappraisals should only pertain to known deposits. They will relate to reductions in the estimated available stock of a specific deposit, or to changes in the categorization of specific deposits between Class A, B or C based on changes in geological information, technology, resource price or a combination of these factors; and

- **Reclassifications:** Reclassifications may occur if certain deposits are opened or closed to mining operations due to a government decision concerning the access rights to a deposit. All other changes in the quantity of known deposits should be treated as reappraisals. Reclassifications may conceivably be recorded if asset accounts for energy resources are being compiled by institutional sector.

Monetary asset accounts for mineral and energy resources provide a market-based valuation of the physical stock of mineral and energy resources and the changes in the value of these stocks over time. The same entries are made in monetary terms, although an additional entry recording revaluations of resource stocks is included. This entry accounts for changes in the value of assets over an accounting period due to movements in the price of the resources.

9.2.2 Physical Supply and Use Tables (PSUT)

SEEA-Energy records the physical flows, measured in physical units of energy content, through the compilation of Supply and Use tables. These tables are used to assess how an economy supplies and uses energy products, as well as to examine the changes in production and consumption patterns over time. These tables help in the presentation of how energy flows into the economy, how they are used within, and how they leave a country's national economy for a given period of time. The PSUT are expressed in a common energy unit such as joules and expresses the relationship between inputs to and outputs from energy transformation processes. The general structure of the PSUT is shown in the Figure 9.2.

Fig 9.2: Basic Form of a Physical Supply and Use Table for Energy

Basic form of a physical supply and use table for energy (joules)

Supply table

	Industries	Households	Accumulation	Rest of the world	Environment	Total
Energy from natural inputs					A. Energy inputs from the environment	Total supply of energy from natural inputs
Energy products	C. Output			D. Imports		Total supply of energy products
Energy residuals	I. Energy residuals generated by industry	J. Energy residuals generated by household consumption	K. Energy residuals from accumulation	L. Energy residuals received from the rest of the world	M. Energy residuals recovered from the environment	Total supply of energy residuals

Use table

	Industries	Households	Accumulation	Rest of the world	Environment	Total
Energy from natural inputs	B. Extraction of energy from natural inputs					Total use of energy from natural inputs
Energy products	E. Intermediate Consumption	F. Household Consumption	G. Change in inventories	H. Exports		Total use of energy products
Energy residuals	N. Collection and treatment of energy residuals		O. Accumulation of energy residuals	P. Energy residuals sent to the rest of the world	Q. Energy residual flows direct to environment	Total use of energy residuals

Note: Dark grey cells are null by definition.

Source: SEEA-Energy

9.2.3 Monetary Supply and Use Tables (MSUT)

MSUT fully articulates, in monetary terms, the flows of energy products in an economy between different economic units. MSUT for energy provides information on the energy sector and the level of activity in this sector. They also provide detailed information on the industries within the economy that are using these energy products. Monetary supply and use tables for energy can readily be linked with PSUT for energy to create a powerful analytical tool.

Monetary supply and use tables have their roots in economic accounting and utilize the same organizational principles and display the same characteristics as physical supply and use tables. Nevertheless, while the physical supply and use table for energy contains three main types of flows, namely, energy from natural inputs, energy products and energy residuals, the monetary supply and use table for energy records only those flows related to energy products.

Fig 9.3: Basic Form of a Monetary Supply and Use Table for Energy

	Industries	Households	Government	Accumulation	Rest of the world	Total
Supply Table						
Products	Output				Imports	Total Supply
Use table						
Products	Immediate consumption	Household final consumption expenditure	Government final consumption expenditure	Gross capital formation (including changes in inventories)	Exports	Total Use
	Value added					

Note: Dark Grey cells are null by definition

9.3 Physical Asset Accounts for Energy for India

The Asset Accounts for the year 2024-25 (P) is provided in Table 9.1. The Opening Stock (Inventory) data as given in the Coal Directory differs from what has been computed in the Asset Accounts. The reason for this is the deduction of the extraction and sterilization loss in the Asset Accounts which is not considered in the geological resources by the GSI.

9.4 Physical Supply and Use Table for Energy

'Physical Supply and Use Tables for Energy' aims at comprehensiveness that entails recording all energy flows both within the economy, between the economy and the environment. These accounts along with the Asset accounts, provide necessary granular level information to help identifying the policy concern areas.

In the chapter, the PSUT for Energy has been compiled following the structure of SEEA-Energy. Following accounting identities have been adhered to while compiling the PSUT for Energy.

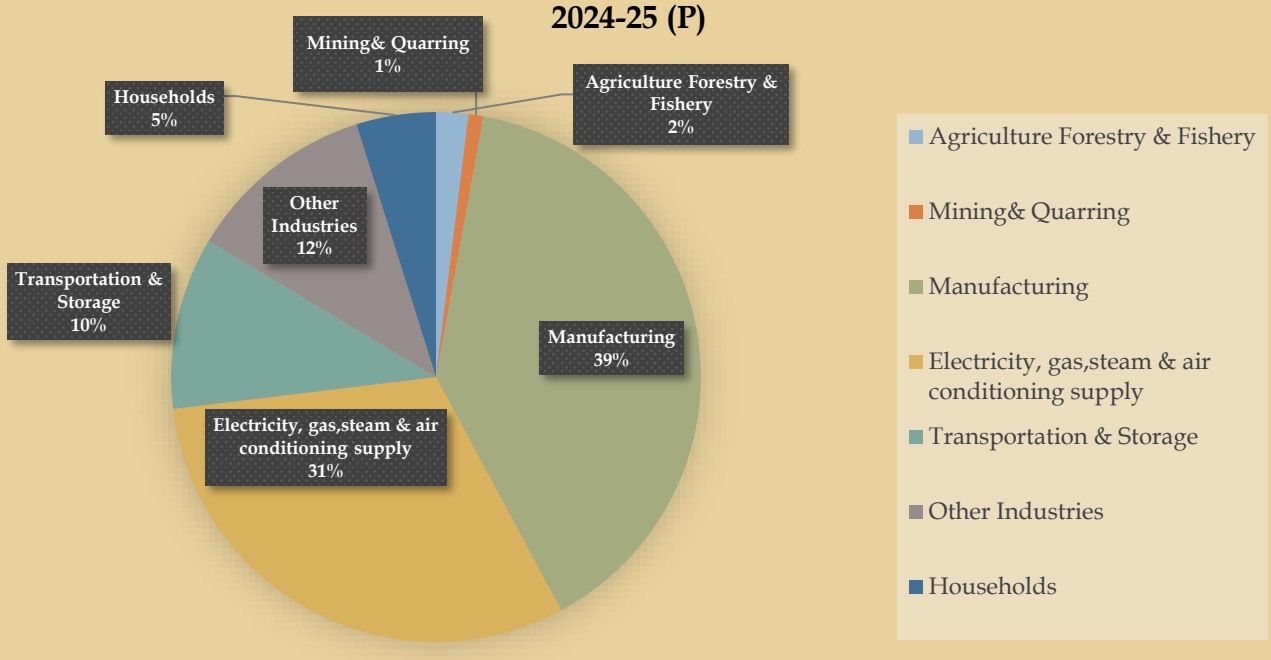
(i) Total Supply of Energy from Natural Inputs =Total Use of Energy from Natural Inputs

(ii) Total Supply of Energy Products=Total Use of Energy Products (Transformation + End Use)

(iii) Total Supply of Energy Residuals=Total Use of Energy Residual

The PSUT for energy for the year 2024-25(P) has been presented in **Tables 9.3 (A)** and **9.3 (B)**. The Energy Accounts compiled in the current publication is at a preliminary stage and has scope for further improvement with the availability of granular information from the source agencies, especially NIC-wise disaggregated data, data on residuals and losses, data on the accumulations, etc.

Fig 9.4: Industry-wise use (Transformation and End Use) of Energy for 2024-25 (P)



Based on the available data, **Figure 9.4** shows the industry-wise use of energy for the year 2024-25 (P). The highest share of use can be seen in the other industries, Manufacturing, Transportation and the Electricity sector for the year 2024-25 (P).

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Table 9.1: Physical Asset Accounts for Energy: 2024-25(P)

Physical Asset Account for Energy- 2024-25				
	Types of Energy Resource			
	Coal (Proved Category)	Lignite (Proved Category)	Crude Oil (2P Reserve)	Natural Gas (2P Reserve)
	Million tonnes	Million tonnes	Million BBL	MMSCM
Opening stock of mineral and energy resources (Closing for last FY)	**118,388**	**2,408**	**3,183**	**643,402**
Additions in stock:				
Discoveries	8,256	0	117	18,925
Upward appraisals			11	1862
TOTAL ADDITION TO THE STOCK	**8,256**	**0**	**128**	**20,787**
Reduction in Stock:				
Extraction	1048	43	210	36110
Sterilization Loss	3,878	149		
Downwards reappraisals			0	32693
TOTAL REDUCTION IN STOCK	**4,926**	**192**	**210**	**68,803**
Closing Stock of mineral and energy resources	**121,718**	**2,216**	**3,101**	**595,386**
Source: Geological Survey of India, Ministry of Petroleum and Natural Gas				
Sterilization Loss for Coal = Extraction*3.7				
Sterilization Loss for Lignite = Extraction*3.46				
2P is the sum of proved and probable reserves.				

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Table 9.2 (A) Physical Supply Table for Energy for the year 2023-24

PHYSICAL SUPPLY TABLE (Unit:PJ)	Production (Incl. household own account) & generaion of residuals										
	Industries (by ISIC)						Households				
	Agriculture Forestry & Fishery	Mining& Quarring	Manufacturing	Electricity, gas,steam & air conditioning supply	Transportation & Storage	Other Industries		Accumulation	Flows from the rest of the world (Imports)	Flows from the Environment	Total
	(ISIC A)	(ISIC B)	(ISIC C)	(ISIC D)	(ISIC M)						
Energy from natural inputs:											
Natural resource inputs											
Coal										16906	16906
Lignite										410	410
Crude Oil										1256	1256
Natural Gas										1411	1411
Nuclear										523	523
Inputs from RES										844	844
Hydro										484	484
Total										**21834**	**21834**
Energy Products:											
Production of energy products by SIEC class:											
Coal		16906							5930		22836
Lignite		410							0		410
Crude Oil		1256							10024		11280
Oil Products			11810.85						2018		13829
Natural Gas		1411							1231		2643
Electricity				7051					**22**		7073
Total	**0**	**19983**	**11811**	**7051**	**0**	**0**			**19226**		**58071**
Energy Residuals:											
Distribution		1143		1040							2183
Extraction											0
Other Losses (Coal Reject/other residuals)											0
Other Energy Residuals	1183	497	10682	384	5783	6472	2582				27582
Total energy residuals	**1183**	**1640**	**10682**	**1424**	**5783**	**6472**	**2582**				**29765**
Other Residual Flows:											
Residuals from end-use for non-energy purposes											0
Energy from solid waste											
TOTAL SUPPLY	**1183**	**21623**	**22492**	**8475**	**5783**	**6472**	**2582**		**19226**	**21834**	**109671**

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Table 9.2 (B) Physical Use Table for Energy for the year 2023-24

PHYSICAL USE TABLE (Unit:PJ)	Intermediate consumption, Use of energy resources, receipt of energy losses							Final Consumption	Accumulation	Export	Statsitical diff	Flows to the Environment	Total
	Industries (by ISIC)							Households					
	Agriculture Forestry & Fishery	Mining& Quarring	Manufacturing	Electricity, gas,steam & air conditioning supply (ISIC D)	Transportation & Storage	Construction	Other Industries						
	(ISIC A)	(ISIC B)	(ISIC C)	(ISIC D)	(ISIC M)								
Energy from natural inputs:													
Natural resource inputs													
Coal		16906											16906
Lignite		410											410
Crude Oil		1256											1256
Natural Gas		1411											1411
Nuclear				523									523
Inputs from RES				844									844
Hydro				484									484
Total	**0**	**19983**	**0**	**1851**	**0**		**0**						**21834**
Energy Products:													
Transformaton of energy products by SIEC class													
Coal				15754									15754
Lignite				341									341
Crude Oil			11191										11191
Oil Products				85									85
Natural Gas				352									352
Electricity													0
Total Transformed Energ	**0**	**0**	**11191**	**16531**	**0**		**0**						**27722**
End-use of energy products by SIEC class:													
Coal	0.089786	2.112574	6902		0	0	48	0	431	44	-344		7083
Lignite	0	0	27		0	0	39	0	3	0	0		69
Crude Oil							1140				-1052		89
Oil Products	186	63	577		5064	19	2778	1253		2735	1199		13874
Natural Gas	**5**	431	1014		597	0	484	0		**0**	**-241**		2291
Electricity	992	1	2162	384	122	0	1982	1329		41	61		7073
Total End Use for Energy	**1183**	**497**	**10682**	**384**	**5783**	**19**	**6472**	**2582**	**434**	**2820**	**-376**		**30478**
End-use of energy products for non-energy purposes													0
Energy Residuals:													
Distribution												2183	2183
Extraction												0	0
Other Losses (Coal Reject/other residuals)												0	0
Other Energy Residuals												27582	27582
Total energy residuals												**29765**	**29765**
Other Residual Flows:													
Residuals from end-use for non-energy purposes									0				**0**
Energy from solid waste													**0**
TOTAL USE	**1183**	**20480**	**21873**	**18766**	**5783**	**19**	**6472**	**2582**	**434**	**2820**	**-376**	**29765**	**109800**

Chapter 9: Energy Accounts

Table 9.3 (A) Physical Supply Table for Energy for the year 2024-25 (P)

