

Challenges and Opportunities for a Start-up Company in Diesel Engine Driven Power Generation Industry

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Context of Research Work

Analytical Study of Sales Process in Diesel Engine Driven Power Generation Industry Using Six Sigma

Power generation industry in India is largely split into conventional and non-conventional ways of generating electrical power. Historically, in India, prominent sources of generating electrical power are, hydel (water based), thermal (coal based), nuclear (atomic based) along with these sources diesel engine based electrical power generation has been popular.

Indian diesel generator set market (only based on high speed diesel) has been witnessing growth owing to infrastructure expansion, establishment of new industries and changing business environment in the country. Strong economic growth coupled with power deficits in many parts of the country would foster the demand for diesel generator sets over the forecast period. Also, growing number of telecom towers in the country are expected to boost the diesel generator set market. Diesel engine based power generation has been growing during this decade, in applications such as prime power or continuous duty as well as in backup or standby.

It is worthwhile to understand the significance of start-ups in this industry in the context of challenges and opportunities. 'Power generation' is a casually used term but when it comes to receiving end of usage, power generated gets transmitted through transmission network which is then followed by local distribution using distribution network.

Objective for the Research Article

Researcher has made an attempt to understand analytically, the sales process in diesel engine driven power generation industry. In this article, a lot of secondary data from reliable resources has been presented which talks about the power generation industry as a whole. Broad level objective is to bring attention towards the power generation industry's contribution in the overall economy of

India. While doing so, following are the detail objectives which the researcher would be covering in this article. The two main objectives which current research work aims to target are:

1. To know the significance of diesel engine driven power generation industry in India, with respect to contribution in Indian economy and electrical power need.
2. To find out the challenges faced by the power generation industry.

Note: Researcher has used word ‘Diesel Engine Driven’ which is mainly referring to High Speed Diesel excluding Furnace Oil (FO).

Research Methodology

Researcher has used secondary data, namely, market research report, government reports, web articles and journals. For the hypothesis and objective assessment, researcher has used primary data collected through ‘Voice of stakeholders’ of this industry and analyzed it through various analytical techniques using six sigma.

Objective of the Article

Researcher has been through the power generation industry for more than one decade in which the business model changes have been witnessed. While the research work was progressing for last two years, it was noticed that start-ups have started entering in power generation industry as well.

The start-up model has been a new entrant into this industry which, by virtue of nature brings up certain challenges and opportunities. Researcher has made a preliminary attempt to evaluate those challenges and opportunities pertaining to start-up in power generation industry.

Power Generation Industry

Imagine a day or night without electrical power. Every day or night, any human being needs electrical energy. Presently, in India, the electrical power need is fulfilled using conventional and non-conventional sources of energy. Basic electrical need across the nation gets catered using boiler (coal fired) or turbine (steam or nuclear or hydel operated) and diesel generator set.

Day-by-day, with the influence of ‘Make in India’ initiative, infrastructure segment in India and other industries across India have started peaking up the electrical power demand.

In the year 2015, Indian Brand Equity Foundation (a.k.a. ‘ibef’) has done extensive survey on ‘Electrical Machinery’ potential mapping in the Indian market, till year 2022. They have covered power generation machinery, distribution machinery and transmission machinery under ‘Electrical Machinery’.

