

Journey of Electricity @ MSSSPL



Energy forms one of the key material aspects of our plant. Our plant consumes approx. 31% of the total energy consumption of entire Mahindra Group. Energy and raw materials rank among the highest priority areas of our company's business strategy for two reasons: firstly, steel manufacturing through electric arc furnace route is highly energy intensive and secondly power tariffs are continuously increasing thereby leading to a competitive strain on the Company.

Energy Management is a part of the plant's 5 year roadmap in order to achieve the set Goals. Mentioned below our few steps taken to set up the energy management system.

- Regular internal & external energy audits for identification of key improvement areas and verification audits after implementation of the same
- Installation of centralized energy monitoring system for real time monitoring
- Gap analysis is carried out to compare target Vs actual for process and equipment. This is done through weekly meetings and corrective actions are taken to bridge the gap
- Benchmarking against best available practices in steel industry
- Conducting theme based suggestion meetings involving all employees, management, workmen and contractual labour and then implementing the suggestions on priority basis and sanction of budgets based on cost - benefit aspects

Projects completed so far :

- State-of-the-art electrode regulation system was installed in the Electric Arc Furnace to ensure greater precision, automation and also uniform heating of the ladle to reduce hot spots.
- Revamping of furnaces for greater efficiency.
- Replacing old pumps with energy efficient pumps.

- Oxy-fuel up gradation for remaining chamber furnaces
- Installation of transparent roof tops and use of LED Lights to reduce lighting load.

In the last 4 years, the plant has reduced specific energy consumption in Electric Arc Furnace by 9% by implementing several innovative projects.

Projects in Energy:

In the next 3 years, the plant plans to achieve energy efficiency through the following major projects:

- Installation of Virtual Lance Burners in Electric Arc Furnace
 - Cycle time reduction for ladle furnaces and reducing delays
 - Waste Heat recovery
 - Installation of 2 MW Solar power
- Wind and Solar Power through Power Purchase Agreement

The plant's vision is to achieve 20 % of power through the above identified renewable projects and reduction of specific electricity consumption by 20% by 2020.

Team Members

1. Mr. Vipin Jain : Mentor
2. Mr. Utsav Tayade : Leader
3. Mr. Manoj Hatankar : Co - Leader
4. Mr. Jeetendra Patil : Member
5. Ms. Rucha Mulay : Member
6. Mr. Sushil Dahake : Member

Team Members

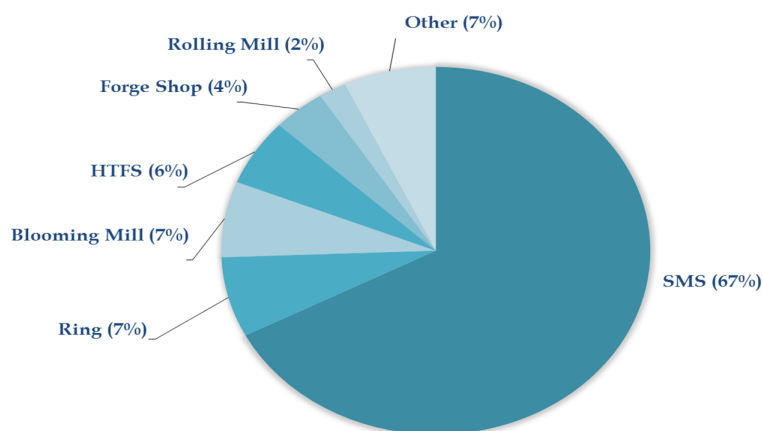
7. Mr. Nitin Mahale : Member
8. Mr. Sachin Meshram : Member
9. Mr. Suhas Patil : Member
10. Mr. Kaustubh : Member
11. Mr. K. M. Kolhe : Member
12. Mr. Helonde : Member