PHYSICAL SUPPLY TABLE (Unit:PJ)	Production (Incl. household own account) & generaion of residuals										
	Industries (by ISIC)						Households				
	Agriculture Forestry & Fishery	Mining& Quarring	Manufacturing	Electricity, gas,steam & air conditioning supply	Transportation & Storage	Other Industries		Accumulation	Flows from the rest of the world (Imports)	Flows from the Environment	Total
	(ISIC A)	(ISIC B)	(ISIC C)	(ISIC D)	(ISIC M)						
Energy from natural inputs:											
Natural resource inputs											
Coal										17655	17655
Lignite										431	431
Crude Oil										1228	1228
Natural Gas										1398	1398
Nuclear										618	618
Inputs from RES										964	964
Hydro										537	537
Total										**22832**	**22832**
Energy Products:											
Production of energy products by SIEC class:											
Coal		17655							5487		23142
Lignite		431							1		432
Crude Oil		1228							10407		11636
Oil Products			12145						2101		14245
Natural Gas		1398							1383		2782
Electricity				7415					**27**		7442
Total	**0**	**20712**	**12145**	**7415**	**0**	**0**			**19406**		**59679**
Energy Residuals:											
Distribution		1187		1088							2275
Extraction											0
Other Losses (Coal Reject/other residuals)											0
Other Energy Residuals	1133	516	11062	404	6035	6639	2789				28579
Total energy residuals	**1133**	**1703**	**11062**	**1492**	**6035**	**6639**	**2789**				**30854**
Other Residual Flows:											
Residuals from end-use for non-energy purposes											0
Energy from solid waste											
TOTAL SUPPLY	**1133**	**22415**	**23207**	**8907**	**6035**	**6639**	**2789**		**19406**	**22832**	**113364**

Chapter 9: Energy Accounts

Table 9.3 (B) Physical Use Table for Energy for the year 2024-25 (P)

PHYSICAL USE TABLE (Unit:PJ)	Intermediate consumption, Use of energy resources, receipt of energy losses							Final Consumption Households	Accumulation	Export	Statsitical diff	Flows to the Environment	Total
	Industries (by ISIC)												
	Agriculture Forestry & Fishery	Mining& Quarring	Manufacturing	Electricity, gas,steam & air conditioning supply (ISIC D)	Transportation & Storage	Construction	Other Industries						
	(ISIC A)	(ISIC B)	(ISIC C)	(ISIC D)	(ISIC M)								
Energy from natural inputs:													
Natural resource inputs													
Coal		17655											17655
Lignite		431											431
Crude Oil		1228											1228
Natural Gas		1398											1398
Nuclear				618									618
Inputs from RES				964									964
Hydro				537									537
Total	**0**	**20712**	**0**	**2119**	**0**		**0**						**22832**
Energy Products:													
Transformaton of energy products by SIEC class													
Coal				16582									16582
Lignite				340									340
Crude Oil			11494										11494
Oil Products				92									92
Natural Gas				344									344
Electricity													0
Total Transformed Energy	**0**	**0**	**11494**	**17359**	**0**		**0**						**28853**
End-use of energy products by SIEC class:													
Coal	0.16179072	1.880	7167		0	0	48	0	389	54	-1100		6560
Lignite	0	0.000	42		0	0	44	0	7	0	0		92
Crude Oil							1185				-1043		142
Oil Products	190	72	632		5252	22	2662	1318		2840	1310		14298
Natural Gas	**6**	442	1010		659	0	512	0		**0**	**-192**		2437
Electricity	937	1	2211	404	124	0	2189	1471		38	67		7442
Total End Use for Energy	**1133**	**516**	**11062**	**404**	**6035**	**22**	**6639**	**2789**	**396**	**2932**	**-958**		**30971**
End-use of energy products for non-energy purposes													0
Energy Residuals:													
Distribution												2275	2275
Extraction												0	0
Other Losses (Coal Reject/other residuals)												0	0
Other Energy Residuals												28579	28579
Total energy residuals												**30854**	**30854**
Other Residual Flows:													
Residuals from end-use for non-energy purposes									0				**0**
Energy from solid waste													**0**
TOTAL USE	**1133**	**21229**	**22555**	**19882**	**6035**	**22**	**6639**	**2789**	**396**	**2932**	**-958**	**30854**	**113509**

Chapter Ten

World Energy Statistics

CHAPTER 10
World Energy Statistics

10.1 World Energy Scenario

The global energy scenario is undergoing a profound transformation driven by rapid technological advances, shifting economic patterns and the urgent need for environmental sustainability. Balancing the world's increasing energy demand with the goals of decarbonization and universal access continues to be a key challenge for policymakers and a daunting task to execute.

According to recent estimates, global primary energy demand continues to rise, driven by population growth, urbanization, and expanding economic activity. The fossil fuels i.e. oil, coal, and natural gas, still account for the largest share of the world's energy supply. At the same time, renewable energy sources such as solar, wind, hydro, and bioenergy are experiencing expansion, supported by falling technology costs, government policies and international climate commitments. Accurate and timely **world energy statistics** are the foundation of this transition. They enable governments, industries and global institutions to make evidence-based decisions that ensure energy security, economic growth, and sustainability for future generations.

10.1.1 Global Primary Energy Supply-

The global Total Primary Energy Supply (TPES) represents the total energy available to meet worldwide demand for electricity generation, transport, industry, household consumption, etc. It includes energy produced domestically plus imports, less exports and stock changes. Understanding the structure and evolution of global primary energy supply is vital for assessing energy security, sustainability, and economic development.

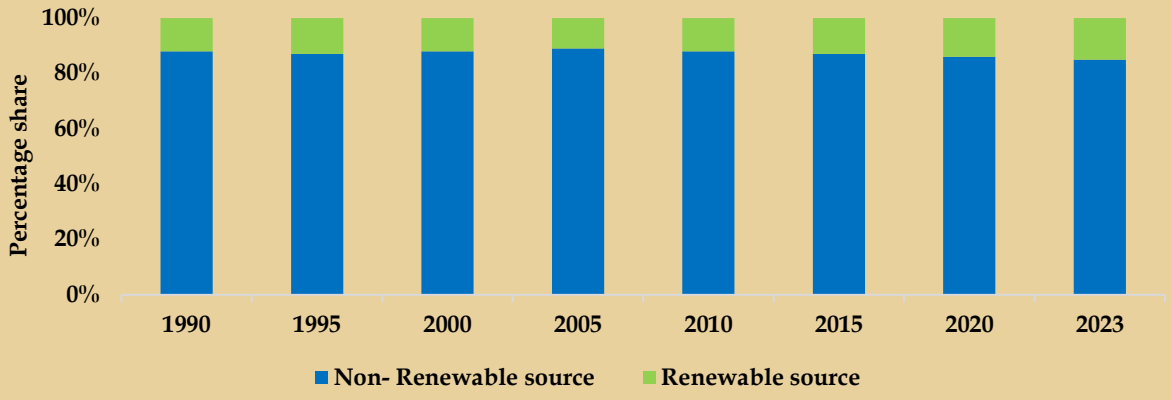
Table 10.1: TPES from Renewable and Non-Renewable resources: world							
Year	Non- Renewable source			Renewable source			Total
	Qty (in Exajoule)	Percentage	Growth (Y-o-Y)	Qty (in Exajoule)	Percentage	Growth (Y-o-Y)	
1990	320.06	88%	-	44.24	12%	-	364.30
1995	334.95	87%	4.70%	48.19	13%	9%	383.14
2000	365.89	88%	9.20%	50.11	12%	4%	416.00
2005	422.86	89%	15.60%	54.42	11%	9%	477.28
2010	471.17	88%	11.40%	62.00	12%	14%	533.16
2015	493.51	87%	4.70%	70.52	13%	14%	564.03
2020	498.30	86%	1.00%	82.75	14%	17%	581.05
2023	541.63	85%	8.70%	92.08	15%	11%	633.70

Note: 1 Exajoule = 10^6 Tera Joule = 10^18 Joule

Source: IEA

Table 10.1 shows that Global energy supply from non-renewable sources has increased steadily from **320 Exajoule in 1990** to **542 Exajoule in 2023**, showing continuous dependence on fossil fuels. The rapid expansion of the civilization along with the economic growth has been primarily fuelled by the *fossil-fuels* only. However, the **growth rate has fluctuated**, peaking at **15.6% in 2005,** followed by a gradual slowdown, reaching **1.0% in 2020.** Renewable energy supply has grown from **44 Exajoule in 1990** to **92 Exajoule in 2023**. The **growth rate of renewables** remained steady and having an impressive rate of above **10% from 2010 onwards**. Following the *COP21 (Conference of Parties)* and *Kyoto Protocol* during 2015 a surge of **17.3% Y-o-Y growth has been observed during 2020, in the sector of Renewable Energy which has able to maintain its' trajectory in the subsequent years. The same clearly indicates the inclination of world towards the energy resources which are *sustainable*.**

Fig 10.1 : Percentage share of Renewable and Non Renewable source in Total Primary Energy Supply



Energy Supply from Major sources:

A further dive into different categories under the Renewable and Non-Renewable energy resources reveals that, fossil fuels like oil, coal, and natural gas remain the backbone of the world's energy system, together accounting for nearly **80%** of total supply. **Oil and oil products** have been the major energy source among fossil fuels.

Table. 10.2: TPES from Major energy resources: world (in Exajoule)

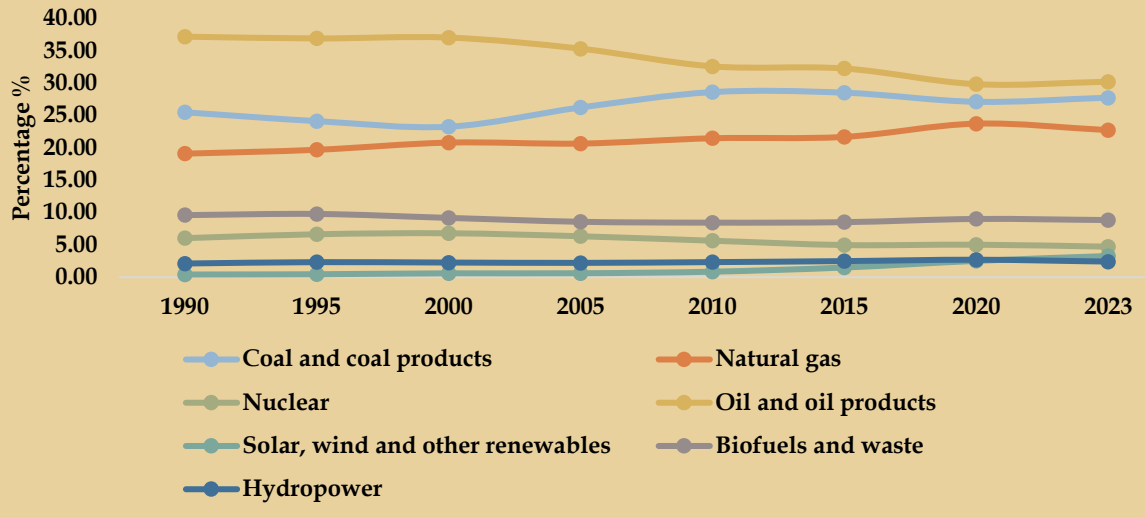
Year	Non - renewable				Renewable		
	Coal and coal products	Natural gas	Nuclear	Oil and oil products	Solar, wind and other renewables	Biofuels and waste	Hydropower
1990	92.91	69.60	22.00	135.54	1.53	34.99	7.72
1995	92.50	75.50	25.46	141.49	1.77	37.49	8.92
2000	96.84	86.61	28.28	154.17	2.51	38.17	9.43
2005	125.29	98.66	30.22	168.70	2.92	40.92	10.59
2010	152.63	114.58	30.09	173.87	4.56	44.99	12.44
2015	160.98	122.40	28.06	182.07	8.46	48.01	14.05
2020	157.63	138.00	29.22	173.45	14.69	52.34	15.71
2023	175.95	144.15	29.92	191.61	20.75	56.01	15.31

Note: 1 Exajoule = 10^6 Tera Joule = 10^18 Joule

Source: IEA

Among the renewable resources, the Solar, wind and Other Renewables have displayed the greatest growth over the years. The *Bio-fuels and waste* have remained the largest renewable resources mainly because of its' ease of the accessibility. A percentage share of energy-commodities in the Global Energy Supply over the years have been represented below, in a graphical manner:

Fig. 10.2 : Percentage share in Global Primary Energy supply



10.1.2 Global Energy Consumption:

Global primary energy consumption represents the total amount of energy used worldwide before transformation into other forms such as electricity or refined fuels. It includes all sources: fossil fuels, renewables, and nuclear energy, used to meet the energy needs of industry, transport, households, and other sectors.

a) Energy Consumption from Non-renewable and Renewable Sources:

The statistics suggest the clear dominance of *fossil-fuel* in the actual consumption in different economic activities of the world at a large. The Fig. **10.3** shows that Non-Renewable Sources accounts for almost 90% of global energy consumption. Whereas the global consumption from non-renewable sources has increased significantly from **229 Exajoule in 1990** to **387 Exajoule in 2023** the renewable energy consumption rose from **29 Exajoule in 1990** to **42 Exajoule in** 2023.