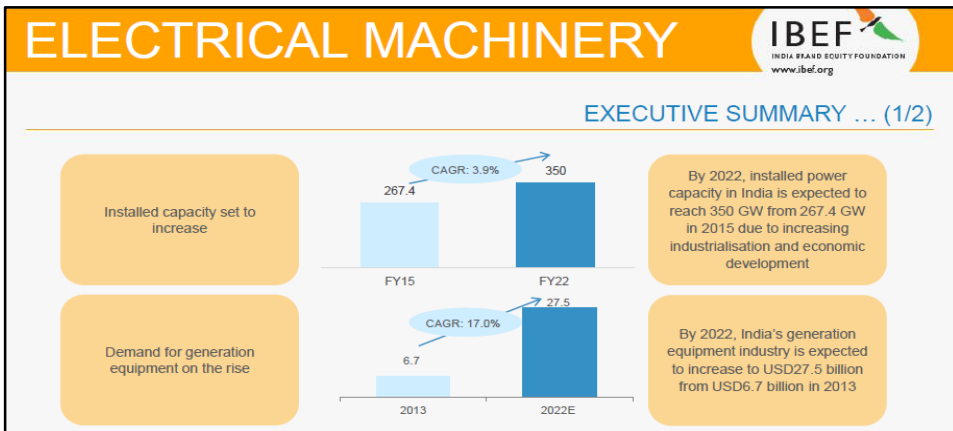


Fig. 1: IBEF–Executive Summary for Electrical Power Demand

Study indicates that electrical power generation machinery installed capacity is expected to grow from 267 GW (giga watt) to 350 GW from year 2015 to year 2022 which is CAGR (Compound Annual Growth Rate) of 3.9% whereas power demand is expected to have growth at CAGR of 17%. This clearly indicates that there is high probability of having peak demand for electrical power across country. During the same research, IBEF (www.ibef.gov.in), in reference with a report published by Ministry of Heavy Industries, Govt. of India, indicated to have CAGR of 27.2% for backup power generation units. Generators are expected to have 5-fold growth till 2022.

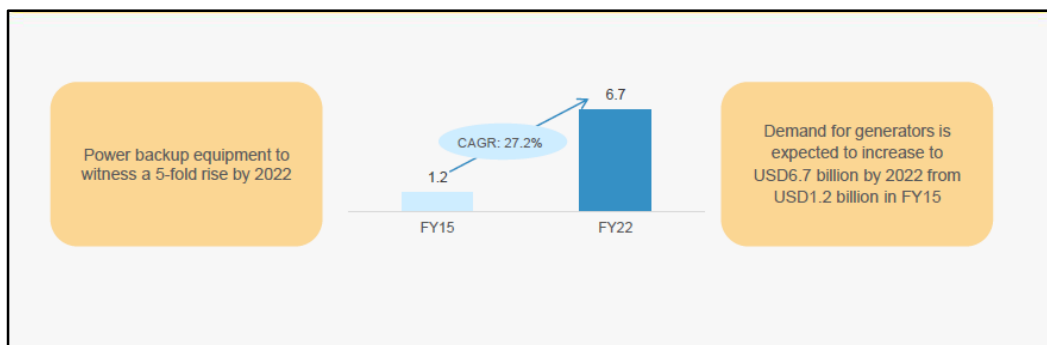


Fig. 2: IBEF–Executive Summary for Power Backup Equipment Growth

Boilers are contributing to 63% of total generator industry followed by turbines with 27% and remaining approximate 10% is catered by Diesel (High Speed and Slow Speed) engine driven power generator. High Speed Diesel is the one which is famous ‘Diesel’ utilized to power automobiles or generator sets. Presently, in the Indian market, High Speed Diesel engine based power generation is enjoying 72% of market share against other sources (conventional UPS etc. and non-conventional). IBEF report indicates that the electrical machinery market has been opened for 100% FDI starting 2013 end, which is in line with the Central Pollution Control norms

implementation strategy by the Government of India. Even though there are government efforts to make India free from power-cuts and generate surplus power with continuity in supply and better quality of power, still there are gaps in present establishments and hence the option like UPS or Diesel engine based power generation is becoming a popular source of back-up electrical supply.

With this change in pollution level norms on diesel engine based power generation, various multinational generator set manufacturers have invested in India and have started challenging the established domestic giants. In the recent past, government has assigned various regional Special Economic Zones (SEZ) which are attracting these multinational giant to set up plants or factories and become competitive in global market as well. Some of them are directly investing or some of them are coming in via joint venture route.

One of the well-known research organizations in this field, RNCOS (privately owned research company name), have indicated in their report 'India Diesel Market Outlook-2018' that generator set market in India is on a growth path primarily due to peak demand in electrical power and also due to lack of continuous availability of power with better quality. Also, the 'back-up' power availability has started playing a crucial role in Indian industries such as engineering, infrastructure, realty, hospitality and many more. This report indicates that the generator market has seen a growth of 9.5% in the year 2013 over its previous calendar year. It further indicated that it would have similar growth in next 5 years to come. The Indian diesel generator market is expected to grow at 11% CAGR in the product range of below 100 KVA and higher rating product ranges are expected to grow at CAGR of 7.8% till the year 2018.

Power generation industry has been through various phases of evolution. Generator manufacturers have started understanding the need of market or customers from their product than merely selling the generator sets. One of the critical evolution phases was sustaining in the change of pollution norms laid down by the Government of India.

First norms were laid down 10 years ago (CPCB-1) and the second were laid down in the year 2014 (known as CPCB-2). These have compelled the industry players to work on the structured or well organised sales process. The reason to change norms was purely based on environment protection and bringing in technical advancement in product, buying options for the buyers including the imported and domestic products. This has resulted in introduction of full time availability of imported generator sets in India. Imported generator-set manufacturers have increased their capacities in India helping in boosting the Indian economy. To start with, the boost in economy looks to be negligible but the plans for next five years would attract investment of approximately USD 10 Bn.

