



INDIAN METALS & FERRO ALLOYS LTD. CHoudWAR, (ORISSA)

i. Unit Profile

Indian Metals & Ferro Alloys Ltd, Choudwar (IMFA, Choudwar) is an unit under the flagship of IMFA group of companies, an established group in Orissa since 1968. Indian Metals & Ferro Alloys Ltd. Choudwar is an ISO 9001, ISO 14001 & OHSAS 18001 certified unit. It is situated at Choudwar, in the state of Orissa & about 40 KMs away from Bhubaneswar the state capital. The group corporate head is also located at Bhubaneswar. The place is well connected with outside world through the air port at Bhubaneswar, the sea port at Paradeep (100 Kms away), the railway – East coast railway, the road ways – National highways no. 42 and 5.

The unit IMFA, Choudwar started its commercial production in 1990 onwards. The unit is producing High Carbon Ferro Chrome / Ferro Chrome, which is being exported & also sold in country. It has two main plants Charge Chrome plant & captive thermal power plant.

Charge Chrome Plant is capable of producing 67,500 MT of Charge Chrome / High Carbon Ferro Chrome per annum. It has 48 MVA sub-merged electric arc furnace for smelting & reducing the Chrome Ore. The 48 MVA furnace is a closed furnace and its flue gas passes through Gas Cleaning Plant (GCP) for arresting suspended solids from the flue gas. The main raw material-Chrome Ore mainly coming from own mines and electric power from own power plant are the major factors for un-interrupted production and consistently to be in the market.

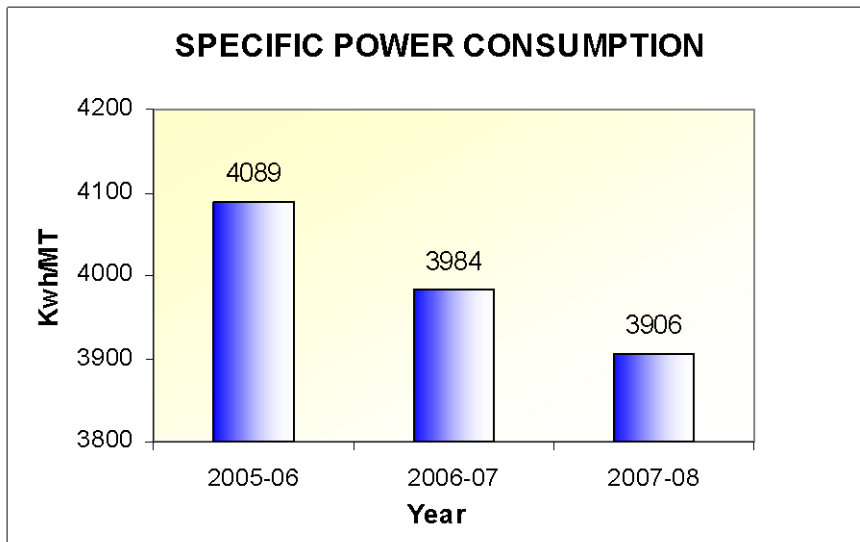
Power Plant is having generating capacity of 108 MW with the help of two turbo generators of 54 MW capacity each and five nos. coal fired boilers utilizing coal of different grade to generate required amount of steam, is also situated in the same campus. It draws water from near by river Birupa and after demineralization it goes to boiler for steam generation. It generates power at 11 KV and steps up to required voltage levels in order to feed to the 48 MVA furnace at Charge Chrome plant and also connected to the GRIDCO, Orissa network.

ii. Energy consumption

Energy conservations measures is an ongoing practice in the organization. Energy consumption monitoring is being done regularly & the objectives & targets have been set by the departments to achieve. Suggestions are invited from employees to achieve energy conservation at operational level. Last three years specific energy consumption figures have been shown which depicts the continual reduction trend.

Description	Unit	2005-06	2006-07	2007-08
Production actual	MT	58537	60582	65793
Specific energy consumption for product	Kwh/MT	4089	3984	3906
Energy consumption reduction w.r.t previous year	%	-	2.56 %	1.96%