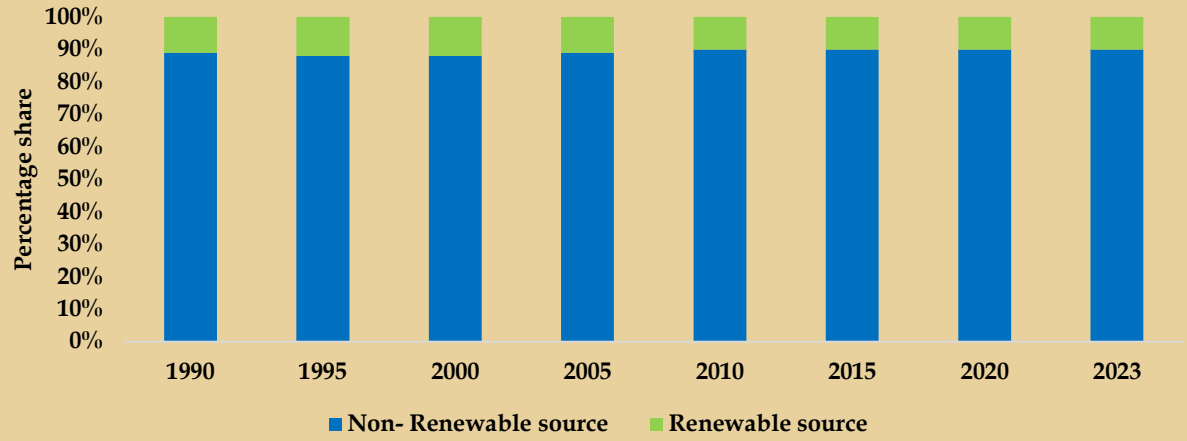
The growth rate for both Renewable and Non-renewable energy-resources have shown some fluctuations over the period. The figure reflects steady global investment in clean energy technologies like wind, solar, and hydropower. Although the percentage consumption from renewables-resources is still much lower than that of non-renewables resources; in order to come-up with the global commitments under SDG etc. there are still significant roads to travel.

Table. 10.3: World Energy Consumption from Non-Renewable and Renewable resources

Year	Non- Renewable source			Renewable source			Total
	Qty (in Exajoule)	Percentage	Growth (Y-o-Y)	Qty (in Exajoule)	Percentage	Growth (Y-o-Y)	
1990	229.29	89%	-	29.59	11%		258.87
1995	238.31	88%	3.9%	31.63	12%	6.9%	269.94
2000	256.51	88%	7.6%	33.52	12%	6.0%	290.02
2005	294.97	89%	15.0%	34.89	11%	4.1%	329.86
2010	327.87	90%	11.2%	37.20	10%	6.6%	365.07
2015	351.03	90%	7.1%	38.53	10%	3.6%	389.56
2020	355.65	90%	1.3%	40.14	10%	4.2%	395.78
2023	386.87	90%	8.8%	42.24	10%	5.2%	429.11

Source: IEA

Fig 10.3: Percentage share of Renewable and Non Renewable source in Total Energy Consumption



b) Energy Consumption from Major sources:

A further detail into the types of fuels which is dominating the consumption scenario of the world at large reveals that, (refer **Table 10.4)** though the consumption from ***coal and coal products*** increased from **31 Exajoule in 1990** to **45.67 Exajoule during 2015** but post 2015 it has displayed a dwindling trend and has been reduced to **36 Exajoule in 2023**, which clearly signifies a shift towards lesser dependency over Coal and Coal-products. The ***Crude Oil and its' products*** have remained the dominant energy-resources over time and is still having the major share (around 40%) of the total energy-consumption of the world. A figure of 108.73 Exajoule during 1990 has been increased to 172.28 Exajoule in 2023.

Table 10.4: Global Energy Consumption by energy source (in Exajoule)

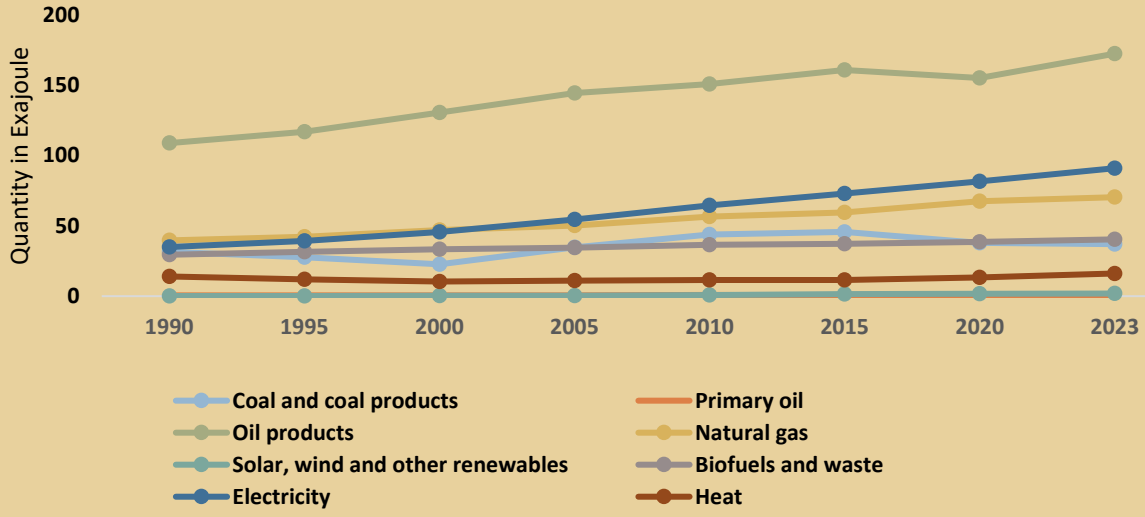
Year	Coal and coal products	Primary oil	Oil products	Natural gas	Solar, wind and other renewables	Biofuels and waste	Electricity	Heat
1990	31.47	0.46	108.73	39.63	0.14	29.44	34.92	14.07
1995	27.68	0.47	116.91	42.10	0.19	31.45	39.15	12.01
2000	22.65	0.57	130.40	46.97	0.30	33.22	45.51	10.41
2005	34.63	0.52	144.35	50.06	0.41	34.48	54.48	10.93
2010	43.80	0.90	150.73	56.47	0.75	36.45	64.40	11.57
2015	45.67	0.55	160.75	59.59	1.39	37.14	72.94	11.53
2020	37.97	0.36	155.03	67.47	1.63	38.51	81.54	13.28
2023	36.95	0.30	172.28	70.33	1.89	40.35	90.90	16.11

Note: 1 Exajoule = 10^6 Tera Joule = 10^18 Joule

Source: IEA

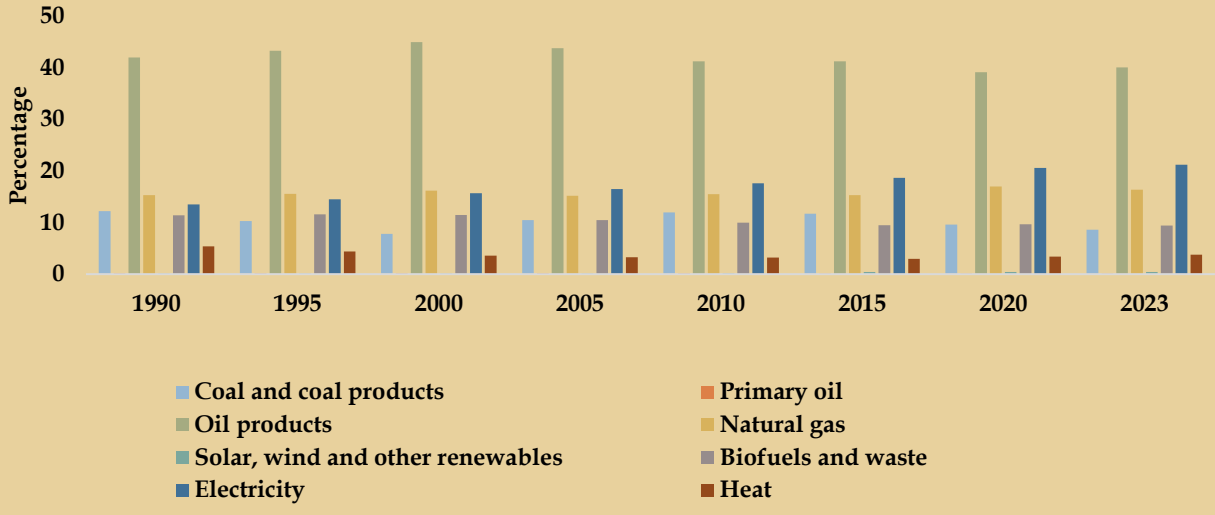
Among the *Renewable* resources, the ***Bio-fuels*** (like fuelwood, cow-dung, bagasse, Bio-gas etc.) has appeared the top-sources of generation of the energy. The ***Solar, wind and other renewables*** which started with a meagre consumption figure of 0.14 Exajoule in 1990 have reached at 1.88 Exajoule in 2023; still have a long way to cover in order to replace the *fossil-fuels*.

Fig 10.4: Global Energy Consumption by energy source (in Exajoule)



A percentage share of consumption of energy from all the major energy-resources has been given below.

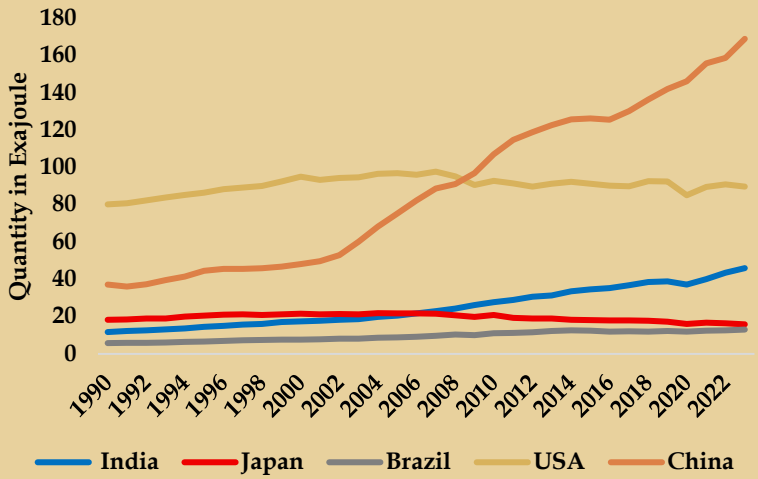
10.5: Percentage share in Global Energy consumption by energy source



10.2 India v/s Selected countries: A Comparative Study of Energy Trends

The global energy scenario is undergoing a profound transformation driven by rapid technological advances, shifting economic patterns and the urgent need for environmental sustainability. In this transformation, our economy is growing rapidly, our energy demand is rising, and our clean-energy ambitions are among the most ambitious globally.

Fig. 10.6 :Total Energy Supply (in Exajoule)



Understanding how India performs against other economies helps highlight both our challenges and our strategic advantages in shaping the future of global energy. A comparative analysis on some of the energy-parameters for 5 countries viz. India, China, Japan, Brazil and USA have been prepared and placed below:

10.2.1 Total Energy Supply:

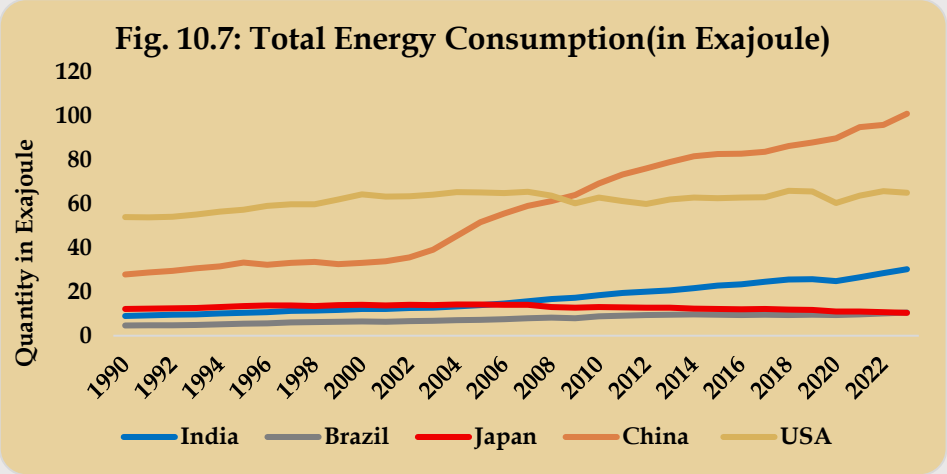
A comparative time series graph from the period 1990 to 2022 on total supply of energy among the 5 countries viz India, China, Brazil, Japan and USA reveal that, where countries like Japan has displayed a rather decline in the total supply of energy in recent years; China has displayed a staggering growth from the year 2000 onwards at Standing at 169 Exajoule in 2023. China's energy supply is more than the total energy-supply from USA and India taken together.

10.2.2 Total Energy Consumption:

Globally energy consumption is rising rapidly as economies are expanding with rapid industrialize and urbanization. For India, a booming population and economy is driving the energy requirements drastically over the period.

