

# **India Low & Medium Rating Diesel Genset Market Segmented By Rating (Low Rating and Medium Rating), By kVA Rating (5kVa – 50 kVa, 50.1 kVa – 100 kVa and 100.1 kVa – 162.5 kVa), By End-User (Residential, Commercial and Industrial), By Region, and By Competition, 2019-2029F**

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## **Abstracts**

India Low & Medium Rating Diesel Genset Market was valued at USD 638.91 million in 2023 and is anticipated to project robust growth in the forecast period with a CAGR of 5.61% through 2029. India encounters challenges with its power grid, encompassing frequent power outages and voltage fluctuations. This unreliable power supply fuels the need for backup generators to ensure uninterrupted electricity supply, particularly in vital facilities such as hospitals, data centers, and manufacturing units.

### **Key Market Drivers**

#### **Increasing Power Demand & Frequent Power Outages**

The increasing demand for reliable power sources in India, driven by the nation's ever-growing power needs and frequent power outages, has become a significant factor in the low and medium rating diesel genset market. With India's remarkable economic progress, there is a heightened reliance on electricity across industries, commercial establishments, and households. However, the country's power infrastructure often struggles to meet the escalating demand, resulting in frequent power interruptions.

These power outages pose severe consequences for businesses, data centers, healthcare facilities, and critical infrastructure. To mitigate these risks and ensure

uninterrupted operations, many organizations and individuals resort to low and medium rating diesel gensets as a backup power source. These gensets provide a reliable and immediate solution to power shortages, enabling businesses to continue their operations seamlessly.

Furthermore, the demand for electricity is projected to further increase with government initiatives aimed at promoting digitalization, industrialization, and infrastructure development. Consequently, the low and medium rating diesel genset market in India is poised for substantial growth, bridging the gap between supply and demand.

### Expansion of Key Industries & Infrastructure Development

Another significant driver for the low and medium rating diesel genset market in India is the expansion of key industries and ongoing infrastructure development projects. India's economic growth has been accompanied by rapid urbanization and industrialization, resulting in the establishment of manufacturing units, construction sites, and critical infrastructure projects nationwide.

Industries such as manufacturing, information technology, telecommunications, healthcare, and hospitality heavily rely on uninterrupted power supplies to sustain production and services. Infrastructure projects like metro rail systems, airports, and smart cities also necessitate backup power solutions to ensure the smooth functioning of essential services.

In many instances, these industries and projects are situated in areas with inconsistent or unreliable grid power, making diesel gensets a vital component of their operations. Consequently, the demand for low and medium rating diesel gensets has exhibited consistent growth.

Furthermore, the government's commitment to infrastructure development through initiatives like 'Make in India' and 'Smart Cities Mission' has further stimulated the adoption of diesel gensets. These gensets serve as a reliable power source in remote and underserved regions where grid connectivity is often limited.

### Technological Advancements & Environmental Concerns

Technological advancements and environmental concerns are significant drivers in India's low and medium rating diesel genset market. Over the years, there have been notable improvements in genset technology, resulting in increased efficiency, reliability,

and environmental friendliness.

Modern diesel gensets come equipped with advanced features like automatic start/stop systems, remote monitoring capabilities, and enhanced fuel efficiency. These features not only enhance the performance of gensets but also reduce operational costs and minimize environmental impact.

Moreover, there is a growing emphasis on emissions reduction and transitioning to cleaner energy sources globally. In response to environmental concerns, diesel genset manufacturers have developed models that comply with stringent emission norms, such as Bharat Stage (BS) VI in India. These cleaner-burning gensets emit fewer pollutants, aligning with India's commitment to sustainable development.

In conclusion, the low and medium rating diesel genset market in India is driven by increasing power demand, expansion of key industries and infrastructure projects, as well as technological advancements that improve efficiency and reduce environmental impact. As the nation continues to develop and urbanize, the reliance on these backup power solutions is expected to grow, making it a promising market for manufacturers and providers in the years to come.

## Key Market Challenges

### Environmental Concerns & Emissions Regulations

One of the foremost challenges confronting the low and medium rating diesel genset market in India is the escalating scrutiny and concern regarding environmental issues and emissions regulations. Diesel gensets are renowned for their emissions of pollutants, including nitrogen oxides (NO<sub>x</sub>), particulate matter (PM), and carbon dioxide (CO<sub>2</sub>). These emissions have detrimental effects on air quality and contribute to climate change, making them a significant environmental concern.