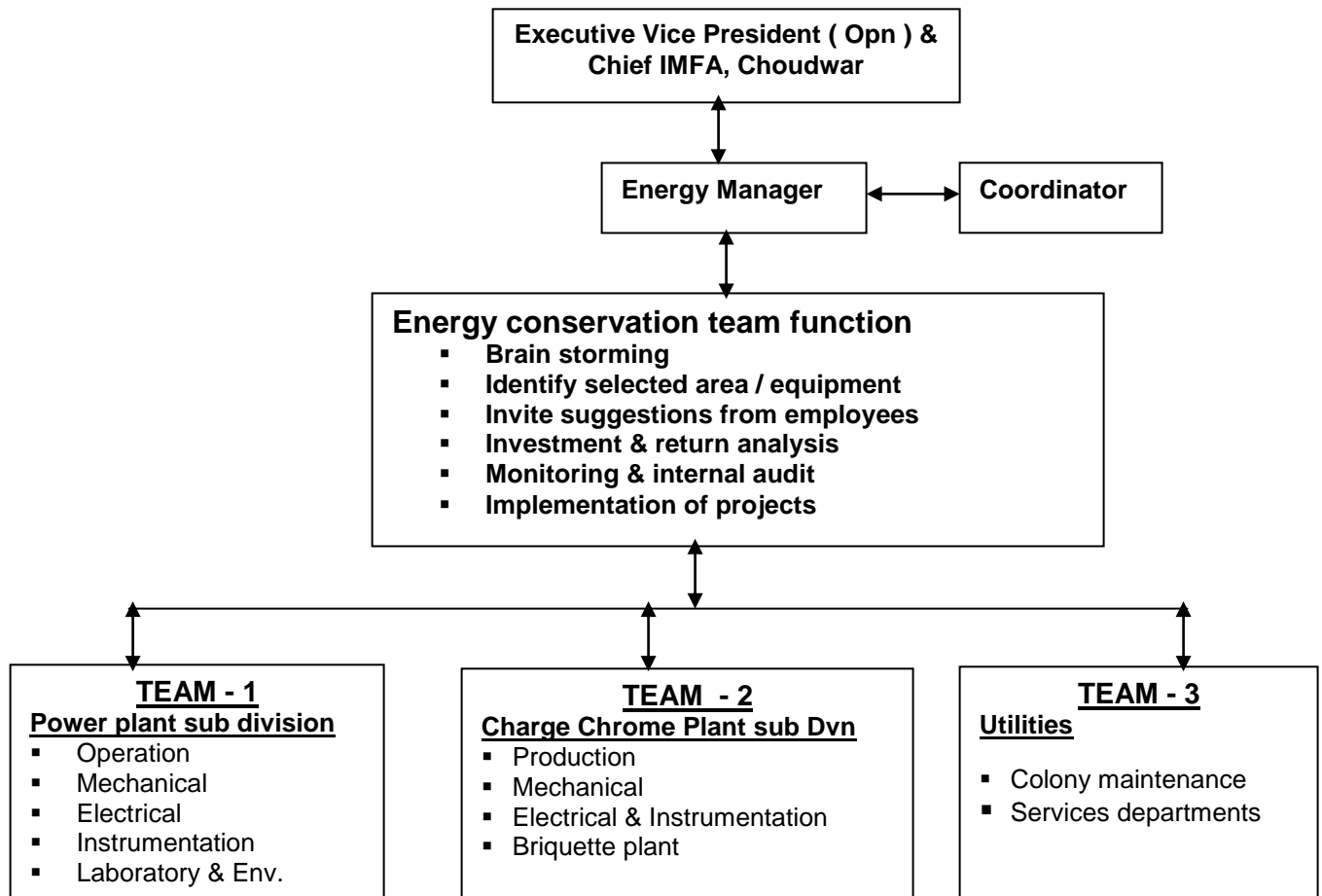




iii. Energy Conservation commitment, Policy & set up

The unit has established the energy policy. An Energy conservation cell has been constituted which is headed by certified Energy auditor reporting to CEO of unit. Electrical energy cost accounts 17.7 % of manufacturing cost during 2007-08. The unit gives utmost thrust on implementation of energy conservation measures irrespective of small or big. The energy conservation objectives & targets have set by the departments. The structure of EC team as under.

Energy conservation team structure :





INDIAN METALS & FERRO ALLOYS LTD. CHODWAR

ENERGY POLICY

We at Indian Metals & Ferro Alloys Limited, Choudwar are committed to conserve various forms of energy judiciously in a cost effective manner in all our activities, product and services across the organization. To accomplish this we will :

- ❖ Monitor closely and control the consumption of energy through establishing energy strategy and targets
- ❖ Replace outdated and obsolete machineries, technologies with energy efficient equipments & technologies
- ❖ Conduct energy conservation studies and energy audits on regular basis , conforming to standards
- ❖ Conserve fossil fuels through enhanced use of renewable energy / recovered waste energy
- ❖ Creating awareness among employees through training, campaign, publicity about need of energy conservation.
- ❖ Conduct regular management reviews to ensure continual improvement to achieve our set goals.
- ❖ Reduce specific energy consumption 1% from the present level by year 2010.