Figure 10.7 shows the trend of consumption of energy maintains a close proximity with that of the *supply*. It displays the gap between the *supply and consumption of energy* among the different countries over the period of years, which implies how efficiently the energy has been utilized by the nation. The figures against 2023 has been summarised below,

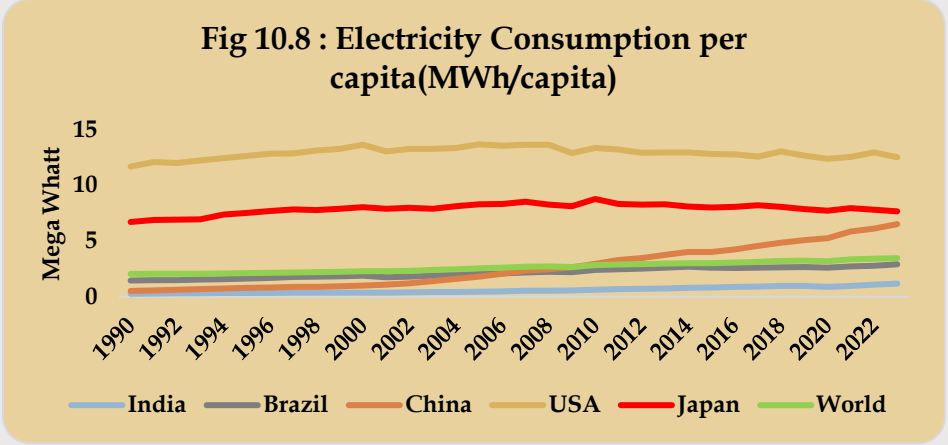
Table 10.5: Difference between Total Supply and Consumption of energy during 2023 among the selected countries			
Name of the Country	Total Energy Supply (in Exajoule)	Total Energy Consumption (in Exajoule)	Difference (in Exajoule)
India	45.97	30.31	15.66
Brazil	13.04	10.57	2.47
Japan	15.84	10.43	5.41
USA	89.67	65.15	24.52
China	168.89	101.21	67.68



10.3.1 Sustainable Energy Indicator: Per Capita Electricity Consumption:

The indicator shows how the energy, which has been generated and consumed within the national territory of a country supports development and quality of life.

Fig 10.8 shows a comparative scenario on the average per-capita electricity consumption of the five (5) selected countries in the world over a period of time. The USA is having a higher per capita electricity use (over 12 MegaWatta/ capita) from early 1990s itself, reflecting strong industrialization, advanced infrastructure and the amenities to the common people, whereas the world average of *per-capita*



energy-consumption has moved only from *2 to around 3.5 MegaWatt from 1990 to 2023*.

The data suggests that for India same has crossed above just 1 MegaWatt only after 2020 and presently lying at a figure of around *1.2 MegaWatt* of electricity per-capita which reflects the potential for growth.

Annexure-I

Definitions of Energy Products and associated concepts

1. Solid fuels

i. **Hard Coal**: Coals with a gross calorific value (moist, ash-free basis) which is not less than 24 MJ/kg or which is less than 24 MJ/kg provided that the coal has a vitrinite mean random reflectance greater than or equal to 0.6 per cent. Hard coal comprises anthracite and bituminous coals.

ii. **Lignite**: Brown coal with a gross calorific value (moist, ash-free basis) less than 20 MJ/kg.

iii. **Coke**: Products derived directly or indirectly from the various classes of coal by carbonisation or pyrolysis processes, or by the aggregation of finely divided coal or by chemical reactions with oxidising agents, including water.

iv. **Proved Reserves**: A 'Proven Mineral Reserve' is the economically mineable part of a Measured Mineral Resource demonstrated by at least a Preliminary Feasibility Study. This Study must include adequate information on mining, processing, metallurgical, economic, and other relevant factors that demonstrate, at the time of reporting, that economic extraction is justified.

v. **Indicated Reserves:** An 'Indicated Mineral Resource' is that part of a Mineral Resource for which quantity, grade or quality, densities, shape and physical characteristics can be estimated with a level of confidence sufficient to allow the appropriate application of technical and economic parameters, to support mine planning and evaluation of the economic viability of the deposit. The estimate is based on detailed and reliable exploration and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes that are spaced closely enough for geological and grade continuity to be reasonably assumed.

vi. **Inferred Reserves**: An 'Inferred Mineral Resource' is that part of a Mineral Resource for which quantity and grade or quality can be estimated on the basis of geological evidence and limited sampling and reasonably assumed, but not verified, geological and grade continuity. The estimate is based on limited information and sampling gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes. Due to the uncertainty that may be attached to Inferred Mineral Resources, it cannot be assumed that all or any part of an Inferred Mineral

vii. Resource will be upgraded to an Indicated or Measured Mineral Resource as a result of continued exploration. Confidence in the estimate is insufficient to allow the meaningful application of technical and economic parameters or to enable an evaluation of economic viability worthy of public disclosure. Inferred Mineral Resources must be excluded from estimates forming the basis of feasibility or other economic studies

2. Liquid fuels

i. **Crude petroleum/Oil** A mineral oil of fossil origin extracted by conventional means from underground reservoirs, and comprises liquid or near-liquid hydrocarbons and associated impurities such as sulphur and metals.
Remark: Conventional crude oil exists in the liquid phase under normal surface temperature and pressure, and usually flows to the surface under the pressure of the reservoir. This is termed "conventional" extraction. Crude oil includes condensate from condensate fields, and "field" or "lease" condensate extracted with the crude oil.

The various crude oils may be classified according to their sulphur content ("sweet" or"sour") and API gravity ("heavy" or "light"). There are no rigorous specifications for the classifications but a heavy crude oil may be assumed to have an API gravity of less than 20^{o} and a sweet crude oil may be assumed to have less than 0.5% sulphur content.

ii. **Liquefied Petroleum Gas (LPG)** refers to liquefied propane (C3H8) and butane (C4H10) or mixtures of both. Commercial grades are usually mixtures of the gases with small amounts of propylene, butylene, isobutene and isobutylene stored under pressure in containers.

Remark: The mixture of propane and butane used varies according to purpose and season of the year. The gases may be extracted from natural gas at gas separation plants or at plants re-gasifying imported liquefied natural gas. They are also obtained during the refining of crude oil. LPG may be used for heating and as a vehicle fuel. Certain oil field practices also use the term LPG to describe the high vapor pressure components of natural gas liquids.

iii. **Motor gasoline** A mixture of some aromatics (e.g., benzene and toluene) and aliphatic hydrocarbons in the C5 to C12 range. The distillation range is 25^{o}C to 220^{o}C.

Remark: Additives are blended to improve octane rating, improve combustion performance, reduce oxidation during storage, maintain cleanliness of the engine and improve capture of pollutants by catalytic converters in the exhaust system. Motor gasoline may also contain bio-gasoline products.

iv. **Naphtha** Light or medium oils distilling between 30°C and 210°C which do not meet the specification for motor gasoline.

Remark: Different naphtha are distinguished by their density and the content of paraffins, isoparaffins, olefins, naphthenes and aromatics. The main uses for naphtha are as feedstock for high octane gasolines and the manufacture of olefins in the petrochemical industry.

v. **Kerosene** Mixtures of hydrocarbons in the range C9 to C16 and distilling over the temperature interval 145°C to 300°C, but not usually above 250°C and with a flash point above 38°C.
Remark: The chemical compositions of kerosenes depend on the nature of the crude oils from which they are derived and the refinery processes that they have undergone. Kerosenes obtained from crude oil by atmospheric distillation are known as straight-run kerosenes. Such streams may be treated by a variety of processes to produce kerosenes that are acceptable for blending as jet fuels. Kerosenes are primarily used as jet fuels. They are also used as domestic heating and cooking fuels, and as solvents. Kerosenes may include components or additives derived from biomass.

vi. **Gasoline-type Jet fuels** Light hydrocarbons for use in aviation turbine power units, distilling between 100°C and 250°C. They are obtained by blending kerosene and gasoline or naphtha in such a way that the aromatic content does not exceed 25 per cent in volume, and the vapour pressure is between 13.7 kPa and 20.6 kPa.

Remark: Gasoline-type jet fuel is also known as "aviation turbine fuel".

vii. **Gas oil / Diesel oil** Gas oils are middle distillates, predominantly of carbon number range C11 to C25 and with a distillation range of 160°C to 420°C.

Remark: The principal marketed products are fuels for diesel engines (diesel oil), heating oils and marine fuel. Gas oils are also used as middle distillate feedstock for the petrochemical industry and as solvents.

viii. **Fuel oil** Comprises residual fuel oil and heavy fuel oil. Residual fuel oils have a distillation range of 350°C to 650°C and a kinematic viscosity in the range 6 to 55 cSt at 100°C. Their flash point is always above 60°C and their specific gravity is above 0.95. Heavy fuel oil is a general term describing a blended product based on the residues from various refinery processes.

Remark: Other names commonly used to describe fuel oil include: bunker fuel, bunker C, fuel oil No. 6, industrial fuel oil, marine fuel oil and black oil. Residual and heavy fuel oil are used

in medium to large industrial plants, marine applications and power stations in combustion equipment such as boilers, furnaces and diesel engines. Residual fuel oil is also used as fuel within the refinery.

ix. **Lubricants** Oils, produced from crude oil, for which the principal use is to reduce friction between sliding surfaces and during metal cutting operations.

Remark: Lubricant base stocks are obtained from vacuum distillates which result from further distillation of the residue from atmospheric distillation of crude oil. The lubricant base stocks are then further processed to produce lubricants with the desired properties.

x. **Petroleum coke** Petroleum coke is a black solid obtained mainly by cracking and carbonizing heavy hydrocarbon oils, tars and pitches. It consists mainly of carbon (90 to 95 per cent) and has low ash content. The two most important categories are "green coke" and "calcined coke".

xi. Green coke (raw coke) is the primary solid carbonization product from high boiling hydrocarbon fractions obtained at temperatures below 630ºC. It contains 4-15 per cent by weight of matter that can be released as volatiles during subsequent heat treatment at temperatures up to approximately 1330ºC.
Calcined coke is a petroleum coke or coal-derived pitch coke obtained by heat treatment of green coke to about 1330ºC. It will normally have a hydrogen content of less than 0.1 percent by weight.

Remark: In many catalytic operations (e.g., catalytic cracking) carbon or catalytic coke is deposited on the catalyst, thus deactivating it. The catalyst is reactivated by burning off the coke which is used as a fuel in the refining process. The coke is not recoverable in a concentrated form

xii. **Bitumen (Asphalt)** A solid, semi-solid or viscous hydrocarbon with a colloidal structure, being brown to black in color.

Remark: It is obtained as a residue in the distillation of crude oil and by vacuum distillation of oil residues from atmospheric distillation. It should not be confused with the nonconventional primary extra heavy oils which may also be referred to as bitumen. In addition to its major use for road pavements, bitumen is also used as an adhesive, a waterproofing agent for roof coverings and as a binder in the manufacture of patent fuel. It may also be used for electricity generation in specially designed power plants. Bitumen is also known in some countries as asphalt but in others asphalt describes the mixture of bitumen and stone aggregate used for road pavements.

xiii. **Refinery gas** is a non-condensable gas collected in petroleum refineries (it is also known as still gas).

3. Gaseous fuels

i. **Natural Gas:** A mixture of gaseous hydrocarbons, primarily methane, but generally also including ethane, propane and higher hydrocarbons in much smaller amounts and some noncombustible gases such as nitrogen and carbon dioxide.

Remark: The majority of natural gas is separated from both "non-associated" gas originating from fields producing hydrocarbons only in gaseous form, and "associated" gas produced in association with crude oil. The separation process produces natural gas by removing or reducing the hydrocarbons other than methane to levels which are acceptable in the marketable gas. The natural gas the natural gas liquids (NGL) removed in the process are distributed separately.

ii. **Coke-oven gas**: A gas produced from coke ovens during the manufacture of coke oven coke.

iii. **Biogases:** Gases arising from the anaerobic fermentation of biomass and the gasification of solid biomass (including biomass in wastes).
Remark: The biogases from anaerobic fermentation are composed principally of methane and carbon dioxide and comprise landfill gas, sewage sludge gas and other biogases from anaerobic fermentation. Biogases can also be produced from thermal processes (by gasification or pyrolysis) of biomass and are mixtures containing hydrogen and carbon monoxide (usually known as syngas) along with other components. These gases may be further processed to modify their composition and can be further processed to produce substitute natural gas. The gases are divided into two groups according to their production: biogases from anaerobic fermentation and biogases from thermal processes. They are used mainly as a fuel but can be used as a chemical feedstock.

4. Electricity

i. **Installed capacity**: The net capacity measured at the terminals of the stations, i.e., after deduction of the power absorbed by the auxiliary installations and the losses in the station transformers.

ii. **Utilities**: undertakings of which the essential purpose is the production, transmission and distribution of electric energy. These may be private companies, cooperative organisations, local or regional authorities, nationalised undertakings or governmental organisations.

iii. **Non-Utilities**: An Independent Power Producer which is not a public utility, but which owns facilities to generate electric power for sale to utilities and end users. They may be privately held facilities, corporations, cooperatives such as rural solar or wind energy producers, and non-energy industrial concerns capable of feeding excess energy into the system

iv. **Hydro Electricity**: refers to electricity produced from devices driven by fresh, flowing or falling water.

v. **Thermal Electricity** comprises conventional thermal plants of all types, whether or not equipped for the combined generation of heat and electric energy. Accordingly, they include steam-operated generating plants, with condensation (with or without extraction) or with back-pressure turbines, and plants using internal combustion engines or gas turbines whether or not these are equipped for heat recovery.

vi. **Nuclear Electricity** is defined as the heat released by the reactors during the accounting period and is obtained by dividing the generation of nuclear electricity by average efficiency of all nuclear power stations.

5. **Production of Energy Products** is defined as the capture, extraction or manufacture of fuels or energy in forms which are ready for general use. In energy statistics, two types of production are distinguished, primary and secondary. Primary production is the capture or extraction of fuels or energy from natural energy flows, the biosphere and natural reserves of fossil fuels within the national territory in a form suitable for use. Inert matter removed from the extracted fuels and quantities reinjected flared or vented are not included. The resulting products are referred to as "primary" products. Secondary production is the manufacture of energy products through the process of transformation of primary fuels or energy. The quantities of secondary fuels reported as production include quantities lost through venting and flaring during and after production. In this manner, the mass, energy and carbon within the primary source(s) from which the fuels are manufactured may be balanced against the secondary fuels produced. Fuels, electricity and heat produced are usually sold but may be partly or entirely consumed by the producer. comprises gross production, i.e. the amount of electric energy produced, including that consumed by station auxiliaries and any losses in the transformers that are considered integral parts of the station. Included is the total production of electric energy produced by pump storage installations.

