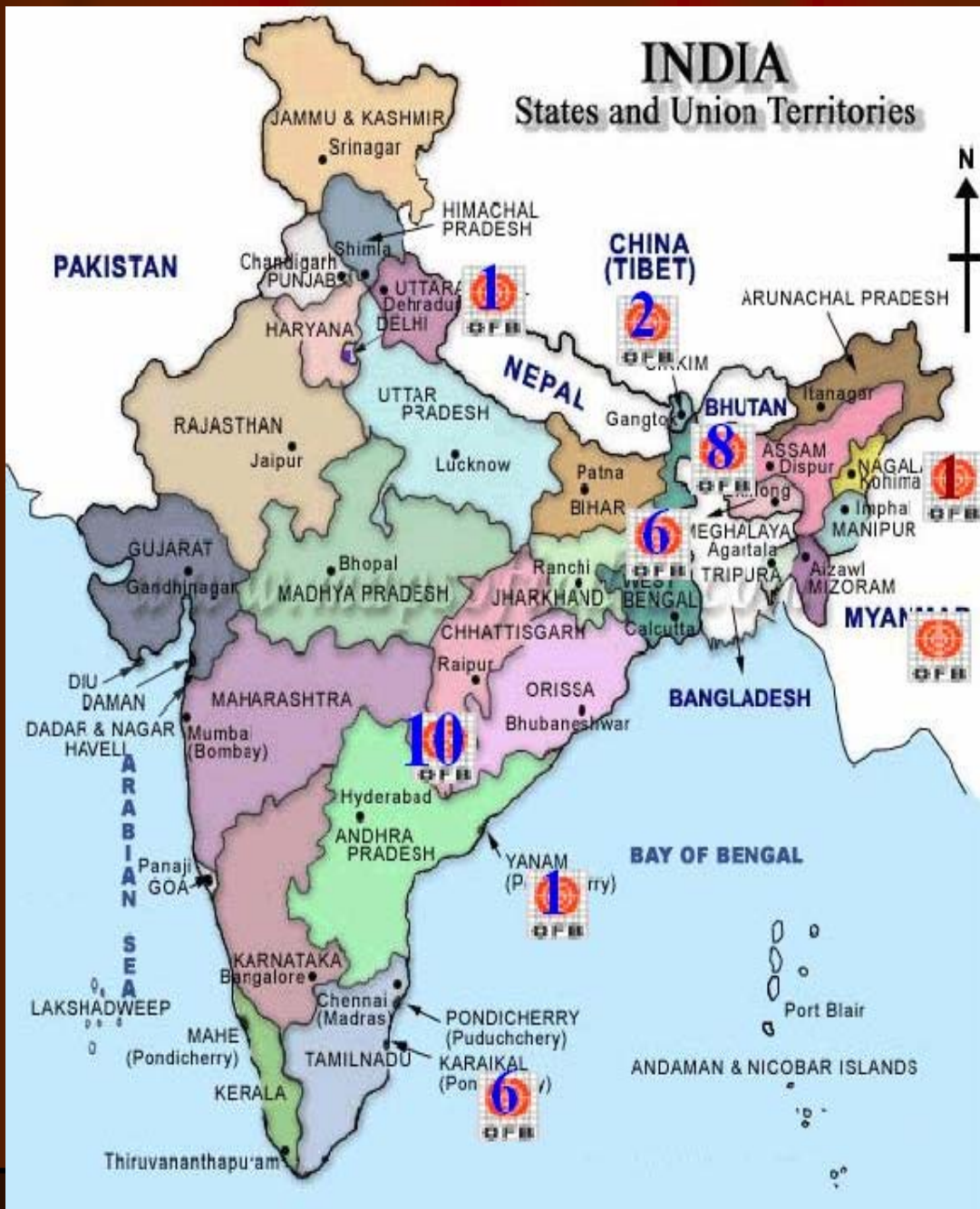


# **ENERGY CONSERVATION & ITS MANAGEMENT AMMUNITION FACTORY KHADKI**



**Presented by : EC Cell**

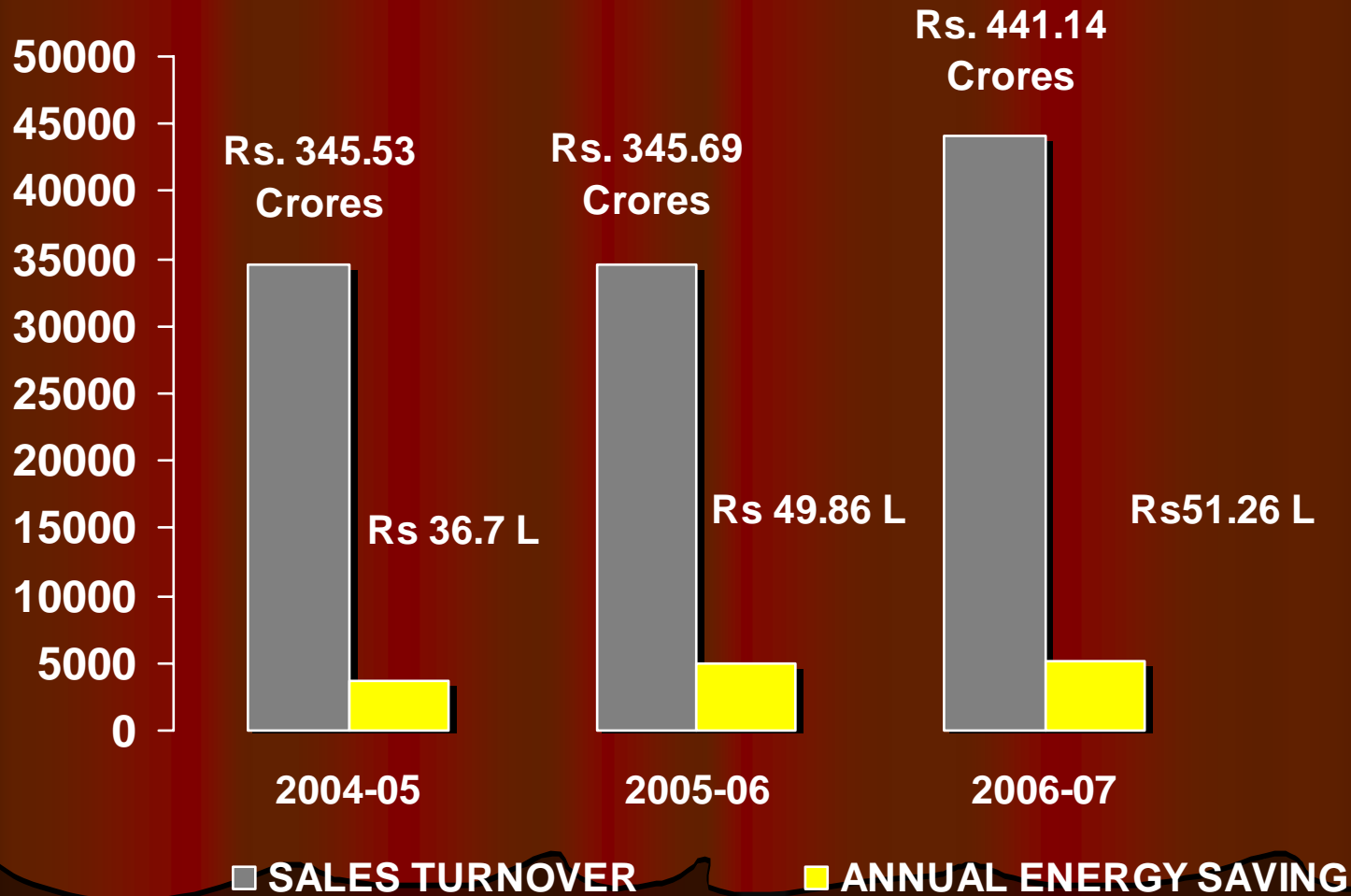


<i>State</i>	<i>Factorie s</i>
<b>Maharashtra</b>	<b>10</b>
<b>Uttar Pradesh</b>	<b>8</b>
<b>Tamil Nadu</b>	<b>6</b>
<b>Madhya Pradesh</b>	<b>6</b>
<b>West Bengal</b>	<b>4</b>
<b>Bihar</b>	<b>1</b>
<b>Orissa</b>	<b>1</b>
<b>Chandigarh</b>	<b>1</b>
<b>Uttaranchal</b>	<b>2</b>
<b>Andhra Pradesh</b>	<b>1</b>
<b>Total</b>	<b>40</b>

# AFK AT A GLANCE

- ❑ Established in the Year 1869.
- ❑ One of the 40 Ordnance Factories Spread All Over India under the Overall Control of Ordnance Factory Board (OFB) Kolkata under The Ministry of Defence.
- ❑ A Heritage Industrial Unit in the Historical City of Pune, having Employee Strength over 6000 Trained Personnel.
- ❑ Industry Leaders in Small Arms and Artillery Ammunition in India
- ❑ Focus on Modernisation of Plant & Machineries, Computerisation, Automation and Encon.