In response to these concerns, governments worldwide, including India, have implemented stringent emissions standards for diesel engines. In India, the Bharat Stage (BS) emission standards have been enforced to regulate emissions from diesel gensets. Compliance with these standards necessitates genset manufacturers to invest in advanced technologies such as selective catalytic reduction (SCR) and diesel particulate filters (DPF), which can augment the cost of the gensets.

Meeting these emissions standards while ensuring affordability poses a substantial

challenge for manufacturers in the low and medium rating diesel genset market. Striking the appropriate balance between environmental responsibility and cost-effectiveness is crucial to maintain competitiveness in the market.

### Increasing Competition from Alternative Power Sources

One of the key challenges faced by the low and medium rating diesel genset market in India is the increasing competition from alternative power sources, particularly renewable energy solutions. India has been making substantial investments in solar and wind power to diversify its energy mix and reduce dependence on fossil fuels.

Renewable energy sources are becoming more cost-effective and environmentally friendly, making them attractive alternatives to diesel gensets, especially for backup power applications. Moreover, advancements in battery storage technology offer cleaner and more reliable backup power options.

As the cost of renewable energy solutions continues to decrease and government incentives promote their adoption, businesses and individuals may choose these alternatives over diesel gensets. This competition poses a significant challenge to the diesel genset market, requiring the industry to innovate and adapt to evolving customer preferences and market dynamics.

### Fuel Price Volatility & Supply Chain Disruptions

Fuel price volatility and supply chain disruptions pose significant challenges for the low and medium rating diesel genset market in India. Fluctuations in diesel fuel prices, driven by global oil market dynamics, geopolitical events, and supply-demand imbalances, can substantially impact the operational costs of gensets, making it difficult for users to predict and manage their power generation expenses.

Furthermore, supply chain disruptions, as observed during the COVID-19 pandemic, can disrupt the availability of critical components and spare parts for genset manufacturing and maintenance. These interruptions in the supply chain can lead to production delays, increased costs, and potential market shortages.

To address these challenges, genset manufacturers must develop strategies to ensure price stability, such as establishing long-term fuel supply agreements and designing fuel-efficient gensets. Additionally, building resilient supply chains with multiple sourcing options and contingency plans can help mitigate the impact of disruptions.

In conclusion, the low and medium rating diesel genset market in India faces significant challenges concerning environmental concerns, emissions regulations, competition from alternative power sources, fuel price volatility, and supply chain disruptions. Overcoming these challenges will require a combination of technological innovation, regulatory compliance, and strategic planning to ensure the continued relevance and sustainability of the genset industry in India's evolving energy landscape.

## Key Market Trends

### Adoption of Cleaner and More Fuel-Efficient Technologies

One notable trend observed in the Indian market for low and medium rating diesel gensets is the increasing adoption of cleaner and more fuel-efficient technologies. This trend is driven by both regulatory requirements and a growing environmental consciousness among businesses and individuals.

To address environmental concerns and comply with emissions regulations such as the Bharat Stage (BS) standards, genset manufacturers are actively developing and offering diesel gensets that burn cleaner fuel. These gensets are equipped with advanced technologies like selective catalytic reduction (SCR) and diesel particulate filters (DPF) to effectively reduce harmful emissions such as nitrogen oxides (NOx) and particulate matter (PM). By employing these technologies, not only is air quality improved, but strict emission norms are also met.

Furthermore, manufacturers are placing a significant emphasis on enhancing fuel efficiency in diesel gensets. This focus is vital in reducing operating costs and minimizing the environmental impact of genset usage. Gensets now incorporate advanced engine designs, improved combustion processes, and integrated energy management systems to optimize fuel consumption. Given that fuel costs remain a significant expense for genset users, the ongoing shift towards greater fuel efficiency is expected to gain momentum.

### Integration of Smart and Digital Technologies

Another significant trend in the Indian low and medium rating diesel genset market is the incorporation of smart and digital technologies. Genset manufacturers are increasingly integrating advanced control systems and monitoring solutions into their products to enhance performance, reliability, and user convenience.