6. **Imports of energy products** comprise all fuel and other energy products entering the national territory. Goods simply being transported through a country (goods in transit) and goods temporarily admitted are excluded but re-imports, which are domestic goods exported

but subsequently readmitted, are included. The bunkering of fuel outside the reference territory by national merchant ships and civil aircraft engaged in international travel is excluded from imports. Fuels delivered to national merchant ships and civil aircraft which are outside of the national territory and are engaged in international travel should be classified as "International Marine" or "Aviation Bunkers", respectively, in the country where such bunkering is carried out (see paragraph 5.12). Note that the "country of origin" of energy products should be recorded as a country from which goods were imported**.**

7. **Exports of energy products** comprise all fuel and other energy products leaving the national territory with the exception that exports exclude quantities of fuels delivered for use by merchant (including passenger) ships and civil aircraft, of all nationalities, during international transport of goods and passengers. Goods simply being transported through a country (goods in transit) and goods temporarily withdrawn are excluded but re-exports, foreign goods exported in the same state as previously imported, are included. Fuels delivered to foreign merchant ships and civil aircraft engaged in international travel are classified as "International Marine" or "Aviation Bunkers", respectively. Note that "country of destination" of energy products (that is country of the last known destination as it is known at the time of exportation) should be recorded as a country to which these products are exported to**.**

8. **Losses** refer to losses during the transmission, distribution and transport of fuels, heat and electricity. Losses also include venting and flaring of manufactured gases, losses of geothermal heat after production and pilferage of fuels or electricity. Production of secondary gases includes quantities subsequently vented or flared. This ensures that a balance can be constructed between the use of the primary fuels from which the gases are derived and the production of the gases.

9. **Energy Industries Own Use** refers to consumption of fuels and energy for the direct support of the production, and preparation for use of fuels and energy. Quantities of fuels which are transformed into other fuels or energy are not included here but within the transformation use. Neither are quantities which are used within parts of the energy industry not directly involved in the activities listed in the definition. These quantities are reported within final consumption.

10. Non-commercial Energy Sources

i. **Fuelwood, wood residues and by-products:** Fuelwood or firewood (in log, brushwood, pellet or chip form) obtained from natural or managed forests or isolated trees. Also included are wood residues used as fuel and in which the original composition of wood is retained.

Remark: Charcoal and black liquor are excluded.

ii. **Charcoal** The solid residue from the carbonisation of wood or other vegetal matter through slow pyrolysis.

iii. **Bagasse** The fuel obtained from the fiber which remains after juice extraction in sugar cane processing.

11. Other important definitions:

i. **Gross Domestic Product** (GDP) is the broadest quantitative measure of a nation's total economic activity. More specifically, GDP represents the monetary value of all goods and services produced within a nation's geographic borders over a specified period of time.

ii. **Energy Use** indicates Total Primary Energy Supply (TPES), Total Final Consumption (TFC) and final electricity consumption.

iii. **Transformation/Conversion Losses:** When one form of energy is converted into another form, the amount of losses is referred as transformation/conversion losses.

Annexure-I

Categorisation of Coal in India

Grading of Coking Coal based on ash content

Grade	Ash Content
Steel Gr I	Ash content < 15%
Steel Gr II	15%<=Ash content<18%
WasheryGr.I	18%<=Ash content<21%
WasheryGr.II	21%<=Ash content<24%
WasheryGr.III	24%<=Ash content<28%
WasheryGr.IV	28%<=Ash content<35%
WasheryGr.V	35%<=Ash content<42%
WasheryGr.VI	42%<=Ash content<49%

Grades of Semi Coking Coal based on Ash and Moisture content

Grade	Ash + Moisture content
Semi coking Gr. I	less than 19%
Semi coking Gr. II	Between 19% and 24%

Grading of Non-Coking Coal based on Gross Calorific Value (GCV)

Grade	GCV Range (Kcal/Kg)
G1	GCV exceeding 7000
G2	GCV between 6701 and 7000
G3	GCV between 6401 and 6701
G4	GCV between 6101 and 6400
G5	GCV between 5801 and 6100
G6	GCV between 5501 and 5800
G7	GCV between 5201 and 5500
G8	GCV between 4901 and 5200
G9	GCV between 4601 and 4900
G10	GCV between 4301 and 4600
G11	GCV between 4001 and 4300
G12	GCV between 3700 and 4000
G13	GCV between 3400 and3700
G14	GCV between3101 and 3400
G15	GCV between 2801 and 3100
G16	GCV between 2501 and2800
G17	GCV between 2201 and 2500

Source: Coal Controller's Organisation, Ministry of Coal.

Annexure-II

Measurement Units in Energy Statistics

Physical Units

Energy products are measured in physical units by their mass, volume, and energy content. The measurement units that are specific to an energy product and employed at the point of measurement of an energy flow are often referred to as "original" or "natural" units. Coal, for example, is generally measured by its mass and crude oil by its volume. On the other hand, cross-fuel tabulations, such as the energy balances, are displayed in a "common" unit to allow comparison across energy products. These "common" units are usually energy units and require the conversion from an original unit through the application of an appropriate conversion factor.

Typical examples of original units are: mass units (e.g., kilograms or metric tons) for solid fuels; volume units (e.g., barrels or litres) or mass units (metric tons) for oil; and volume units (e.g., cubic metres) for gases.

Solid fuels, such as coal and coke, are generally measured in mass units. The SI unit for mass is the kilogram (kg). Metric tons (tons) are most commonly used to measure coal and their derivatives. One metric ton corresponds to 1000 kg.

Volume units are original units for most liquid and gaseous fuels, as well as some traditional fuels. The SI unit for volume is the cubic metre, which is equivalent to a kilolitre or one thousand litres. Other volume units include the British or Imperial gallon (approximately 4.546 litres), United States gallon (approximately 3.785 litres), the barrel (approximately 159 litres), and the cubic foot, which is also used to measure volumes of gaseous fuels.

Energy Units

In the realms of Energy Statistics, the terms - Energy, heat and work are considered to be three facets of the same concept. The coherent derived SI unit of energy, heat and work is the joule (J)- defined as the work done when a constant force of 1 Newton is exerted on a body with mass of 1 gram to move it a distance of 1 metre. Common multiples of the joule are the megajoule, gigajoule, terajoule and petajoule. Other units include: the kilogram calorie in the metric system, or kilocalorie (kcal) or one of its multiples; the British thermal unit (Btu) or one of its multiples; ton of coal equivalent (toe), ton of oil equivalent (toe); and the kilowatt hour (kWh).

Power is the rate at which work is done (or heat released, or energy converted, often measured in the kilowatt hour (kWh), which refers to the energy equivalent of 1000 watt (joules per second) over a one-hour period. Thus, 1 kilowatt-hour equals 3.6x106 joules. Electricity is usually measured in kWh. Heat quantities, on the other hand, are usually measured in calories or joules.

Annexure- II

Conversion Factors

1 kilogram	=	2.2046 pounds
1 Pound	=	454 gm.
1 Cubic metres	=	35.3 cubic feet (gas)
1 Metric ton	=	1 Tonne =1000 kilogram
1 Joule	=	0.23884 calories
1 Mega Joule	=	10^6 joules = 238.84 x 10^3 calories
1 Giga Joule	=	10^9 joules = 238.84 x 10^6 calories
1 Tera Joule	=	10^12 joules = 238.84 x 10^9 calories
1 Peta Joule	=	10^15 joules = 238.84 x 10^12 calories
One million tonnes of Coal	=	16.94 petajoules of energy
One million tonnes of Lignite	=	9.546 petajoules of energy
One million tonnes of oil equivalent (MTOE)	=	42.789 petajoules of energy
One billion cubic meter of natural gas	=	38.735 petajoules of energy
One million cubic meter of natural gas	=	38.735 terajoules of energy
One billion-kilowatt hour of electricity	=	3.60 petajoules of energy

Annexure- II

Net Calorific Value (NCV) used in the publicaltion (kJ/Kg)													
	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25
Coal Production	18305	18273	18098	18055	17817	17316	17271	17129	16904	16824	16865	16943	16854
Coal Import	21350	20906	21309	22008	22014	22214	22035	22098	22507	23272	22257	22418	22522
Coal Export	28200	28200	28200	28200	28200	28200	28200	28200	28200	28200	28200	28200	28200
Stock Changes	24283	24283	24283	24283	24283	24283	24283	24283	17637	17637	17545	17723	17564
Coal Dispatched/Consumption to Power Sector	17411	17411	17411	17411	17411	17411	17424	17342	17001	16846	16939	17030	17192
Coal Dispatched/Consumption to Non-Power Sector (Industry)	22029	22029	22029	22029	22029	20810	20883	21090	20715	21021	21877	22236	23695
Lignite	9546	9546	9546	9546	9546	9546	9546	9546	9546	9546	9546	9546	9546
Note: NCV=GCV*.95													

Conversion Factors of Crude Oil/Petroleum Products used in the publication				
	2012-13 to 2020-21		2021-22 to 2024-25	
Products	KJ/Kg	Toe/Metric Tonnes	KJ/Kg	Toe/Metric Tonnes
Crude Oil	42789	1.022	42789	1.022
LPG	47300	1.130	47300	1.130
Naphtha	45000	1.075	45000	1.075
Kerosene	41564	0.993	43752	1.045
Diesel Oil(HSD+ LDO)	43300	1.034	43334	1.035
Fuel Oil	39178	0.936	41240	0.985
Lubricants	42000	1.003	42000	1.003
Bitumin	39000	0.931	39000	0.931
Petrol/Motor Spirit	44800	1.070	44800	1.070
ATF	44600	1.065	44600	1.065
Petroleum Coke	32000	0.764	32000	0.764
Other Petroleum Products	40000	0.955	40193	0.960

Conversion Factor for Natural Gas used in the publication		
	BCM to Joule	Toe/TJ
2012-13 to 2019-20	1 BCM=38520 TJ or 38.52 PJ	0.02388
2020-21 to 2024-25	1 BCM =38735 TJ or 38.735 PJ	0.02388
Electricity/Electricity from hydro and RES, 1 Gwh= .086 Ktoe		
Electricity from Nuclear, 1 Gwh=(.086÷.33) Ktoe		

Annexure III

Metadata: Publication

1. Contact	
1.1. Contact organization	National Statistical Office (NSO), Ministry of Statistics & Programme Implementation (MOSPI)
1.2. Contact organization unit	Economic Statistics Division
1.3. Contact mail address	K. L Bhawan, Janpath, New Delhi – 110001
1.4. Contact emails	adg-esd-mospi@nic.in energyunit-esd@mospi.gov.in
1.5. Homepage	http:// www.mospi.gov.in

2. Statistical presentation
2.1 Data sources
The data contained in this publication has been sourced from the Ministry of Petroleum and Natural Gas, Central Electricity Authority, Office of the Coal Controller, Ministry of New and Renewable Energy and Office of the Economic Adviser, Ministry of Commerce and Industry, National Accounts Division, Ministry of Statistics and Programme Implementation and Geological Survey of India, Ministry of Mines.
2.2. Data description
The statistics represent information about the reserves, installed capacity, potential for generation, production, consumption, import, export and wholesale price of different energy commodities, Energy Indicators on Economic Dimension and Energy Accounts.
2.3. Sector coverage
Coal & Lignite, Petroleum & Natural Gas, Renewable Energy Resources and Electricity. The indicators are based on the guidelines/approach followed by International Atomic Energy Agency in their publication "Energy Indicators for Sustainable Development: Guidelines and Methodologies", which was brought out in collaboration with United Nations Department of Economic and Social Affairs (UNDESA), International Energy Agency (IEA), Eurostat and European Environmental Agency (EEA). Also, the choice of indicators was made as per the availability of data from the subject ministries.
2.4. Data content
The Statistics are given by type of fuel and energy source. The publication includes analytical indicators viz. Growth Rates, Compound Annual Growth Rates (CAGR), Percentage Distributions and Economic Energy Indicators.

2.5. Statistical unit
Data are aggregated appropriately at national and state level.
2.6. Statistical population
Data covers all the energy commodity sources.
2.7. Reference area
The energy industries of the entire country are covered.
2.8. Time coverage
In the current publication the data given is for the period 2015-16 to 2024-25 and is based on statistics compiled by the Ministry of Petroleum and Natural Gas, Central Electricity Authority, Office of Coal Controller, Ministry of New and Renewable Energy. The data for Office of the Economic Advisor, Ministry of Commerce and Industry and National Accounts Division has been sourced for the year 2015-16 to 2024-25. Energy Indicators on Economic Dimensions have been compiled for the year 2024-25.
2.9. Base period
2011-12 for WPI and GDP data
2.10. Statistical concepts and definitions
The main Concepts and Definitions and certain Conversion Factors are given in Annex: I & Annex: II respectively. Annex III gives categorization of coal in India.

3. Unit of measure
Energy quantities data are recorded in physical units relevant to the product in question; Giga Watt hour (GWh) for electricity, Thousand Metric Tonne (TMT) for petroleum products etc. Prices are indicated by Wholesale Price Index. The Energy Balance is given in Kilo Tonne of oil equivalent (KToE). Consumption and Production of the Energy resources is also given in Petajoules (PJ).

4. Reference period
Reference period of the Publication of "Energy Statistics -2026" is the financial year 2024-25 and the previous financial years since 2015-16. For Energy Indicators reference period is Financial Year 2024-25.

