

## IV

**Study on the Green initiatives, Green practices and Green policy of Kirloskar Oil Engines Ltd, Kagal, Kolhapur.**

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**Abstract:** Today's corporate world is becoming one of the biggest emitters of Green House Gases (GHG's). The need of this and the coming decades is reduce the carbon dioxide emissions in the atmosphere and to limit the Earth's temperature by 1.5 degree Celsius. The current world is going through the catastrophe of Climate Change, which has made 126 countries in the world to pledge to reduce the Carbon Emissions by the year 2050. India as developing nation, too has pledged to reduce its emissions by 2070, which is a big commitment. Not only governments, but the Corporates also have committed to their carbon emission goals. Thus the following report sheds light on the Green initiatives, Green practices and Green policies of Kirloskar Oil Engines Ltd., which could be an ideal corporate for the other companies too, in the Indian Subcontinent.

**Keywords:** Green Initiatives, Green Projects, Carbon emissions, Sustainability, Green Policy.

**Introduction:** The world is facing its ever increasing catastrophes of the climate change from the end of last decade and will be more devastating if the GHGs emissions are not controlled in an sustainable way. The recent summit of COP26 in Glassgow, witnessed a pledge of 126 countries to Halve the Carbon Emissions by 2030 and remaining by 2050. Big Corporate companies can be play a role of game changers and inspire the remaining players in the corporate space.

Kirloskar Oil Engines Ltd or KOEL is one of the well-known and well-established Indian corporate company not only in India, but also across 50 countries around the globe. 133 years of history and experience has made this company, not only a giant but also one of the most innovative company in the world. Their offerings include from Power Generation sets, Industrial Engines, Farm Mechanization Equipment's and many more.

KOEL are constantly trying to produce their products in sustainable and clean way, with use of their Green Projects like ENCON Projects (energy conservation), green initiatives, optimum usage of natural resources and monitoring all their green projects through IOT systems. These IOT systems provide accurate results, not only to decision makers, but also to the Government agencies, which increases its transparency and reliability.

Special achievements include the winning the most precious 'Golden Peacock' award for energy conservation, straight away for consecutive 8 years at the National level and the kagal plant has also receive numerous awards for its green initiatives.

Thus the following study sheds light on the green projects and green initiatives of the KOEL.

**Objectives:**

- To know about the green projects and green initiatives taken by KOEL.
- To find out about the Green Policy and their implementation in KOEL.
- To know about the future plans regarding their Environmental Footprint.

**Project Location:** Kirloskar Oil Engines Ltd, Main Plant, Kagal, Kolhapur.

**Research Methodology:** Two modes of data collection were deployed.

1. Primary Data: Interviews were held
2. Secondary Data: Internet and other available materials like reports and company provided material were referred.

### **Green Initiatives of KOEL:**

#### **1. ENCON – Energy Conservation-**

The Primary objective of this initiative is to reduce the specific energy consumption in the production plants.

- Factory sheds are replaced with transparent Sheets to make full use of Daylight during the daytime. Earlier lights were used in day-night operations.
- Old halogen lights are replaced with New Energy saving LED lights.
- Switching off the appliances when not in use and using monitoring systems which monitor 24x7 the entire operations.
- Air conditioners are being replaced with the desert coolers, i.e VAYU, which has led to energy savings upto 90%
- Total no of projects currently active- 185, it consists of 117 low investment, 60 moderate investment and 8 high level investment projects.
- Achieved a reduction in Specific. Energy consumption in FY19-20 is 2.26 kWh/BHP .

#### **2. Environmental Compliance-**

The primary objective of this initiative is to comply with all the applicable Environmental laws and regulations. Because of IOT based monitoring systems, MPCB (Maharashtra pollution control board) can have access to all results 24x7. Stringent regulations and follow-ups are taken by government authorities. The company is 100% complied with MPCB.

#### **3. Carbon footprint study-**

The objective of this initiative is to study the carbon emissions from all the processes in the factory. On the basis of this study, short term, medium and long term goals are established.

IOT based systems has proven beneficial not only to monitor, but also a cost efficient method to the companies. Internal and international benchmarking is thoroughly done.