In the era of CPCB-1, India power generation segment has seen most dominating domestic players like Cummins India Ltd., Kirloskar Oil Engine, Greaves, Ashok Leyland and to some extent Mahindra & Mahindra. As compared to presence of only 4 major domestic players in the past, there are 8 major players now, essentially adding 4 giants from global market (Caterpillar, Perkins, MTU and Mitsubishi).

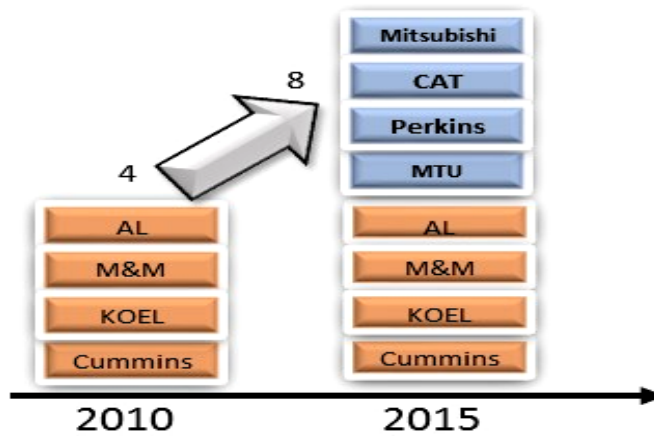


Fig. 3: Competition in the Industry

Over the years, since 2013, market potential for diesel generator sets has gone up from 75,000 units per year to 100,000 units per year, making it to approximate increase of turnover in value terms as INR 3000 crore annually. This estimates out to 25% growth in potential and doubling the number of players.

Power generation industry has seen some stages of evolution in the recent past which can be depicted as given below:

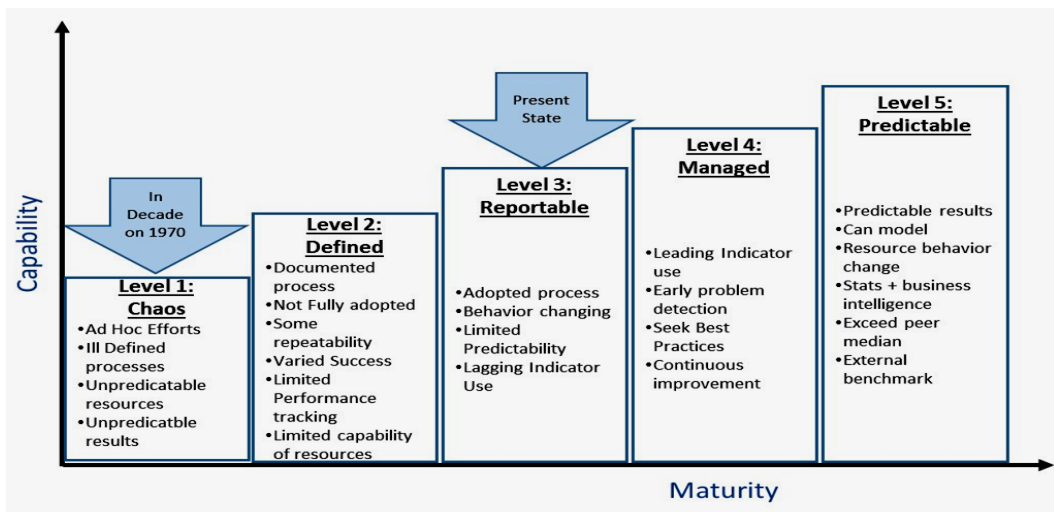


Fig. 4: Articulation of Power Generation Industry Evolution

Power generation industry has travelled a long way from its first articulate level of ‘chaotic or chaos’ to present days ‘reportable’ stage.

In one of the recent articles (ID163671714), by 'Markets and Markets (MnM), authored by Saagar Sanghvi, on generator set industry growth prospects worldwide (till year 2020), growth indicated to be around US \$ 20 Bn USD from present level of US \$13 Bn (2015) which means at CGAR of 5.4%. Primary reasons for this growth are indicated to be growing need of continuous power supply and increasing power outages. The report also segments the diesel generator market on the basis of end-user, which includes industrial (power generation/ utilities, oil & gas and others), commercial (IT & telecom, healthcare, and others), and residential. The industrial segment is one of largest users of diesel generators and occupies more than 50% of the total market share in the end-user segment of the diesel generators market. This market is expected to grow at the highest CAGR during the forecast period, owing to chronic power outages and rapid growth of industries, infrastructure, and IT & tele-communication industry across the world.