Smart gensets are equipped with features such as remote monitoring and control, predictive maintenance capabilities, and real-time data analytics. These functionalities empower users to monitor the status of their gensets, diagnose issues remotely, and proactively schedule maintenance, thereby reducing downtime and operational disruptions.

Moreover, digital technologies enable the integration of gensets into larger power management systems, facilitating seamless load management and optimization of power generation. This integration is particularly valuable for industries relying on gensets as backup power sources, ensuring a smooth transition between grid power and genset power when required.

With the increasing adoption of Industry 4.0 and the Internet of Things (IoT) in India, the trend of integrating smart and digital technologies into diesel gensets is expected to proliferate further, resulting in more efficient and user-friendly genset operation.

## Segmental Insights

### kVA Rating Insights

The 50.1 kVa – 100 kVa segment emerged as the dominant player in 2023. Diesel gensets in this power range are commonly utilized for a range of applications, including backup power for small to medium-sized businesses, industrial facilities, hospitals, and residential complexes. The 50.1 kVA to 100 kVA segment of the Indian diesel genset market holds significant importance in terms of both size and demand. The market for gensets in this range has exhibited steady growth owing to factors such as increasing industrialization, urbanization, and the need for reliable backup power sources.

Prominent manufacturers and suppliers of diesel gensets, such as Cummins India, Kirloskar Oil Engines Limited, Mahindra Powerol, Ashok Leyland, and Greaves Cotton, are actively involved in this segment. The primary applications for 50.1 kVA to 100 kVA diesel gensets in India include providing backup power to small and medium-sized industries, commercial establishments, data centers, hospitals, and residential complexes.

The Indian government has implemented various emissions and noise pollution regulations for diesel gensets, which have implications for manufacturers and users. Compliance with these regulations is a significant concern in the industry. Customers in

this segment are increasingly seeking gensets that offer enhanced fuel efficiency and lower emissions to adhere to environmental regulations and reduce operating costs.

### End-User Insights

The Commercial segment is projected to experience rapid growth during the forecast period. The demand for diesel gensets in the commercial sector is predominantly concentrated in urban areas due to higher concerns regarding electricity reliability. Major cities such as Mumbai, Delhi, Bengaluru, and Chennai serve as key markets for commercial gensets.

Prominent players in the commercial segment include major genset manufacturers like Cummins India, Kirloskar Oil Engines Limited, Mahindra Powerol, and Ashok Leyland. Additionally, various regional and local suppliers cater to the specific needs of businesses in different regions.

Economic factors, such as the cost of downtime during power outages and the expense of backup power systems, drive the demand for diesel gensets in the commercial sector. Hence, smart genset monitoring systems and remote management capabilities are increasingly crucial for commercial users to efficiently monitor and control their gensets. In some environmentally conscious commercial establishments, a combination of solar, battery storage, or natural gas generators with diesel gensets may be explored as a hybrid solution to reduce emissions and operational costs.

Competition in the commercial segment is fierce, with companies striving to provide the most reliable and cost-effective solutions. After-sales service and support serve as critical factors that set genset providers apart in this segment.

As businesses prioritize uninterrupted power supply to meet customer expectations, the commercial segment of the Indian diesel genset market is expected to continue its growth trajectory. Manufacturers will focus on offering more efficient and environmentally friendly genset solutions to cater to the evolving needs of commercial users.

### Regional Insights

Southern India emerged as the dominant player in the India Low & Medium Rating Diesel Genset market in 2023. South India encompasses the states of Andhra Pradesh, Karnataka, Kerala, Tamil Nadu, and Telangana, and exhibits distinct characteristics that

influence the genset market. South India is renowned for its robust economic growth, driven by prominent industries such as information technology, manufacturing, and services. This economic activity necessitates the need for reliable backup power sources, making diesel gensets a vital component of the region's energy infrastructure.

South India is home to various industrial clusters, including the Electronics Manufacturing Cluster in Tamil Nadu, the Information Technology Hub in Hyderabad (Telangana), and several manufacturing hubs in Karnataka. These industrial centers heavily rely on diesel gensets to ensure uninterrupted production. Additionally, agriculture plays a significant role in the region's economy, with many agricultural activities, including irrigation and crop processing, depending on electric pumps and machinery powered by gensets.