#### **4. Renewable Energy Initiatives-**

More and more usage of green energy is being utilized throughout the plant, resulting in the reduction of CO<sub>2</sub> Emissions.

- Some projects include 50% electrification of Forklifts
- Use of solar energy for washing purposes.
- Biogas plant through which the food waste is converted into the energy, which in turn used in kitchen for cooking and for lighting streetlights for 5 hours in the night.
- Heat generated through testing of machineries is reverted back for heating purposes.
- 50% of the plant is currently dependent on renewables, future expansion is to 70%.
- Wind turbines are also placed for energy generation.

**This has led to a wonderful achievement of offsetting CO<sub>2</sub> emissions by 9000tCO<sub>2</sub> in the year 2020-21.**

#### **5. Hazardous Waste management-**

The objective of this initiative is to minimize the generation of hazardous wastes in the operations, proper disposal of the waste is carried out, with the compliance of State pollution control board.

- The waste like oil is separated from the water and reused in the plants. Non treatable are sent to specific institutions.
- ETP plants are set up to neutralize wastewater and recycle it in the operations, sewage is used for gardening purposes.

#### **GREEN PROJECTS OF KOEL:**

Following part contains the main green projects at KOEL, Kagal, Kolhapur.

##### **1. 5.5 Megawatt Solar Plant :**



**The solar plant was commissioned at 1<sup>st</sup> may 2018. Total no. of modules are 17,220 units.**

- Ground Mounted (Fixed Axis) – 3.8 MWp (11760 Modules)
- Ground Mounted (Single axis) – 0.45 MWp (1680 Modules)

- Roof top Mounted – 1.25 MWp (3520 Modules)
- Admin Building – 0.08 MWp (260 Modules)

The solar plant is directly connected to the grid provided by Maharashtra State Electricity Board (MSEB). Monthly credits are earned by the company and are deducted from their Electricity Bill.

## 2. Rain Water Harvesting:



- This rainwater harvesting project has capacity of holding 9894 m<sup>3</sup>. The following structure has been prepared with CII guidelines.
- The current dependency on MIDC water supply is 37%. In 2021-22. Future plans is to bring the dependency to 10%.
- Water treated from ETP and harvested rainwater will account for huge share in Industrial purposes.
- Nearby groundwater levels have increase since 2017-18 and the farmers have also been satisfied with this green project.
- The project has also helped in creating a biodiversity for many species of trees, birds and reptiles.



Snapshot of biodiversity area in the facility.

### 3. Plastic Waste to Fuel plant:



- It is the only plastic to waste fuel plant commissioned in the kagal MIDC.
- The conversion has a yield of almost 70%. The output fuel is used as an alternate fuel.
- It has the almost characteristics of diesel and are used in the forklifts and diesel appliances.
- The gases generated are inflammable are again used for heating the plant.
- The plant is approved by MPCB and the process studied is certified under the HAZOP study.
- It saves an amount of Rs. 150,000 monthly.

### 4. Batter operated Forklift:



- 50% diesel forklifts have been electrified for the project.

- Total operational cost and maintenance cost of running these forklifts is 2.99 lakhs per year, compared to the diesel one's which cost 3.42 lakhs annually.

### 5. Solar Steam Generation System for Canteen-



- This project was established to reduce the dependence on LPG fuel for cooking purposes in facility area.
- It is spread across 315 Sq.m area of the facility and is capable of producing steam of 350kg per day, under good atmospheric conditions.
- A reduction in the of 25 kg LPG per day is achieved with the use these solar steam generation unit.

**Conclusion:** Thus the study sheds light on the green projects and green initiatives of the KOEL.

Other Programmes carried out by KOEL are as follows:-

- Awareness programs related to environment and other topics are carried out by Kirloskar vasundhra, an NGO of KOEL.
- Carbon sequestration programs are carried out by tree plantation of various species of plants and conserving the biodiversity.
- Recyclable and reusable corrugated boxes are being used instead of Wooden Crates for packaging purposes. These packaging are returned by the suppliers after the delivery of goods.

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