In this report, the diesel generators market has been analysed with respect to five regions, namely, North America, South America, Europe, Asia-Pacific, and the Middle East and Africa. Rising demand for power unmet by existing grid infrastructure in Asia-Pacific results in frequent power outages. As a result, growing industrialization and frequent power outages are driving the demand for diesel generators in this region. The diesel generator market in India is expected to grow at the highest CAGR, owing to growing IT, data centre, telecom, and ongoing infrastructure development programmes in the country.

In this article, let us dwell around challenges and opportunities for a start-up company in diesel engine driven power generation industry. Start-ups are essentially of two kinds. The first one starts ground up or the one which no one has thought about. In last two to three years, many such start-ups came in and vanished on their own. This type of start-up is difficult to create but once created often sees unprecedented growth. The second type is primarily the ones that do not want to reinvent the wheel. They are interested to adding old sauce in a new dish with little value addition, either superficial, or in actual, to create something new and innovative. Both these major type of start-ups are seen in all industries.

Whatever may be the kind of start-up, Indian start-ups face their own set of challenges and some stellar opportunities.

Power Generation Industry: Start-up Opportunities

This industry is mainly governed by factors like:

- Diesel fuel prices or mainly crude oil prices in market
- Diesel fuel quality
- Pollution control norms laid down by Central Pollution Control Board

The organisations which are operating in the diesel engine driven power generation business, across the globe, are striving to stay competitive and live to defend or increase their market share.

Similar scenario can be observed in the Indian context. Most of the players or companies operating in this industry are well set last more than 20 years but have also increased their expenses, overheads and manufacturing cost.

While these organisations have grown or few of them are growing significantly, they have realised that market appetite or potential also has grown multifold. The last five years scenario indicates that India generator set market has grown from 75,000 units a year to 110,000 units a year.

While the big organisations are in chase mode to capture as much market as they can, they realised that their TCO behind each generator set is increasing and that has no clue to control until they stop reaching out in upcountry market, or control their appetite to be number 1 player of this industry.

With launch of 'Start-up initiative' by Government of India, most of these big brands or companies have seen potential sales channel or partners with LLP or LLC i.e. Limited Liability Partnership or Limited Liability Companies. Following key opportunities can help expanding view on 'power generation industry: start-up opportunities'.

1. India's population has opened new gateways: The population of India would prove to be a huge asset for the country in the next few years. In next couple of years, it is expected that India will experience a 'demographic bonus' period, where working hands will be more than no working. This will yield to more and more productive output. This unique demographic advantage will offer a great opportunity to any firm or organization trying to become successful and create a dominant position in the Indian market. Diesel engine driven power generation has started seeing the signs of this change. It's not only the increase in population but the level of education and social requirement upliftment are also becoming more and more demanding. The 'start-ups' in this industry, be it LLP or LLC, are taking birth considering such demand forecast for diesel engine based generator sets. This demographic change is spread over the nation which is one more opportunity in the form of nationwide opportunity for start-up in this industry. Considering scope or geographical spread of current research work, in Pune district alone, there are more than 11 such start-ups actively engaged in selling the diesel generator sets. These start-ups have begun operation within the last one year. Many of these 'young organisations' or 'entrepreneurs' have identified the nascent and unorganized stage of infrastructure in a country that is presenting a huge opportunity for them, and hence are trying to digitize or organize various industry segments wherein they operate.
2. Many highly educated, experienced as well freshers are entering the field. Many IIT or IIMs pass-outs used to look for paymaster organisation as their first organisation in earlier days. In the recent past, those highly educated from prestigious institutes are trying to click the start-ups. While such setups are being launched, the obvious early recruitment option vouched is freshers with 'Out of the Box' thinking. Then LLP or LLC are hunting for such talent. Such start-up category, are getting good candidates.

Power generation sales organisations which are basically start-ups, are generally known as ‘Freelancers’ or ‘Sales Associates’ or ‘Channel Associates’ or ‘Sales dealers’ have started recruiting such talent wherein the sales appetite within the employee is exposed for the great challenges. These roles are always seen as ‘High Risk - High Rewards’ wherein youth finds more obsession. This industry is basically looking for the ‘Talent’ which rightly combines technical as well as commercial know-how. At present, India is all set to break away the traditional career paths as a lot of talent is tending towards working with the Indian startup space. Challenging assignments, and rewarding compensations due to LLP or LLC nature of business attracts the talent. This trend will surely make diesel generator set sales organisations a very lucrative place and attractive value proposition.