Mr. Vipin Jain

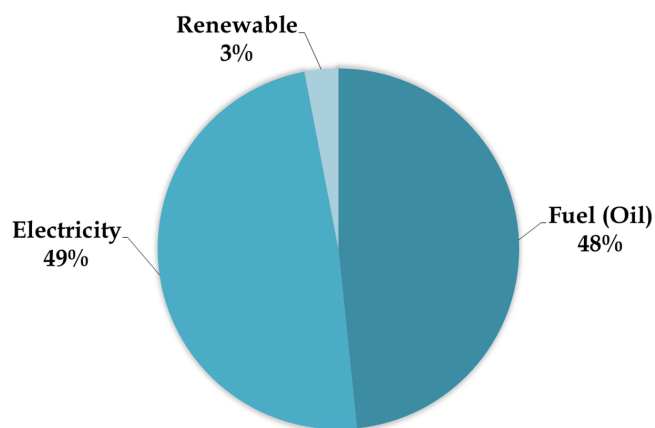
Mentor : Energy Reduction Team

Energy Consumption @ MSSSPL

MSSSPL SHOP WISE ENERGY CONSUMPTION 2015-16



MSSSPL ENERGY CONSUMPTION 2015-16

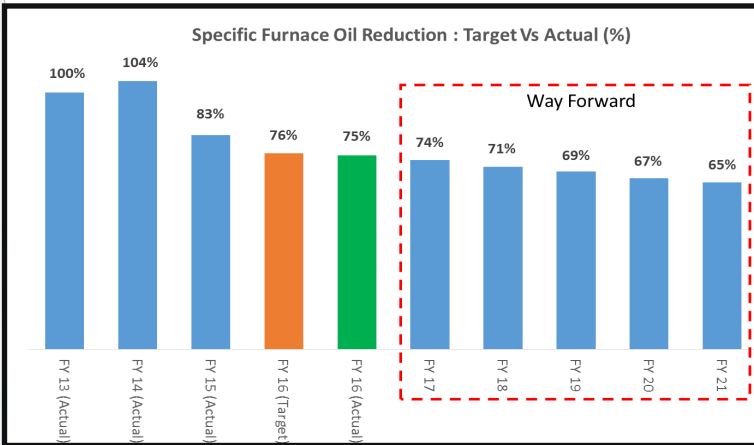


Journey of Oil @ MSSSPL



India, home to 18% of the world's population, uses only 6% of the world's primary energy. India's energy consumption has almost doubled since 2000 and the potential for further rapid growth in the consumption pattern is enormous. India is set to contribute more than any other country to the projected rise in global energy demand, around one-quarter of the total.

As a Steel manufacturing Industry we Mahindra Sanyo have one of the most energy intensive operations. **In FY 2015-2016, our 48% of energy requirements were met through burning of oil in operations. Limited stock of oil on earth and dynamic oil prices have**



pushed us to think proactively towards reducing our oil consumption. Reduction in oil consumption not only lower the cost of operation but also reduce pollution impact and abating global warming.

Over a period of time organization has adapted innovative practices which has helped in reduction of oil consumption to 86 Lt/MT (FY 16) from 114 Lt/MT (FY 13 Baseline Year).

Introduction of Oxy-fuel technology was the most successful change we have observed during this period. This has significantly reduced NOx & SOx emissions.

In coming year major activities like use of Natural Gas, hot charge CC to 40T WHF and other technology upgradation for combustion system are in pipeline.

Team Members

1. Mr. S. B. Patil : Mentor
2. Mr. M. M. Chikate : Leader
3. Mr. P. G. Shete : Co - Leader
4. Mr. J. M. Jagtap : Member
5. Mr. Indrakumar K. : Member
6. Mr. Sushil Dahake : Member
7. Mr. B H Patil : Member
8. Mr. D. Thorat : Member
9. Mr. Utsav Tayade : Member
10. Mr. K. M. Sangvikar : Member
11. Mr. Jitendra Patil : Member

Mr. Prasad Giri
Business Excellence Cell

Theme Based Month : Energy



Every year we celebrate theme based month to sensitize our employees on various sustainability aspects. One of the important material aspects is energy which has an impact of approx. 18% on our balance sheet. Energy at our plant is a mix of oil, electricity and renewables. We consume around 31% of Mahindra groups energy which makes our plant a key consumer of energy.

Every year we carry out theme based month with a key objective of sensitizing the people towards energy reduction which is directly linked with reduction of emissions and our cost of production. Renewables and tree plantation form an important part of this month as this is a major driver for long term sustenance of the plant. This month began on 20th Sept with an oath taking ceremony which infused a sense of responsibility to all the employees towards energy reduction. The month witnessed lots of activities involving energy awareness programs at shop floors where the employees are given key details of plants energy consumption, benchmarking data and shop specific energy reduction ideas which can be implemented by them. Suggestions from individuals were also welcomed during this course of interaction. There were many external trainings on specific

areas of renewables, delay management, efficient furnace operation, energy efficient lighting, energy management in utilities etc...