Rapid urbanization and infrastructure development are transforming South India, with the implementation of smart city projects and metro rail systems. These initiatives create opportunities for genset deployment to ensure continuous power supply during construction and operation. Moreover, the telecommunications sector in the region is experiencing significant growth, driven by the presence of IT companies and the demand for enhanced connectivity. Telecom towers often rely on gensets to guarantee uninterrupted network coverage.

The emerging markets in South India, particularly in Andhra Pradesh and Telangana, offer untapped opportunities for genset manufacturers and service providers, as these regions strive to industrialize and expand their infrastructure.

In conclusion, the low and medium rating diesel genset market in South India is characterized by a strong industrial base, sustained economic growth, and a growing emphasis on adopting renewable energy sources.

## Key Market Players

Cummins India Limited

Mahindra Powerol

Kirloskar Oil Engines Limited

Greaves Cotton Limited



Caterpillar India Private Limited

Sudhir Power Limited

Atlas Copco India Ltd

Escorts Limited

Cooper Corporation Pvt. Ltd.:

Mitsubishi Heavy Industries India Precision Tools, Ltd.

Report Scope:

In this report, the India Low & Medium Rating Diesel Genset Market has been segmented into the following categories, in addition to the industry trends which have also been detailed below:

India Low & Medium Rating Diesel Genset Market, By Rating:

Hardware

Software & Services

India Low & Medium Rating Diesel Genset Market, By kVA Rating:

5kVa – 50 kVa

50.1 kVa – 100 kVa

100.1 kVa – 162.5 kVa

India Low & Medium Rating Diesel Genset Market, By End-User:

Residential

Commercial

Industrial

India Low & Medium Rating Diesel Genset Market, By Region:

Northern India

Southern India

Western India

Eastern India

Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in the India Low & Medium Rating Diesel Genset Market.

Available Customizations:

India Low & Medium Rating Diesel Genset Market report with the given market data, Tech Sci Research offers customizations according to a company's specific needs. The following customization options are available for the report:

Company Information

Detailed analysis and profiling of additional market players (up to five).

## Contents

### **1. PRODUCT OVERVIEW**

- 1.1. Market Definition
- 1.2. Scope of the Market
  - 1.2.1. Markets Covered
  - 1.2.2. Years Considered for Study
  - 1.2.3. Key Market Segmentations

### **2. RESEARCH METHODOLOGY**

- 2.1. Objective of the Study
- 2.2. Baseline Methodology
- 2.3. Formulation of the Scope
- 2.4. Assumptions and Limitations
- 2.5. Sources of Research
  - 2.5.1. Secondary Research
  - 2.5.2. Primary Research
- 2.6. Approach for the Market Study
  - 2.6.1. The Bottom-Up Approach
  - 2.6.2. The Top-Down Approach
- 2.7. Methodology Followed for Calculation of Market Size & Market Shares
- 2.8. Forecasting Methodology
  - 2.8.1. Data Triangulation & Validation