Increasingly, this industry has witnessed a trend that several mid-level officials are also quitting their jobs at big firms in order to work for startups. They are not only opening up a sales organisation where as they are inclined to set up sale organisation to operations or manufacturing setup for diesel generator set making. A recent survey conducted by *The Economic Times* also confirmed that this trend is observed in many such adjacent business streams like power generation.

3. Investments coming in from Indian as well as overseas: There are trends in recent past about the investment planning as well as execution in various startups. The present research work undertaken, has also seen that LLP or LLC are being backed up either by parent company or fund houses. The funding organisations are looking for right mix of ‘People–Process–Performance–Perception’ which becomes the top level criteria for evaluating a LLP or LLC or just a start-up while deciding funding. In last two years Indian startups have seen approximately USD 6.5 Mn investment coming from Indian as well as overseas fund houses. The power generation industry related startups are also part of beneficiaries of it. Currently, the quantification is not in mature stage for investment done in this industry but will be completed over a couple of months since in most of the cases, the investments are in the form of support or kind like setting up office or sharing manufacturing setup etc.
4. Government initiatives: In the year 2015, Government of India came up with ‘Start-up’ initiative which led to lot of turnaround in the small scale as well as medium scale industries within India. Not only that the central government along with various state governments have really acted as backbone for those small scale or medium scale units which have dared to be ‘startup’ units. Along with this ‘Make in India’ model has also helped in establishing the setups meant for Indian product for Indian customers as primary focus which is extended now as product for all markets. As aforesaid, the power generation industry has seen many fresh as well as experienced people putting in their stakes in marketing, or sales, as well as manufacturing setup for generator sets, the real

driver behind them is 'Make in India' or 'Startup initiative'. These initiatives, so far, have added 10 sales channel partners and 3 manufacturing partners in and around Pune district, as present research scope expands to. Diesel generator set industry is basically operating based on opportunity grabbing and who clicks the first. The Make in India initiative has boosted various IT infrastructure startups which are close-knit with various generator set sales organisations. They are getting effective mechanism to track their enquiry-sales database along with industry information or trends to speculate their forecast. This has started helping the sales start-up. In last two years the Sales trends are going up by 3 to 5% year on year which is a promising number. The growth has been witnessed over the base volume of 78,000 to 80,000 nos across nation.

Challenges Ahead

A diesel generator set is a Prestige or Grudge Purchase? Obviously the decision maker or buyer will call it a Grudge purchase. This means the first challenge to this industry is that, diesel generator set is the last priority in any project or development. In the event of supporting development in India, power availability is becoming a scares resource as the prime or conventional sources are failing to deliver the consistent and better quality electrical power to all ends within country. This actually is Opportunity for the power generation industry but as aforesaid, having power generation using any non-conventional source, especially using diesel generator set is the last priority or grudge purchase.

In broad sense power generation industry has seen critical challenges as follows:

- **Environment Pollution Norms:** Being diesel is prime sources of fuel it inherently carries component of pollution to our environment. While this pollution is contributing to approximate 7% of total pollutant elements, it still attracts the compelling laws of the land set by Central pollution control board (famous as CPCB). CPCB norms have become stringent in last ten years and stringency level changed two times in last ten years. These changes have posed serious cost-price pressure on the industry players.
- **Fuel Quality:** Although the power generation industry players are excelling in technological advancement, still diesel fuel quality in India is not up to the mark. Sulphur content in diesel has been challenge across nation. Along with the sulphur ppm in diesel there is one more element of challenge in fuel category& that is fuel adulteration which will remain uncontrolled unless supported by law.
- **Fuel Cost:** India is largely depending on crude oil import from various countries, it's processing to make diesel followed by distribution till dispensing point makes it expensive. This makes the power supplied from diesel generator as costly as INR 18 per unit of electricity produced as against grid INR 5 to 7 per unit.

- **Competition and Capacity Ahead of Demand:** In present scenario, new entrants have come to Indian Generator set market. One of the reason by virtue of which they have entered India market is, the appetite or potential for having generator set sold in India. Also government of India has allowed 100% FDI in this field. With this, almost every new entrant has set up plant in India and have built the capacity to cater to market. Capacity ramp has always been made ahead of demand and hence the industry players have started playing price war which offers competitive price and delivery lead time.