Date : 01.09.2008
Place : Choudwar

Sd/-
(B.D. SAHOO)
Executive Vice President (Operations)

IV. Energy Conservation Achievements

During the period 2005 - 08, the unit has implemented 13 major energy conservation measures in the area i.e replacement by CFL fittings phase wise, replacing energy efficient equipments, increasing operating efficiency, reorientation of process flow, generating awareness among employees etc. There is a saving of electricity & liquid fuel of cost 267.83 lakh with an investment of Rs.43.71 during 3 years.

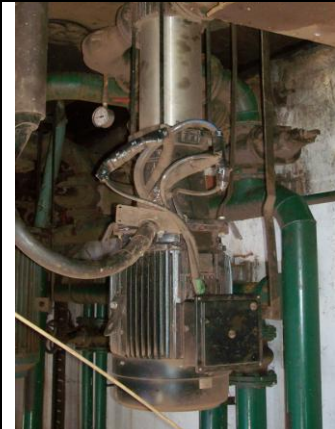
Description	Unit	2005-06	2006-07	2007-08
Energy conservation initiatives implemented	Nos	3	6	7
Total monetary saving	Rs. Lakh	98.58	60.32	112.93
Total Investment	Rs. Lakh	9.70	19.56	14.45

Major projects implemented during 2007-08 is as under :


1. Recycling of product rejects in furnace

<p>Modification in regular process. Product rejects are being used in furnace along with raw material.</p>	<p>The product rejects like slag coated metal generated in the product handling yards were recalculated into the furnace with regular raw materials to utilize prevailing heat inside the furnace and could improve prime metal recovery resulting decrease in specific power consumption to a tune of 78 Kwh per MT of High Carbon Ferro Chrome production.</p> <p>Power saving : 51.32 lakh Kwh per annum</p> <p>Investment made : NIL</p> <p>Saving : Rs. 76.52 lakh per annum</p>
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2. Replacement of furnace cooling water pump with energy efficient pump

	<p>One of the furnace cooling water pump of 75 KW rating was replaced with an energy efficient motor of 37 KW rating for energy conservation at Charge Chrome plant.</p> <p>Power saving : 1.31 lakh Kwh per annum</p> <p>Investment made : Rs. 3.82 lakh</p> <p>Saving : Rs. 1.96 lakh per annum</p>
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3. Replacement of Aluminum alloy fan blades by FRP blades in cooling tower fan.

	<p>Furnace cooling tower (1 & 2) fan blades of Aluminum alloy was replaced by FRP blades for energy conservation at Charge chrome plant</p> <p>Power saving : 0.70 lakh Kwh per annum</p> <p>Investment made : Rs. 1.11 lakh</p> <p>Saving : Rs. 1.04 lakh per annum</p>
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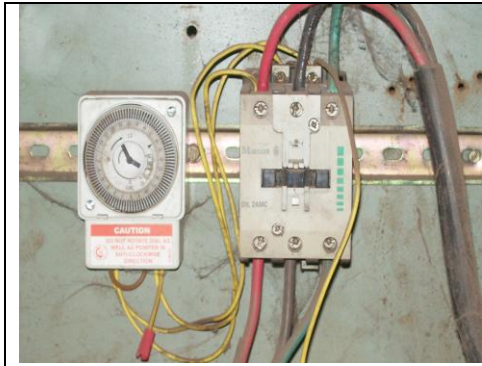
4. Replacement of general tube lights by Compact Fluorescent lamp.

	<p>The general tube lights 150 nos were replaced by Compact fluorescent lamps fittings at various areas in unit for energy conservation</p> <p>Power saving : 0.55 lakh Kwh per annum</p> <p>Investment made : Rs.1.09 lakh</p> <p>Saving : Rs. 0.83 lakh per annum</p>
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5. Replacement of imported water make up pump by indigenous pump.

	<p>The imported demineralized water make up pump after giving life of 17 years was replaced by energy efficient indigenous pump of Grundfos make for energy conservation.</p> <p>Power saving : 0.36 lakh Kwh per annum</p> <p>Investment made : Rs. 0.32 lakh</p> <p>Saving : Rs. 0.54 lakh per annum</p>
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6. Installation of timers to switch off street lights



The street lights were operated manually during morning & evening hours and occasionally delay in operation causing unnecessary consumption of electricity. These were automated by installing timers to conserve electricity.