### **3. EXECUTIVE SUMMARY**

### **4. IMPACT OF COVID-19 ON INDIA LOW & MEDIUM RATING DIESEL GENSET MARKET**

### **5. VOICE OF CUSTOMER**

### **6. INDIA LOW & MEDIUM RATING DIESEL GENSET MARKET OVERVIEW**

## **7. INDIA LOW & MEDIUM RATING DIESEL GENSET MARKET OUTLOOK**

### 7.1. Market Size & Forecast

#### 7.1.1. By Value

### 7.2. Market Share & Forecast

#### 7.2.1. By Rating (Low Rating and Medium Rating)

#### 7.2.2. By kVA Rating (5kVa – 50 kVa, 50.1 kVa – 100 kVa and 100.1 kVa – 162.5kVa)

#### 7.2.3. By End-User (Residential, Commercial and Industrial)

#### 7.2.4. By Region (Northern India, Southern India, Western India and Eastern India)

### 7.3. By Company (2023)

### 7.4. Market Map

## **8. NORTHERN INDIA LOW & MEDIUM RATING DIESEL GENSET MARKET OUTLOOK**

### 8.1. Market Size & Forecast

#### 8.1.1. By Value

### 8.2. Market Share & Forecast

#### 8.2.1. By Rating

#### 8.2.2. By kVA Rating

#### 8.2.3. By End-User

## **9. SOUTHERN INDIA LOW & MEDIUM RATING DIESEL GENSET MARKET OUTLOOK**

### 9.1. Market Size & Forecast

#### 9.1.1. By Value

### 9.2. Market Share & Forecast

#### 9.2.1. By Rating

#### 9.2.2. By kVA Rating

#### 9.2.3. By End-User

## **10. WESTERN INDIA LOW & MEDIUM RATING DIESEL GENSET MARKET OUTLOOK**

### 10.1. Market Size & Forecast

#### 10.1.1. By Value

### 10.2. Market Share & Forecast

#### 10.2.1. By Rating

10.2.2. By kVA Rating

10.2.3. By End-User

## **11. EASTERN INDIA LOW & MEDIUM RATING DIESEL GENSET MARKET OUTLOOK**

11.1. Market Size & Forecast

11.1.1. By Value

11.2. Market Share & Forecast

11.2.1. By Rating

11.2.2. By kVA Rating

11.2.3. By End-User

## **12. MARKET DYNAMICS**

12.1. Drivers

12.2. Challenges

## **13. MARKET TRENDS AND DEVELOPMENTS**

## **14. COMPANY PROFILES**

14.1. Cummins India Limited

14.1.1. Business Overview

14.1.2. Key Revenue and Financials

14.1.3. Recent Developments

14.1.4. Key Personnel/Key Contact Person

14.1.5. Key Product/Services Offered

14.2. Mahindra Powerol

14.2.1. Business Overview

14.2.2. Key Revenue and Financials

14.2.3. Recent Developments

14.2.4. Key Personnel/Key Contact Person

14.2.5. Key Product/Services Offered

14.3. Kirloskar Oil Engines Limited

14.3.1. Business Overview

14.3.2. Key Revenue and Financials

14.3.3. Recent Developments

- 14.3.4. Key Personnel/Key Contact Person
- 14.3.5. Key Product/Services Offered
- 14.4. Greaves Cotton Limited
  - 14.4.1. Business Overview
  - 14.4.2. Key Revenue and Financials
  - 14.4.3. Recent Developments
  - 14.4.4. Key Personnel/Key Contact Person
  - 14.4.5. Key Product/Services Offered
- 14.5. Caterpillar India Private Limited
  - 14.5.1. Business Overview
  - 14.5.2. Key Revenue and Financials
  - 14.5.3. Recent Developments
  - 14.5.4. Key Personnel/Key Contact Person
  - 14.5.5. Key Product/Services Offered
- 14.6. Sudhir Power Limited
  - 14.6.1. Business Overview
  - 14.6.2. Key Revenue and Financials
  - 14.6.3. Recent Developments
  - 14.6.4. Key Personnel/Key Contact Person
  - 14.6.5. Key Product/Services Offered
- 14.7. Atlas Copco India Ltd
  - 14.7.1. Business Overview
  - 14.7.2. Key Revenue and Financials
  - 14.7.3. Recent Developments
  - 14.7.4. Key Personnel/Key Contact Person
  - 14.7.5. Key Product/Services Offered
- 14.8. Escorts Limited
  - 14.8.1. Business Overview
  - 14.8.2. Key Revenue and Financials
  - 14.8.3. Recent Developments
  - 14.8.4. Key Personnel/Key Contact Person
  - 14.8.5. Key Product/Services Offered
- 14.9. Cooper Corporation Pvt. Ltd.:
  - 14.9.1. Business Overview
  - 14.9.2. Key Revenue and Financials
  - 14.9.3. Recent Developments
  - 14.9.4. Key Personnel/Key Contact Person
  - 14.9.5. Key Product/Services Offered
- 14.10. Mitsubishi Heavy Industries India Precision Tools, Ltd.

- 14.10.1. Business Overview
- 14.10.2. Key Revenue and Financials
- 14.10.3. Recent Developments
- 14.10.4. Key Personnel/Key Contact Person
- 14.10.5. Key Product/Services Offered

## **15. STRATEGIC RECOMMENDATIONS**

## **16. ABOUT US & DISCLAIMER**

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