Along with these broad level of challenges within power generation industry in India, there are certain challenges for the start-up organisations in this industry, they are follows—

The challenges can be classified as:

Culture—Entrepreneurship and start-ups are recent phenomenon in the country. In the last decade or so people have started seeing Start-up as career option and in last two-three years it has gaining its momentum where in fresher or experienced people have invested their resources-potential into making this as prime path for rest of career. Doing a start-up is tough and every geography in the world has seen different faces of its success and failure, more often seen failures. However, culturally we are not groomed or prepared to fail and failure is glared upon. In the upbringing of Indian economy, so far in last 6 decades plus, start-ups neither seen as career opener nor seen as stability seeking avenue. Start-up in diesel generator set sales is not exception to it. As aforesaid, generator set purchase is a grudge purchase which put the seller in hard pressed to wall for all things the entrepreneur does or expected to do. All 4Ps of marketing taught in classrooms fail here.

This change in industry calls for a big change in culture or upbringing of people from ‘job seeker’ to ‘entrepreneur’.

Mentoring—It is always said that ‘doing a start-up is dangerous and often a lonely journey’. There are likely partners in the business but that doesn’t guarantee success.

Startup is said to be a brilliant idea but that is different from making that idea a business success. For a start-up, it is very important to have mentors who have been through a similar process of starting or have business experience. A great mentor is the one who educates you to read through situation and not always link everything to success. Mentor helps you to delink the success from failure by providing valuable inputs. However, there is no formal mechanism to mentor start-ups in the country. Every mentoring that happens is on an ad-hoc basis.

In the power generation industry, so far, the study indicates that the investor or the fund house assumes the position as mentor which is not ‘pure mentoring’. They always have monetary interest in the firm but to keep themselves apart from various liabilities, they call themselves as mentors.

Such mentoring in this industry not only creates the barriers for top line or revenue growth but also, at times, misleads cost over quality as priority, leading to disasters for startup.

Mentoring should create a self-learning and self-realisation model within startup which will help the entrepreneur to quick learn from failures or even success and start building the success story which will last long.

Therefore, entrepreneurs and start-ups must think twice before making a move. As a start-up, one needs to overcome the learning curve and understand a great deal about these markets before taking your chance.

Good mentoring should give message to mentee that a good understanding and a better preparation to enter these markets will bless you with huge rewards.

Following are the summary of famous quoted challenges about start up:

1. Competition: This is always a challenge irrespective of nature of business.
2. Unrealistic expectations: Setting the right expectation at the start, at mid and thereafter in any startup will become deciding factor for sustenance.
3. Hiring strategy: Hiring right candidate or resource at time for right job is first step towards creating organisation wealth. Here, the emotion tries to take over the business requirement which creates pitfall at the start.
4. Partnership decision: In most of the startups, one starts up the business but quickly decides to get into partnership due to various reasons. This decision should be based on the business plan or strategy over just the need of support to survive.

Conclusion

Based on the secondary data, researcher would like to conclude that:

- Power generation industry in India is transitioning through various challenges posed by Environment Protection Act along with technologically advanced competition entering the Indian market.
- Diesel engine driven power generation industry is one of the critical elements of Indian GDP growth. Although there is no direct leading or lagging indicator which states the contribution of this industry in India's GDP growth but all GDP indices have interlinked with diesel engine driven power generation.
- Many tech-savvy entrepreneurs are now getting into this industry, enabling the Indian technology based advancement to Indian generator set manufacturers. This is helping the Indian generator set players more competitive over the years.

- Start-ups, mainly in two areas like manufacturing and sales and marketing organisation. Start-ups in this industry are attracting the talent to hire as the business is very lucrative due to margins available in selling a generator set having wide variety of offering with Indian and international brands available.
- 'Make in India' slogan has called for various growth avenues for the manufacturing, IT, hospitality, health, realty, mining, etc. segments whereas power generation segment will hand-shake with them for the success of 'Make in India'. Start-ups in these segments are looking for the variety or options to partner with them for generator set supply.
- Various start-ups have come up recently in the 'Genset on Rent' or 'Genset hiring'. This leads to incremental sales avenue and opportunity for the sales start-up to grab. Upcountry market which is close to Class A or B city has also opened up as opportunity field for manufacturing as well as sales start-ups.

Last but not the least, researcher has obtained lots of insights in the research topic, objectives and hypothesis analysis based on the study related to start-up and Make in India initiatives. This understanding will play vital role in concluding the research work in times to come

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