Interdepartmental audits and competitions were conducted which helped to identify the gaps and provided the area for targeted reduction year on year. A plant visit to within Mahindra group was also undertaken and an attempt to understand the best practices and technologies from across the globe was done. Shop level quiz competitions to motivate employees, to make them aware of latest energy trend within the plant was conducted across the month. Poster competition was conducted to spread the message of energy conservation. Tree plantation forms a vital part of this month as it is one of the key measures towards carbon neutrality.

The month ended with a closing ceremony where the employees were recognized for the efforts. Best suggestions on energy were rewarded and shops which have achieved substantial reduction in energy were awarded. Energy Month gives a good platform for ideas, interaction, learning and development of action plan for future under the apex leadership.



Mr. Utsav Tayade
Leader Electricity

Sustainability Dashboard : Eco Efficiency

Eco-efficiency generates more value through technology and process change whilst reducing resource use and environmental impact throughout the product or service's life. Eco-efficiency applies to all business aspects, from purchasing and production to marketing and distribution.

Under Eco-efficiency aspect of Mahindra Sustainability Dashboard, our key focus areas are Energy, Water, Waste, Emissions and Biodiversity. To achieve LEVEL 5 compliance, we should have following systems to confirm to

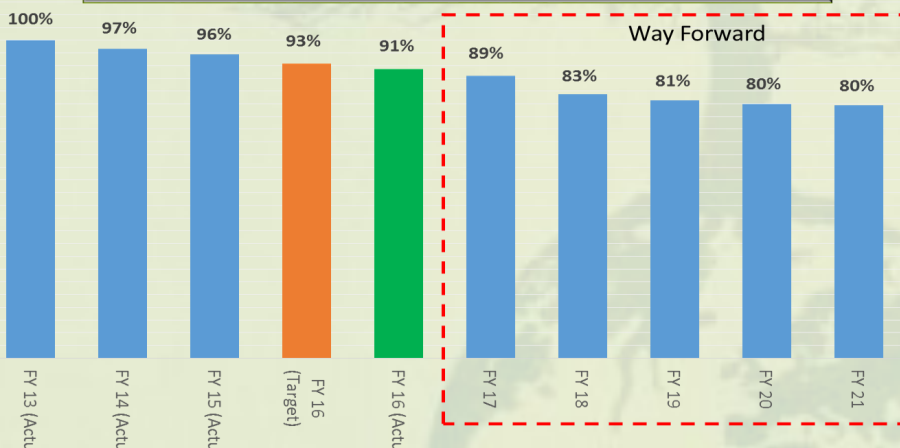
- Identification and reduction target for energy efficiency potential along with year on year reduction.
- Fulfil more than 10% of energy requirement from Renewable Energy Sources.
- Identification and monitoring of GHG emissions sources i.e. Scope I, Scope II and Scope III
- Business must have GHG emission reduction targets along with year on year reduction.

- Identification and reduction target for Water efficiency potential along with year on year reduction, followed by 100% reuse/recycling of water
- 100% monitoring of different type of (Hazardous / Non-hazardous) waste materials which are being generated through our processes.
- Develop system to recycle / reuse 100% of waste generated within process.
- Biodiversity risk assessment to be done and preparation of Biodiversity Management plan to enhance / maintain biodiversity across the plant.
- Appointment of certified energy manager.

In order to achieve our vision, we will develop a systematic plan in place for above mentioned aspects along with a continuous review mechanism.

Mr. Prasad Giri
Business Excellence Cell

Electricity Consumption KWH/MT @ MSSSPL



Why to save electricity?

- Electric Arc Furnace, Power Intensive Operation
- 15% total cost on account of electricity
- Higher Power Tariff (**₹8 / Unit**) in Maharashtra (Likely to be increased) compared to other states in India.
- Strict Regulatory Rules and Regulation (e.g. PAT Scheme)
- Higher the Power Consumption, Higher are Carbon (Scope II) Emission, Leading to Global Warming.