# SALES TURNOVER AND ENERGY COST



# PRINCIPAL PRODUCTS



- SMALL ARMS AMMUNITION
- ARTILLERY AMMUNITION
- SHELLS, MORTAR BOMBS, GRENADES
- MINES- LAND AND UNDERWATER
- DETONATORS, PRIMERS, IGNITERS, SWITCHES
- FUZES-IMPACT, TIME AND PERCUSSION
- AIR DEFENCE ELECTRONIC COUNTER MEASURES / CHAFF ROCKETS
- AIR DEFENCE COMPONENTS
- AIRCRAFT SEAT EJECTION POWER CARTRIDGES
- SPORTING AMMUNITION -12 BORE 65 mm AND 70 mm
- ANTI- RIOT AMMUNITION
- SIMULATION AND TRAINING AMMUNITION

# GLORIOUS ACHIEVEMENTS



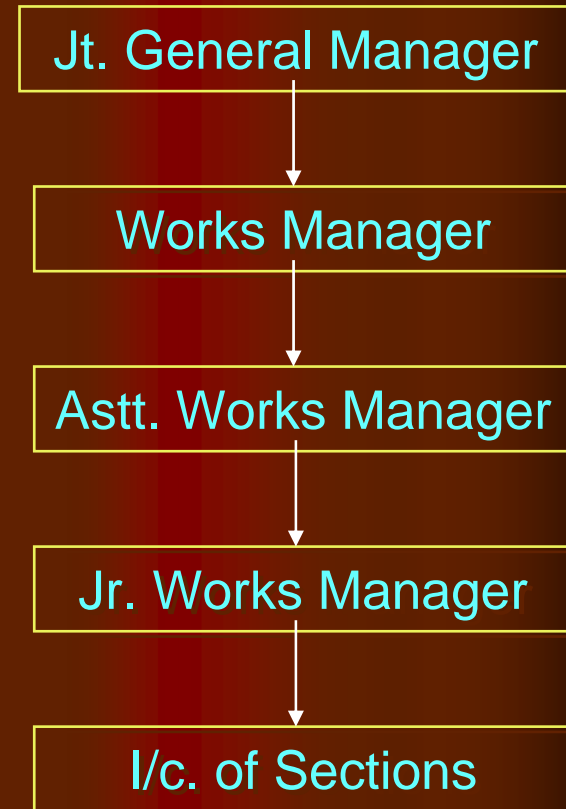
- 🏆 *"BEST ORDNANCE FACTORY AWARD" FOR THE YEAR 2003-04 FROM AMONG THE 40 INDIAN ORDNANCE FACTORIES.*
- 🏆 *"RAKSHA MANTRI AWARD" FOR EXCILLENCE 2004.*
- 🏆 *"GOLDEN PEACOCK" INNOVATION AWARD IN SEPTEMBER 2005 FOR DEVELOPMENT OF SA-7 CARTRIDGE.*
- 🏆 *"GOLDEN PEACOCK" FOR OCCUPATIONAL HEALTH & SAFETY 2006.*
- 🏆 *"STATE LEVAL AWARD FOR EXCELLENCE IN ENCON BY MEDA 2005*

# ENERGY CONSERVATION CELL

## ACHIEVEMENTS

- ❖ ***Saving in Saving in Energy and Creating Awareness in All Employees.***
- ❖ ***Improving Power Factor Up to Unity.***
- ❖ ***Using CFLs in almost all Sections.***
- ❖ ***Replacing 40w Normal Fluorescent Tube with Efficient Retrofit Tubes of 28w.***
- ❖ ***Use of Natural Light in Shop Floors.***
- ❖ ***Automation of Pumps.***
- ❖ ***Controlling Shop Floor Lighting and Street Lighting.***
- ❖ ***Thermal Energy through Projects***