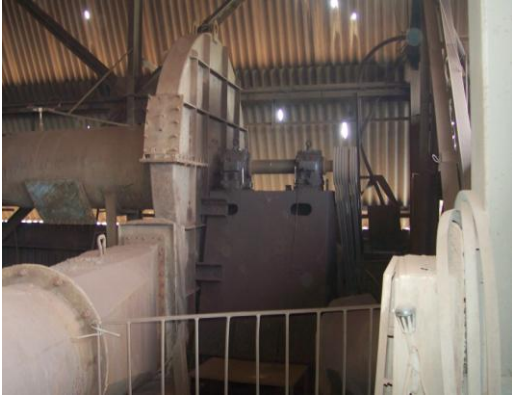
Power saving : 0.11 lakh Kwh per annum

Investment made : Rs. 0.60 lakh

Saving : Rs. 0.16 lakh per annum

7. Reduction in consumption of Light Diesel Oil (LDO) w.r.t previous year

Gas cleaning plant



The Light Diesel Oil is being used to dry the Chrome ore fines to make briquettes which is fed to Charge Chrome furnace along with other raw materials. The LDO consumption has been reduced w.r.t previous year by increasing the use of Charge Chrome Furnace off gas for Chrome ore fines drying.

Fuel saving : 108 KL (1.08 Million Kcal) per annum

Investment made : Rs. 7.51 lakh

Saving : Rs. 31.88 lakh per annum

V. Energy Conservation Plans & Targets

The energy conservation plans & targets for 2008-09 & 2009-10 is as under

Sl	Energy conservation measures planned	Saving in lakh Kwh	Investment (Rs. In lakh)	Time frame for implementation
1	Furnace off gas will be used for power generation thereby reduction in coal consumption for about 5 MU power generation	14 Million Kcal	No additional investment (In the scope of 30 MW power plant expansion project)	Feb. 2009
2	Replacement of tube lights by CFL fittings	0.73	4.00	March 2009
3	Replacement of auxiliary cooling water pumps with energy efficient motors 55 KW 2 nos.	2.19	4 .00	March 2009
4	Replacement of 200 KW water pump by energy efficient pump at Charge chrome plant	3.96	10.00	Dec. 2009



vi. Environment and Safety

The unit Indian Metals & Ferro Alloys Ltd is ISO 14001:2004 (Environment Management System) & OHSAS 18001:1999 (Occupational health & Safety management System) certified. The unit is committed to preserve its environment and safety and occupational health of all employees.

The various environmental measures have been installed & systems made to protect the environment i.e Air, Water & Soil, Fauna & Flora.

- Electrostatic precipitators have been installed at all 5 nos boilers which ensures the PM level 150 mg/Nm^3 within norm.
- Gas cleaning plant is operating commensurate with furnace operation having capacity 17000 NM^3 per hour. This resulted PM level mg/Nm^3 within norm.
- Effluent treatment plant having capacity 50 M^3 /Hour & ETP water 100% reused in gas cleaning plant. The ETP sludge 100 % reused in briquette plant.
- Process water recycled & used as raw water in production & generation and for spraying for dust suppression at product handling yards.
- Massive plantation is being done every year in & around plant premises.
- Monitoring ambient air quality inside & outside of plant premises, which is found within norm.
- Solid waste i.e mixed ash is being disposed at designated places & plantation is being done on those areas. Slag generated in process is stored at company premises & TCLP test is being done regularly.
- Impart ESH awareness training to all employees at least once in a year

Safety & occupational health :

Safety & occupational health is a key area of concern for management. The following measures are adopted to ensure safe work environment in unit :

- Employee involvement is safety & health aspect through safety committees, inspection teams, inviting suggestions
- Safety campaigns through organizing National Safety week every year
- In depth analysis of accident/ incidents & ensure corrective actions to prevent its re occurrence
- Ensure 100 % use of appropriate PPE by all employees
- Conducting regular health check ups of all employees & monitoring
- Conducting regular internal safety audit by cross functional teams of Sr. executives
- Conducting De-addiction program for company & contract workers

AWARDS & RECOGNITIONS

IMFA, Choudwar won the prestigious State Safety Award on “ Best performance in Safety , Health and Environment management “ for the **year 2006** from Directorate of Factories & Boilers, Orissa. Also The captive power plant of IMFA Choudwar received certificate of appreciation from Orissa Pollution control board for **year 2007** among medium scale industries of Orissa.