5. Institutional mandate
5.1. Legal acts and other agreements

As per the mandate of the Ministry in allocation of Business rules.
5.2. Data sharing
The publication is disseminated on the website of the Ministry (MOSPI) and is available free of cost.

6. Confidentiality
6.1. Confidentiality – policy and data treatment
Confidentiality of the data is maintained by the data source ministries.

7. Release policy
7.1. Release calendar
Publication of Energy Statistics is released on MOSPI's web-site in end of March every year.
7.2. User access
MOSPI disseminates Energy Statistics on its website in an objective, professional and transparent manner in which all users are treated equitably. The detailed arrangements are governed by the data dissemination policy of Government of India.
8. Dissemination format
8.1. News release
Publication on Energy Statistics is released annually.
8.2. Publications
Annual publication in pdf format is available on the website of MOSPI.
9. Accessibility of documentation
9.1. Documentation on methodology
Information on the relevant Energy indicators methodology can be found in the publication in Chapter 8.

10. Accuracy and reliability
10.1. Overall accuracy

Annexure- III

Data on energy is published on the basis of information received from the source agencies. ESD, NSO compiles and analyses data received from the source agencies and then presents in the form of publication.

11. Timeliness and punctuality
11.1. Timeliness
Preliminary data on energy production and consumption and few energy indicators are available 12 months after the reference year. Final data for the year is published 24 months after the end of the reference year.
11.2. Punctuality
Annual publication on Energy Statistics is released by the end of March every year.

12. Data revision
12.1. Data revision – policy
The annual publication provides data on the last reference year and revisions for the year before. Revisions of entire time series when made by source agencies due to specific survey or data revision are incorporated in due time. The data revision by source Ministries is incorporated in the subsequent edition and hence some of the values may not match with the previous issues of this publication.
12.2. Data revision – practice
Preliminary data on energy production and consumption statistics for the year 2024-25 is published in current publication. Final data will be given in the next publication in March 2026.
13. Statistical processing
13.1. Source data
Energy data are collected from the source agencies at national level and presented in the publication. It is published in the ministry's web-site.
13.2. Frequency of data collection
Annual.
13.3. Data collection
Data is collected through e-mail or by publications brought out by the source agencies.
13.4. Data validation

Checks are carried out to the data before publishing it.
13.5. Data compilation
National figures are compiled by aggregating the data received from the source agencies.
13.6. Adjustment
No seasonal adjustment or temperature correction of the energy consumption is applied.

Annexure- IV

Energy Balance Table of India from 2015-16 to 2022-23

Table- I : Energy Balance of India for 2015-16 (Final)

All figures in KToE

	Coal	Lignite	Crude Oil	Oil Products	Natural Gas	Nuclear	Large Hydro	Solar, Wind, Others	Electricity	Total
Production	275,604	9,996	37,754	0	29,665	9,750	10,448	5,833	0	379,050
Imports	107,058	0	207,313	28,362	19,674	0	0	0	451	362,859
Exports	-1,061	0	0	-62,952	0	0	0	0	-443	-64,456
International marine bunkers				488						488
International aviation bunkers				1,290						1,290
Stock changes	-3,464	-372	0	0	0	0	0	0	0	-3,836
Total primary energy supply	**378,138**	**9,624**	**245,067**	**-32,812**	**49,339**	**9,750**	**10,448**	**5,833**	**8**	**675,395**
Statistical differences	5,007	1	12,106	-16,347	899	0	0	0	-1,264	402
Main activity producer electricity plants	-215,312	-8,563	0	-1,953	-10,017	-9,750	-10,438	-5,657	100,412	-161,278
Autoproducer electricity plants	0	0	0	0	0	0	-9	-176	14,480	14,295
Oil refineries	0	0	-237,987	236,171	0	0	0	0	0	-1,817
Energy industry own use	0	0	0	0	-10,031	0	0	0	-6,820	-16,851
Losses	0	0	-19,186	0	-1,035	0	0	0	-20,714	-40,935
Final consumption	**167,832**	**1,062**	**0**	**185,059**	**29,156**	**0**	**0**	**0**	**86,102**	**469,212**
Industry	**167,749**	**1,062**	**0**	**45,600**	**502**	**0**	**0**	**0**	**36,423**	**251,335**
Iron and steel	32,306	3	0	962	0	0	0	0	11,031	44,302
Chemical and petrochemical	18,168	52	0	12,251	0	0	0	0	4,153	34,624
Non-ferrous metals	29,749	233	0	378	0	0	0	0	1,899	32,259
Non-metallic minerals	57,631	141	0	368	0	0	0	0	3,362	61,502
Transport equipment	118	0	0	0	0	0	0	0	1,686	1,804
Machinery	975	0	0	209	0	0	0	0	2,582	3,766
Mining and quarrying	44	0	0	1,276	0	0	0	0	4	1,324
Food, beverages and tobacco	4,419	0	0	0	0	0	0	0	3,054	7,473
Paper, pulp and print	10,309	97	0	0	0	0	0	0	1,182	11,588
Wood and wood products	154	0	0	0	0	0	0	0	137	291
Construction	0	0	0	364	0	0	0	0	0	364
Textile and leather	12,681	394	0	115	0	0	0	0	5,381	18,571
Non-specified (industry)	1,196	142	0	29,676	502	0	0	0	1,952	33,467
Transport	**0**	**0**	**0**	**89,769**	**5,403**	**0**	**0**	**0**	**1,427**	**96,599**
Road	0	0	0	77,672	5,026	0	0	0	0	82,698
Domestic aviation	0	0	0	6,672	0	0	0	0	0	6,672
Rail	0	0	0	4,205	0	0	0	0	1,427	5,632
Pipeline transport	0	0	0	0	377	0	0	0	0	377
Domestic navigation	0	0	0	1,220	0	0	0	0	0	1,220
Non-specified (transport)	0	0	0	0	0	0	0	0	0	0
Other	**83**	**0**	**0**	**49,691**	**3,782**	**0**	**0**	**0**	**48,252**	**101,807**
Residential	0	0	0	26,012	0	0	0	0	20,543	46,555
Commercial and public services	0	0	0	64	0	0	0	0	7,399	7,463
Agriculture/forestry	83	0	0	3,879	0	0	0	0	14,894	18,855
Non-specified (other)	0	0	0	19,737	3,782	0	0	0	5,416	28,935
Non-energy use	**0**	**0**	**0**	**0**	**19,470**	**0**	**0**	**0**	**0**	**19,470**
Non-energy use industry/transformation/energy	0	0	0	0	19,470	0	0	0	0	19,470
Non-energy use in transport	0	0	0	0	0	0	0	0	0	0
Non-energy use in other	0	0	0	0	0	0	0	0	0	0
Elect. output in GWh	**0**	**0**	**0**	**0**	**0**	**37,414**	**121,487**	**67,827**	**0**	**226,727**
Elec output-main activity producer ele plants	0	0	0	0	0	37,414	121,377	65,781	0	224,571
Elec output-autoproducer electricity plants	0	0	0	0	0	0	110	2,046	0	2,156

Final consumption refers to End Use Consumption

Annexure- IV

Table II: Energy Balance of India for 2016-17 (Final)

All figures in KToE

	Coal	Lignite	Crude Oil	Oil Products	Natural Gas	Nuclear	Large Hydro	Solar, Wind, Others	Electricity	Total
Production	279,983	10,313	36,801	0	29,340	9,881	10,537	7,209	0	384,064
Imports	101,173	4	218,638	34,412	22,858	0	0	0	483	377,569
Exports	-1,194	-1	0	-68,246	0	0	0	0	-577	-70,018
International marine bunkers				288						288
International aviation bunkers				1,527						1,527
Stock changes	-6,143	-473	0	0	0	0	0	0	0	-6,616
Total primary energy supply	**373,820**	**9,843**	**255,439**	**-32,019**	**52,198**	**9,881**	**10,537**	**7,209**	**-94**	**686,814**
Statistical differences	7,709	1	15,832	-19,866	862	0	0	0	-1,280	3,258
Main activity producer electricity plants	-222,496	-8,852	0	-1,893	-10,685	-9,881	-10,524	-7,013	106,241	-165,104
Autoproducer electricity plants	0	0	0	0	0	0	-12	-196	14,796	14,588
Oil refineries	0	0	-250,760	248,176	0	0	0	0	0	-2,584
Energy industry own use	0	0	0	0	-10,331	0	0	0	-6,970	-17,301
Losses	0	0	-20,511	0	-964	0	0	0	-21,431	-42,906
Final consumption	**159,033**	**992**	**0**	**194,399**	**31,079**	**0**	**0**	**0**	**91,262**	**476,765**
Industry	**158,928**	**992**	**0**	**50,118**	**730**	**0**	**0**	**0**	**37,858**	**248,627**
Iron and steel	30,203	17	0	1,146	0	0	0	0	11,393	42,758
Chemical and petrochemical	17,219	45	0	12,177	0	0	0	0	4,366	33,806
Non-ferrous metals	31,140	0	0	428	0	0	0	0	1,804	33,372
Non-metallic minerals	53,291	161	0	218	0	0	0	0	3,517	57,187
Transport equipment	102	0	0	0	0	0	0	0	1,769	1,871
Machinery	659	0	0	206	0	0	0	0	2,658	3,524
Mining and quarrying	33	0	0	1,335	0	0	0	0	5	1,373
Food, beverages and tobacco	3,698	0	0	0	0	0	0	0	3,245	6,943
Paper, pulp and print	9,442	120	0	0	0	0	0	0	1,235	10,797
Wood and wood products	142	0	0	0	0	0	0	0	142	285
Construction	0	0	0	395	0	0	0	0	0	395
Textile and leather	11,895	295	0	238	0	0	0	0	5,620	18,048
Non-specified (industry)	1,102	355	0	33,976	730	0	0	0	2,103	38,267
Transport	**0**	**0**	**0**	**93,658**	**7,194**	**0**	**0**	**0**	**1,349**	**102,201**
Road	0	0	0	80,812	6,761	0	0	0	0	87,573
Domestic aviation	0	0	0	7,458	0	0	0	0	0	7,458
Rail	0	0	0	4,156	0	0	0	0	1,349	5,505
Pipeline transport	0	0	0	0	433	0	0	0	0	433
Domestic navigation	0	0	0	1,232	0	0	0	0	0	1,232
Non-specified (transport)	0	0	0	0	0	0	0	0	0	0
Other	**104**	**0**	**0**	**50,622**	**3,614**	**0**	**0**	**0**	**52,055**	**106,396**
Residential	0	0	0	26,479	0	0	0	0	22,001	48,480
Commercial and public services	0	0	0	83	0	0	0	0	7,725	7,808
Agriculture/forestry	104	0	0	3,917	0	0	0	0	16,439	20,461
Non-specified (other)	0	0	0	20,142	3,614	0	0	0	5,890	29,647
Non-energy use	**0**	**0**	**0**	**0**	**19,541**	**0**	**0**	**0**	**0**	**19,541**
Non-energy use industry/transformation/energy	0	0	0	0	19,541	0	0	0	0	19,541
Non-energy use in transport	0	0	0	0	0	0	0	0	0	0
Non-energy use in other	0	0	0	0	0	0	0	0	0	0
Elect. output in GWh	**0**	**0**	**0**	**0**	**0**	**37,916**	**122,521**	**83,825**	**0**	**244,262**
Elec output-main activity producer ele plants	0	0	0	0	0	37,916	122,378	81,548	0	241,842
Elec output-autoproducer electricity plants	0	0	0	0	0	0	144	2,277	0	2,421

Final consumption refers to End Use Consumption

Annexure- IV

Table-III : Energy Balance of India for 2017-18 (Final)