Kaizen Zone : Industrial line water used for VD1/VD2 Ejector cleaning

Team Members

1. Mr. S.Chakrabarti.
2. Mr. Sandeep Jadhav
3. Mr. Pradeep Patil
4. Mr. Ghosh
5. Mr. R. Yadav
6. Mr. Jamil Gang

Kaizen, 改善, [Japanese](#) term for "improvement." When used in the business sense and applied to the workplace, kaizen refers to activities that [continuously improve](#) all functions and involve all employees from the [CEO](#) to the [assembly line](#) workers. We at Mahindra Sanyo encourage our employees to build the system of Kaizen in their daily activity

Amongst all the kaizen received this kaizen was on Industrial line water used for VD1/VD2 Ejector cleaning. Earlier for the VD1/VD2 Ejector cleaning purpose at SMS they used LF and hotwell pumps during the shutdown for 16 hrs (LF pump 82KW and Hotwell Pump 37Kw) but after implementation of kaizen Now they need not have to start LF and Hotwell pumps during shutdown for ejector cleaning, instead now they have taken tapping from industrial line for ejector cleaning.

Using this simple method now the company is saving Rs.640,000/Year.

Leveraging HR for Sustained Business Outperformance



Mahindra Leadership University HR Academy had organized session on Leveraging HR for Sustained Business Outperformance, this program was designed according to the expectations of the leaders across the group. Speakers like Mr. Anand Nayak (Ex Head HR and Director, ITC), Mr. Zhooben Bhiwandiwalla (AFS), Mr. Pankaj Sonalkar (AFS), Mr. Ramesh Iyer (MMFSL), Mr. T V Narendran (MD Tata Steel) and many more were present that day to deliver excellent speeches on various topics.

- Develop an attitude of self-gap analysis for betterment
- Empowering and encourage people down the line to come up with their thoughts.
- Develop an eye for talent spotting: If a person is not suitable for a given position try another role for him.
- Take off time to re-visit your own behavior.
- Pay attention to 5 virtues : Listen, Trust, Empathy, Communication & Introspection.

Some of the important learning & take away from the training which can help all of us to develop and bring positive difference in the company are as follows:

- Policies should be created by HR in consultation with the concerned person this will create a friendly environment amongst the people.
- Respect workmen & standup for human dignity across the value chain.
- Engage your employees so that they decide to stay.
- Develop attitude of learning and listening so that debate can be converted into dialogue.
- 360 degree feedback.

If employees are well-treated, this creates a “halo effect” that sheds a positive light on many other aspects of the company. **Engaged employees feel that they are being valued and respected, and they naturally earn their employers a reputation for good corporate citizenship that helps grow and sustain their businesses.**

If they feel that they are part of a company that shares their commitment to making a positive difference in the Company, their commitment can rise even higher.

Mr. Sachin Bhambure
Head Quality

Quiz Time :

.....of power consumed by Incandescent bulbs gets wasted in the form of heat

- A. 60% B. 75% C. 85% D. 50%

(Be the first one to SMS the answer with your name @ 7720091891 & get a prize for the same.)

MSSSPL : Energy : Peer Benchmarking

Given our companies background of existences and knowledge of our technological capacity have very clearly laid down our roadmap of progress on journey of reduction in energy consumption . Benchmarking our progress/performance with our peer industries is an important component of our planning. Bar diagram on left shows Energy use and energy efficiency are placed on priority rank of three and four in the list of top twenty issues

Company	Level of importance given by companies
HINDALCO INDUSTRIES LTD	High
HINDUSTAN ZINC LTD	High
JINDAL STEEL & POWER LTD	High
JSW STEEL LTD	High
MAHINDRA SANYO SPECIAL STEEL	High
NATIONAL ALUMINIUM CO LTD	High
NMDC LTD	Low
RAMKRISHNA FORGINGS LTD	High
SESA STERLITE LTD	High
STEEL AUTHORITY OF INDIA	High
TATA STEEL LTD	High
VEDANTA RESOURCES PLC	High



Selected Peer Group Criteria

Sectors: Mining and Metals
 Countries: Asia - India
 Sources: Annual Sustainability Reports, Annual Financial Reports
 Year: 2015

All analyses based on Profile Scenario, October 15, 2016