All figures in KToE

	Coal	Lignite	Crude Oil	Oil Products	Natural Gas	Nuclear	Large Hydro	Solar, Wind, Others	Electricity	Total
Production	279,336	10,635	36,469	0	30,033	9,993	10,856	8,958	0	386,280
Imports	110,331	2	225,282	33,920	25,240	0	0	0	436	395,212
Exports	-1,013	-1	0	-69,568	0	0	0	0	-619	-71,201
International marine bunkers				284						284
International aviation bunkers				1,624						1,624
Stock changes	8,071	-75	0	0	0	0	0	0	0	7,997
Total primary energy supply	**396,725**	**10,562**	**261,751**	**-33,739**	**55,273**	**9,993**	**10,856**	**8,958**	**-183**	**720,197**
Statistical differences	11,443	1	17,355	-17,433	-488	0	0	0	-1,389	9,489
Main activity producer electricity plants	-243,473	-8,855	0	-1,901	-11,064	-9,993	-10,847	-8,758	112,097	-182,794
Autoproducer electricity plants	0	0	0	0	0	0	-10	-200	15,461	15,251
Oil refineries	0	0	-257,477	259,169	0	0	0	0	0	1,692
Energy industry own use	0	0	0	0	-11,352	0	0	0	-7,065	-18,417
Losses	0	0	-21,629	0	-845	0	0	0	-22,306	-44,780
Final consumption	**164,695**	**1,707**	**0**	**206,097**	**37,430**	**0**	**0**	**0**	**96,615**	**506,544**
Industry	**164,665**	**1,707**	**0**	**53,456**	**919**	**0**	**0**	**0**	**40,301**	**261,049**
Iron and steel	37,206	49	0	1,123	0	0	0	0	11,648	50,026
Chemical and petrochemical	17,422	50	0	12,023	0	0	0	0	4,898	34,393
Non-ferrous metals	30,063	0	0	421	0	0	0	0	1,942	32,427
Non-metallic minerals	49,903	335	0	347	0	0	0	0	3,729	54,315
Transport equipment	111	0	0	0	0	0	0	0	1,964	2,075
Machinery	711	0	0	199	0	0	0	0	2,771	3,681
Mining and quarrying	239	173	0	1,368	0	0	0	0	8	1,788
Food, beverages and tobacco	5,284	0	0	0	0	0	0	0	3,523	8,807
Paper, pulp and print	9,581	0	0	0	0	0	0	0	1,235	10,816
Wood and wood products	160	0	0	0	0	0	0	0	162	322
Construction	0	0	0	506	0	0	0	0	0	506
Textile and leather	12,831	560	0	80	0	0	0	0	6,087	19,559
Non-specified (industry)	1,154	540	0	37,388	919	0	0	0	2,333	42,333
Transport	**0**	**0**	**0**	**101,417**	**14,259**	**0**	**0**	**0**	**1,499**	**117,175**
Road	0	0	0	87,261	12,479	0	0	0	0	99,740
Domestic aviation	0	0	0	8,136	0	0	0	0	0	8,136
Rail	0	0	0	4,244	0	0	0	0	1,499	5,743
Pipeline transport	0	0	0	0	1,779	0	0	0	0	1,779
Domestic navigation	0	0	0	1,776	0	0	0	0	0	1,776
Non-specified (transport)	0	0	0	0	0	0	0	0	0	0
Other	**30**	**0**	**0**	**51,223**	**3,141**	**0**	**0**	**0**	**54,815**	**109,209**
Residential	0	0	0	26,599	0	0	0	0	23,525	50,124
Commercial and public services	0	0	0	96	0	0	0	0	8,063	8,159
Agriculture/forestry	30	0	0	4,172	173	0	0	0	17,135	21,511
Non-specified (other)	0	0	0	20,355	2,968	0	0	0	6,092	29,415
Non-energy use	**0**	**0**	**0**	**0**	**19,111**	**0**	**0**	**0**	**0**	**19,111**
Non-energy use industry/transformation/energy	0	0	0	0	19,111	0	0	0	0	19,111
Non-energy use in transport	0	0	0	0	0	0	0	0	0	0
Non-energy use in other	0	0	0	0	0	0	0	0	0	0
Elect. output in GWh	**0**	**0**	**0**	**0**	**0**	**38,346**	**126,235**	**104,168**	**0**	**268,749**
Elec output-main activity producer ele plants	0	0	0	0	0	38,346	126,123	101,839	0	266,308
Elec output-autoproducer electricity plants	0	0	0	0	0	0	112	2,328	0	2,441

Final consumption refers to End Use Consumption

Annexure- IV

Table IV: Energy Balance of India for 2018-19 (Final)

All figures in KToE

	Coal	Lignite	Crude Oil	Oil Products	Natural Gas	Nuclear	Large Hydro	Solar, Wind, Others	Electricity	Total
Production	300,635	10,097	34,956	0	30,239	9,854	11,624	11,217	0	408,621
Imports	123,692	4	231,480	33,120	26,437	0	0	0	378	415,111
Exports	-880	-18	0	-63,507	0	0	0	0	-728	-65,134
International marine bunkers				292						292
International aviation bunkers				1,934						1,934
Stock changes	2,550	351	0	0	0	0	0	0	0	2,900
Total primary energy supply	**425,996**	**10,434**	**266,436**	**-28,162**	**56,676**	**9,854**	**11,624**	**11,217**	**-350**	**763,725**
Statistical differences	8,247	16	18,353	-22,517	-864	0	0	0	-1,484	1,750
Main activity producer electricity plants	-293,840	-8,602	0	-2,036	-11,043	-9,854	-11,601	-10,901	117,973	-229,904
Autoproducer electricity plants	0	0	0	0	0	0	-23	-316	18,324	17,985
Oil refineries	0	0	-262,863	267,135	0	0	0	0	0	4,272
Energy industry own use	0	0	0	0	-12,016	0	0	0	-7,171	-19,187
Losses	0	0	-21,926	0	-754	0	0	0	-23,234	-45,914
Final consumption	**140,404**	**1,847**	**0**	**214,420**	**32,000**	**0**	**0**	**0**	**104,058**	**492,728**
Industry	**140,399**	**1,847**	**0**	**55,922**	**999**	**0**	**0**	**0**	**44,651**	**243,818**
Iron and steel	32,477	32	0	1,175	0	0	0	0	12,447	46,132
Chemical and petrochemical	13,807	75	0	12,667	0	0	0	0	5,440	31,989
Non-ferrous metals	27,505	43	0	513	0	0	0	0	2,693	30,754
Non-metallic minerals	40,600	556	0	486	0	0	0	0	4,082	45,723
Transport equipment	68	0	0	0	0	0	0	0	2,195	2,263
Machinery	460	0	0	222	0	0	0	0	3,020	3,703
Mining and quarrying	213	0	0	1,589	0	0	0	0	10	1,813
Food, beverages and tobacco	4,530	0	0	0	0	0	0	0	3,987	8,517
Paper, pulp and print	8,211	137	0	0	0	0	0	0	1,302	9,650
Wood and wood products	126	0	0	0	0	0	0	0	180	306
Construction	0	0	0	592	0	0	0	0	0	592
Textile and leather	11,328	596	0	79	0	0	0	0	6,663	18,667
Non-specified (industry)	1,075	408	0	38,597	999	0	0	0	2,632	43,711
Transport	**0**	**0**	**0**	**106,320**	**8,966**	**0**	**0**	**0**	**1,620**	**116,906**
Road	0	0	0	91,085	8,468	0	0	0	0	99,554
Domestic aviation	0	0	0	8,847	0	0	0	0	0	8,847
Rail	0	0	0	4,367	0	0	0	0	1,620	5,987
Pipeline transport	0	0	0	0	497	0	0	0	0	497
Domestic navigation	0	0	0	2,021	0	0	0	0	0	2,021
Non-specified (transport)	0	0	0	0	0	0	0	0	0	0
Other	**4**	**0**	**0**	**52,178**	**3,298**	**0**	**0**	**0**	**57,787**	**113,267**
Residential	0	0	0	27,755	0	0	0	0	24,789	52,544
Commercial and public services	0	0	0	97	0	0	0	0	8,448	8,544
Agriculture/forestry	4	0	0	4,342	177	0	0	0	18,353	22,876
Non-specified (other)	0	0	0	19,985	3,121	0	0	0	6,197	29,303
Non-energy use	**0**	**0**	**0**	**0**	**18,738**	**0**	**0**	**0**	**0**	**18,738**
Non-energy use industry/transformation/energy	0	0	0	0	18,738	0	0	0	0	18,738
Non-energy use in transport	0	0	0	0	0	0	0	0	0	0
Non-energy use in other	0	0	0	0	0	0	0	0	0	0
Elect. output in GWh	**0**	**0**	**0**	**0**	**0**	**37,813**	**135,164**	**130,433**	**0**	**303,409**
Elec output-main activity producer ele plants	0	0	0	0	0	37,813	134,894	126,759	0	299,465
Elec output-autoproducer electricity plants	0	0	0	0	0	0	270	3,674	0	3,944
Final consumption refers to End Use Consumption										

Annexure- IV

Table-V : Energy Balance of India for 2019-20 (Final)

All figures in KToE

	Coal	Lignite	Crude Oil	Oil Products	Natural Gas	Nuclear	Large Hydro	Solar, Wind, Others	Electricity	Total
Production	299,054	9,598	32,877	0	28,685	12,111	13,426	12,440	0	408,191
Imports	130,984	12	231,947	43,047	31,171	0	0	0	546	437,708
Exports	-694	-21	0	-68,496	0	0	0	0	-816	-70,027
International marine bunkers				387						387
International aviation bunkers				1,974						1,974
Stock changes	-13,799	40	0	0	0	0	0	0	0	-13,759
Total primary energy supply	**415,546**	**9,630**	**264,825**	**-23,088**	**59,856**	**12,111**	**13,426**	**12,440**	**-270**	**764,475**
Statistical differences	12,564	20	19,289	-27,063	-1,471	0	0	0	-1,527	1,812
Main activity producer electricity plants	-288,022	-8,284	0	-2,047	-10,192	-12,111	-13,396	-11,897	118,974	-226,975
Autoproducer electricity plants	0	0	0	0	0	0	-30	-543	20,603	20,030
Oil refineries	0	0	-259,982	267,734	0	0	0	0	0	7,752
Energy industry own use	0	0	0	0	-12,729	0	0	0	-7,164	-19,893
Losses	0	0	-24,132	0	-853	0	0	0	-23,280	-48,266
Final consumption	**140,087**	**1,366**	**0**	**215,536**	**38,376**	**0**	**0**	**0**	**107,335**	**502,700**
Industry	**140,087**	**1,366**	**0**	**55,939**	**644**	**0**	**0**	**0**	**45,822**	**243,858**
Iron and steel	31,672	8	0	1,089	0	0	0	0	12,484	45,252
Chemical and petrochemical	13,674	68	0	12,623	0	0	0	0	6,198	32,563
Non-ferrous metals	35,805	10	0	405	0	0	0	0	2,625	38,845
Non-metallic minerals	35,389	333	0	394	0	0	0	0	4,154	40,271
Transport equipment	73	0	0	0	0	0	0	0	2,285	2,358
Machinery	347	0	0	192	0	0	0	0	3,345	3,883
Mining and quarrying	227	0	0	1,688	0	0	0	0	13	1,928
Food, beverages and tobacco	4,439	0	0	0	0	0	0	0	4,150	8,589
Paper, pulp and print	6,665	124	0	0	0	0	0	0	1,328	8,118
Wood and wood products	109	0	0	0	0	0	0	0	195	304
Construction	0	0	0	698	0	0	0	0	0	698
Textile and leather	10,628	37	0	66	0	0	0	0	6,225	16,956
Non-specified (industry)	1,060	785	0	38,784	644	0	0	0	2,820	44,094
Transport	**0**	**0**	**0**	**106,816**	**14,259**	**0**	**0**	**0**	**1,647**	**122,722**
Road	0	0	0	92,024	12,479	0	0	0	0	104,503
Domestic aviation	0	0	0	8,524	0	0	0	0	0	8,524
Rail	0	0	0	4,163	0	0	0	0	1,647	5,810
Pipeline transport	0	0	0	0	1,779	0	0	0	0	1,779
Domestic navigation	0	0	0	2,105	0	0	0	0	0	2,105
Non-specified (transport)	0	0	0	0	0	0	0	0	0	0
Other	**0**	**0**	**0**	**52,782**	**4,055**	**0**	**0**	**0**	**59,866**	**116,703**
Residential	0	0	0	28,228	0	0	0	0	26,552	54,780
Commercial and public services	0	0	0	86	0	0	0	0	9,120	9,206
Agriculture/forestry	0	0	0	4,261	184	0	0	0	18,171	22,617
Non-specified (other)	0	0	0	20,207	3,871	0	0	0	6,023	30,101
Non-energy use	**0**	**0**	**0**	**0**	**19,417**	**0**	**0**	**0**	**0**	**19,417**
Non-energy use industry/transformation/energy	0	0	0	0	19,417	0	0	0	0	19,417
Non-energy use in transport	0	0	0	0	0	0	0	0	0	0
Non-energy use in other	0	0	0	0	0	0	0	0	0	0
Elect. output in GWh	**0**	**0**	**0**	**0**	**0**	**46,472**	**156,117**	**144,647**	**0**	**347,237**
Elec output-main activity producer ele plants	0	0	0	0	0	46,472	155,769	138,337	0	340,579
Elec output-autoproducer electricity plants	0	0	0	0	0	0	348	6,310	0	6,659

Final consumption refers to End Use Consumption

Annexure- IV

Table VI: Energy Balance of India for 2020-21 (Final)

All figures in KToE

	Coal	Lignite	Crude Oil	Oil Products	Natural Gas	Nuclear	Large Hydro	Solar, Wind, Others	Electricity	Total
Production	289,135	8,640	31,165	0	26,522	11,214	12,955	13,279	0	392,909
Imports	115,537	4	200,783	42,915	30,554	0	0	0	821	390,614
Exports	-1,984	-43	0	-59,090	0	0	0	0	-823	-61,939
International marine bunkers				629						629
International aviation bunkers				781						781
Stock changes	-11,639	117	0	0	0	0	0	0	0	-11,521
Total primary energy supply	**391,049**	**8,719**	**231,947**	**-14,764**	**57,076**	**11,214**	**12,955**	**13,279**	**-2**	**711,472**
Statistical differences	9,515	62	18,012	-24,544	953	0	0	0	-1,285	2,713
Main activity producer electricity plants	-259,370	-7,510	0	-1,818	-10,023	-11,214	-12,926	-12,663	118,094	-197,429
Autoproducer electricity plants	0	0	0	0	0	0	-29	-616	19,335	18,690
Oil refineries	0	0	-226,652	237,827	0	0	0	0	0	11,175
Energy industry own use	0	0	0	0	-12,618	0	0	0	-6,921	-19,539
Losses	0	0	-23,308	0	-822	0	0	0	-23,424	-47,553
Final consumption	**141,194**	**1,271**	**0**	**196,701**	**34,566**	**0**	**0**	**0**	**105,798**	**479,530**
Industry	**141,192**	**1,271**	**0**	**51,182**	**513**	**0**	**0**	**0**	**43,755**	**237,913**
Iron and steel	32,486	5	0	984	0	0	0	0	11,921	45,397
Chemical and petrochemical	14,358	83	0	12,964	0	0	0	0	5,918	33,324
Non-ferrous metals	35,159	0	0	471	0	0	0	0	2,507	38,137
Non-metallic minerals	35,024	282	0	376	0	0	0	0	3,967	39,650
Transport equipment	61	0	0	0	0	0	0	0	2,182	2,243
Machinery	335	0	0	171	0	0	0	0	3,194	3,700
Mining and quarrying	188	0	0	1,794	0	0	0	0	12	1,993
Food, beverages and tobacco	4,806	0	0	0	0	0	0	0	3,963	8,769
Paper, pulp and print	7,007	129	0	0	0	0	0	0	1,268	8,405
Wood and wood products	114	0	0	0	0	0	0	0	187	301
Construction	0	0	0	880	0	0	0	0	0	880
Textile and leather	10,552	66	0	59	0	0	0	0	5,944	16,621
Non-specified (industry)	1,100	704	0	33,483	513	0	0	0	2,693	38,494
Transport	**0**	**0**	**0**	**91,223**	**8,944**	**0**	**0**	**0**	**1,261**	**101,428**
Road	0	0	0	82,598	8,537	0	0	0	0	91,135
Domestic aviation	0	0	0	3,941	0	0	0	0	0	3,941
Rail	0	0	0	2,641	0	0	0	0	1,261	3,903
Pipeline transport	0	0	0	0	406	0	0	0	0	406
Domestic navigation	0	0	0	2,042	0	0	0	0	0	2,042
Non-specified (transport)	0	0	0	0	0	0	0	0	0	0
Other	**2**	**0**	**0**	**54,296**	**4,390**	**0**	**0**	**0**	**60,782**	**119,470**
Residential	0	0	0	29,963	0	0	0	0	28,450	58,413
Commercial and public services	0	0	0	68	0	0	0	0	7,478	7,546
Agriculture/forestry	2	0	0	3,865	164	0	0	0	19,032	23,063
Non-specified (other)	0	0	0	20,400	4,226	0	0	0	5,822	30,448
Non-energy use	**0**	**0**	**0**	**0**	**20,719**	**0**	**0**	**0**	**0**	**20,719**
Non-energy use industry/transformation/energy	0	0	0	0	20,719	0	0	0	0	20,719
Non-energy use in transport	0	0	0	0	0	0	0	0	0	0
Non-energy use in other	0	0	0	0	0	0	0	0	0	0
Elect. output in GWh	**0**	**0**	**0**	**0**	**0**	**43,029**	**150,639**	**154,405**	**0**	**348,073**
Elec output-main activity producer ele plants	0	0	0	0	0	43,029	150,300	147,248	0	340,576
Elec output-autoproducer electricity plants	0	0	0	0	0	0	339	7,158	0	7,497

Final consumption refers to End Use Consumption

P: Provisional

Annexure- IV

Table-VII : Energy Balance of India for 2021-22 (Final)

All figures in KToE

	Coal	Lignite	Crude Oil	Oil Products	Natural Gas	Nuclear	Large Hydro	Solar, Wind, Others	Electricity	Total
Production	312,681	10,828	30,344	0	31,471	12,278	13,071	15,284	0	425,957
Imports	115,989	3	217,054	39,912	28,701	0	0	0	686	402,343
Exports	-886	-4	0	-65,588	0	0	0	0	-795	-67,274
International marine bunkers				727						727
International aviation bunkers				1,059						1,059
Stock changes	16,917	363	0	0	0	0	0	0	0	17,280
Total primary energy supply	**444,701**	**11,190**	**247,397**	**-23,891**	**60,172**	**12,278**	**13,071**	**15,284**	**-110**	**780,093**
Statistical differences	-2,009	1	23,638	-28,307	2,991	0	0	0	-1,424	-5,110
Main activity producer electricity plants	-296,552	-8,837	0	-1,962	-9,395	-12,278	-13,040	-14,698	127,664	-229,098
Autoproducer electricity plants	0	0	0	0	0	0	-31	-586	18,001	17,384
Oil refineries	0	0	-247,021	259,358	0	0	0	0	0	12,337
Energy industry own use	0	0	0	0	-10,248	0	0	0	-7,461	-17,709
Losses	0	0	-24,015	0	-839	0	0	0	-23,428	-48,282
Final consumption	**146,140**	**2,355**	**0**	**205,198**	**45,228**	**0**	**0**	**0**	**113,242**	**512,162**
Industry	**146,138**	**2,355**	**0**	**49,620**	**878**	**0**	**0**	**0**	**47,857**	**246,847**
Iron and steel	32,834	61	0	1,136	0	0	0	0	13,103	47,134
Chemical and petrochemical	15,573	86	0	13,555	0	0	0	0	6,586	35,799
Non-ferrous metals	36,871	0	0	497	0	0	0	0	2,905	40,274
Non-metallic minerals	35,857	612	0	402	0	0	0	0	4,323	41,194
Transport equipment	55	0	0	0	0	0	0	0	2,355	2,409
Machinery	346	0	0	180	0	0	0	0	3,391	3,917
Mining and quarrying	163	0	0	1,734	0	0	0	0	13	1,911
Food, beverages and tobacco	5,234	0	0	0	0	0	0	0	4,412	9,646
Paper, pulp and print	7,457	480	0	0	0	0	0	0	1,354	9,291
Wood and wood products	108	0	0	0	0	0	0	0	203	310
Construction	0	0	0	791	0	0	0	0	0	791
Textile and leather	10,517	474	0	55	0	0	0	0	6,266	17,312
Non-specified (industry)	1,125	642	0	31,270	878	0	0	0	2,946	36,860
Transport	**0**	**0**	**0**	**99,377**	**14,259**	**0**	**0**	**0**	**1,886**	**115,522**
Road	0	0	0	88,544	12,479	0	0	0	0	101,023
Domestic aviation	0	0	0	5,338	0	0	0	0	0	5,338
Rail	0	0	0	3,254	0	0	0	0	1,886	5,141
Pipeline transport	0	0	0	0	1,779	0	0	0	0	1,779
Domestic navigation	0	0	0	2,241	0	0	0	0	0	2,241
Non-specified (transport)	0	0	0	0	0	0	0	0	0	0
Other	**2**	**0**	**0**	**56,202**	**8,681**	**0**	**0**	**0**	**63,498**	**128,382**
Residential	0	0	0	30,160	0	0	0	0	29,221	59,381
Commercial and public services	0	0	0	67	0	0	0	0	8,352	8,419
Agriculture/forestry	2	0	0	3,970	144	0	0	0	19,647	23,763
Non-specified (other)	0	0	0	22,005	8,536	0	0	0	6,278	36,819
Non-energy use	**0**	**0**	**0**	**0**	**21,411**	**0**	**0**	**0**	**0**	**21,411**
Non-energy use industry/transformation/energy	0	0	0	0	21,411	0	0	0	0	21,411
Non-energy use in transport	0	0	0	0	0	0	0	0	0	0
Non-energy use in other	0	0	0	0	0	0	0	0	0	0
Elect. output in GWh	**0**	**0**	**0**	**0**	**0**	**47,112**	**151,984**	**177,725**	**0**	**376,821**
Elec output-main activity producer ele plants	0	0	0	0	0	47,112	151,627	170,912	0	369,652
Elec output-autoproducer electricity plants	0	0	0	0	0	0	357	6,813	0	7,170

Final consumption refers to End Use Consumption

Annexure- IV

Table VIII: Energy Balance of India for 2022-23 (Final)

All figures in KToE

	Coal	Lignite	Crude Oil	Oil Products	Natural Gas	Nuclear	Large Hydro	Solar, Wind, Others	Electricity	Total
Production	359,798	10,039	29,821	0	31,866	11,952	13,965	18,253	0	475,694
Imports	126,343	5	237,819	44,703	24,331	0	0	0	657	433,858
Exports	-785	-76	0	-63,660	0	0	0	0	-1,186	-65,708
International marine bunkers				1,008						1,008
International aviation bunkers				2,453						2,453
Stock changes	-6,502	418	0	0	0	0	0	0	0	-6,084
Total primary energy supply	**478,853**	**10,386**	**267,640**	**-15,496**	**56,198**	**11,952**	**13,965**	**18,253**	**-529**	**841,222**
Statistical differences	4,689	295	19,822	-32,571	3,942	0	0	0	-1,581	-5,405
Main activity producer electricity plants	-340,273	-8,880	0	-2,219	-7,541	-11,952	-13,940	-17,506	139,140	-263,171
Autoproducer electricity plants	0	0	0	0	0	0	-25	-747	18,226	17,454
Oil refineries	0	0	-260,847	271,968	0	0	0	0	0	11,121
Energy industry own use	0	0	0	0	-8,713	0	0	0	-8,035	-16,748
Losses	0	0	-26,615	0	-742	0	0	0	-23,354	-50,712
Final consumption	**143,269**	**1,801**	**0**	**221,683**	**43,142**	**0**	**0**	**0**	**123,867**	**533,762**
Industry	**143,267**	**1,801**	**0**	**50,632**	**800**	**0**	**0**	**0**	**51,075**	**247,575**
Iron and steel	32,833	28	0	1,021	0	0	0	0	13,938	47,821
Chemical and petrochemical	15,669	229	0	11,858	0	0	0	0	7,647	35,403
Non-ferrous metals	36,590	5	0	469	0	0	0	0	2,998	40,063
Non-metallic minerals	34,685	329	0	298	0	0	0	0	4,655	39,967
Transport equipment	41	0	0	0	0	0	0	0	2,501	2,542
Machinery	309	0	0	99	0	0	0	0	3,551	3,959
Mining and quarrying	47	0	0	1,201	0	0	0	0	12	1,261
Food, beverages and tobacco	5,165	0	0	0	0	0	0	0	4,654	9,820
Paper, pulp and print	7,275	204	0	0	0	0	0	0	1,407	8,886
Wood and wood products	100	0	0	0	0	0	0	0	215	315
Construction	0	0	0	203	0	0	0	0	0	203
Textile and leather	9,488	422	0	31	0	0	0	0	6,341	16,283
Non-specified (industry)	1,064	583	0	35,451	800	0	0	0	3,155	41,053
Transport	**0**	**0**	**0**	**116,495**	**12,758**	**0**	**0**	**0**	**2,582**	**131,835**
Road	0	0	0	102,316	11,126	0	0	0	0	113,442
Domestic aviation	0	0	0	7,861	0	0	0	0	0	7,861
Rail	0	0	0	3,517	0	0	0	0	2,582	6,100
Pipeline transport	0	0	0	0	1,632	0	0	0	0	1,632
Domestic navigation	0	0	0	2,801	0	0	0	0	0	2,801
Non-specified (transport)	0	0	0	0	0	0	0	0	0	0
Other	**2**	**0**	**0**	**54,557**	**8,037**	**0**	**0**	**0**	**70,209**	**132,804**
Residential	0	0	0	28,997	0	0	0	0	30,371	59,368
Commercial and public services	0	0	0	65	0	0	0	0	10,082	10,147
Agriculture/forestry	2	0	0	4,377	143	0	0	0	20,971	25,493
Non-specified (other)	0	0	0	21,118	7,894	0	0	0	8,785	37,797
Non-energy use	**0**	**0**	**0**	**0**	**21,548**	**0**	**0**	**0**	**0**	**21,548**
Non-energy use industry/transformation/energy	0	0	0	0	21,548	0	0	0	0	21,548
Non-energy use in transport	0	0	0	0	0	0	0	0	0	0
Non-energy use in other	0	0	0	0	0	0	0	0	0	0
Elect. output in GWh	**0**	**0**	**0**	**0**	**0**	**45,861**	**162,389**	**212,242**	**0**	**420,493**
Elec output-main activity producer ele plants	0	0	0	0	0	45,861	162,099	203,555	0	411,514
Elec output-autoproducer electricity plants	0	0	0	0	0	0	291	8,688	0	8,979

Final consumption refers to End Use Consumption

P: Provisional

References

United Nations, *International Recommendations for Energy Statistics (IRES)*, Statistical Papers, Series M, No. 93, 2018. Available at https://unstats.un.org/unsd/ energy/ires/IRES-web.pdf

United Nations. (2018). *System of Environmental-Economic Accounting for Energy (SEEA-Energy*). Available at https: // seea. un. Org /sites /seea.un.org /files/documents/seeaenergy_final_web.pdf

United Nations, (2015), *Transforming our world: the 2030 Agenda for Sustainable Development,* A/RES/70/1, 70th Session.

International Atomic Energy Agency and others. *Energy Indicators for Sustainable Development: Guidelines and Methodologies.* Vienna, 2005. Available at www-pub.iaea.org/MTCD/ publications/PDF/Pub1222_web.pdf.

International Energy Agency (IEA), 2014, *Energy Efficiency Indicators: Fundamentals on Statistics*.

Organization for Economic Cooperation and Development, International Energy Agency and Eurostat. *Energy Statistics Manual*. Paris, 2005.

United Nations, Economic Commission for Europe. *United Nations Framework Classification for Fossil Energy and Mineral Reserves and Resources* 2009. ECE Energy Series, No. 39. 2010. Available at www.unece.org/fileadmin/DAM/energy/se/pdfs/UNFC/UNFC2009_ECE_EnergySeries39.pdf.

United Nations, European Commission, Food and Agriculture Organization of the United Nations, International Monetary Fund, Organization for Economic Cooperation and Development and World Bank. *System of Environmental-Economic Accounting 2012: Central Framework*. 2014

Ministry of Coal, Coal Controller's Organisation, Kolkata, Various Editions, *Provisional Coal Statistics* and *Coal Directory of India*.

Ministry of Petroleum and Natural Gas, Economics & Statistics Division, Various Editions, *Indian Petroleum & Natural Gas Statistics*.

Ministry of New and Renewable Energy Resources, *Annual Report and Generation Reports*, Various Editions.

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