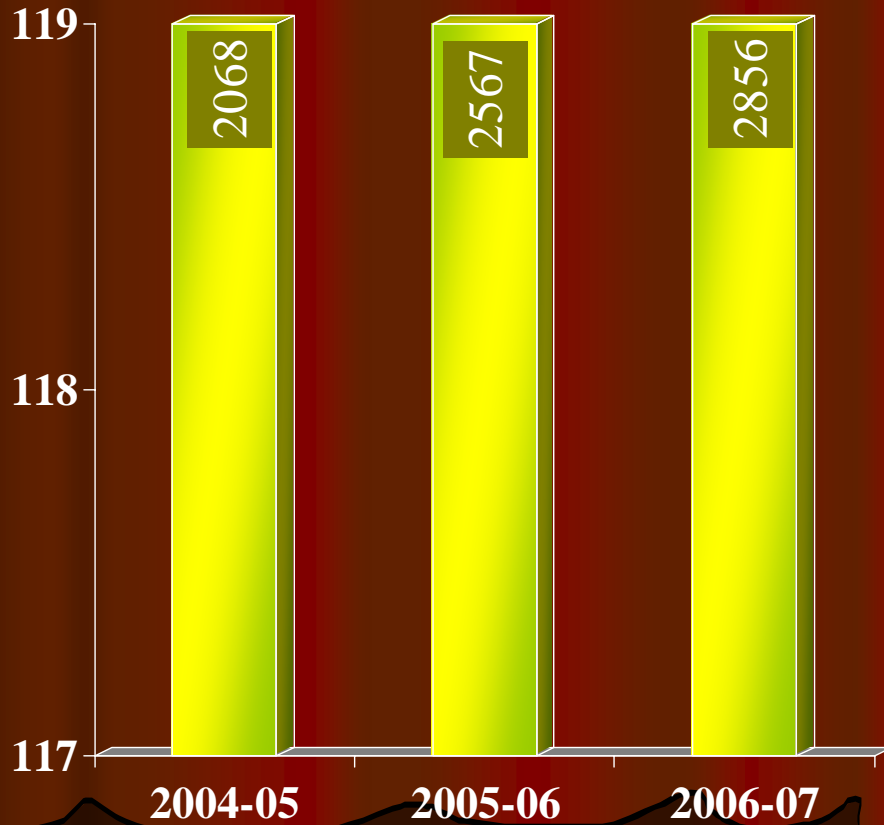
## CONSTITUTION



# ENERGY SAVING

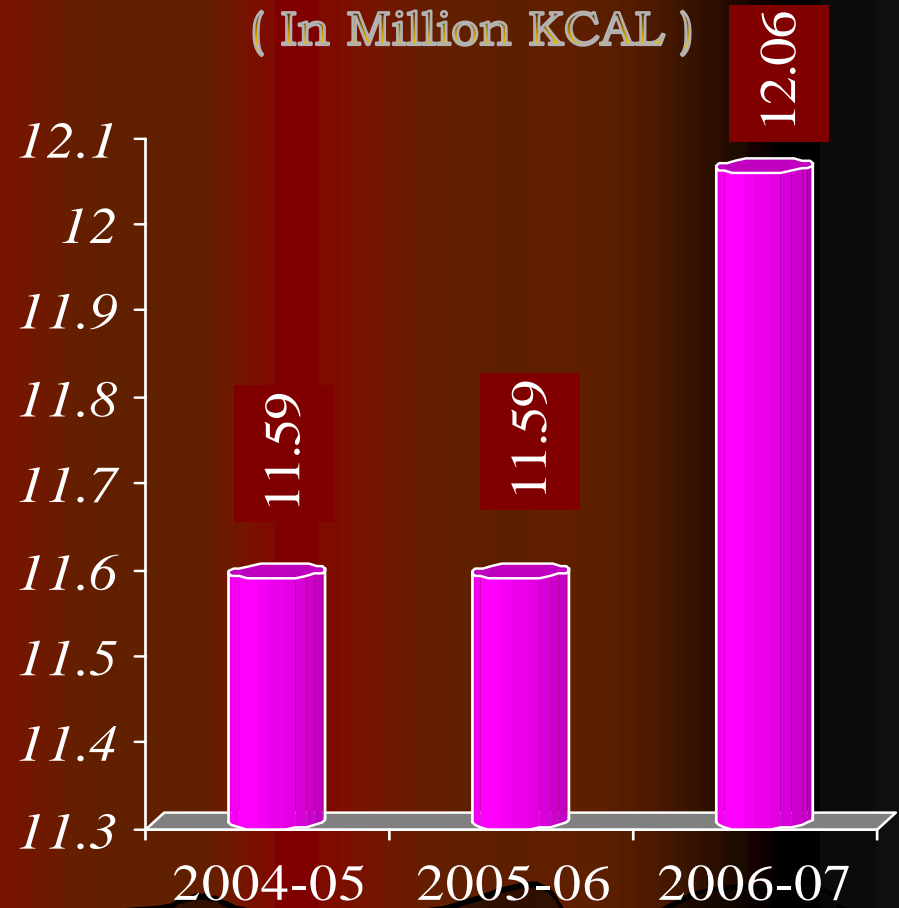
## ELECTRICAL

( In Lakhs kWh )



## THERMAL

( In Million KCAL )



# ENERGY AWARENESS PROGRAMME

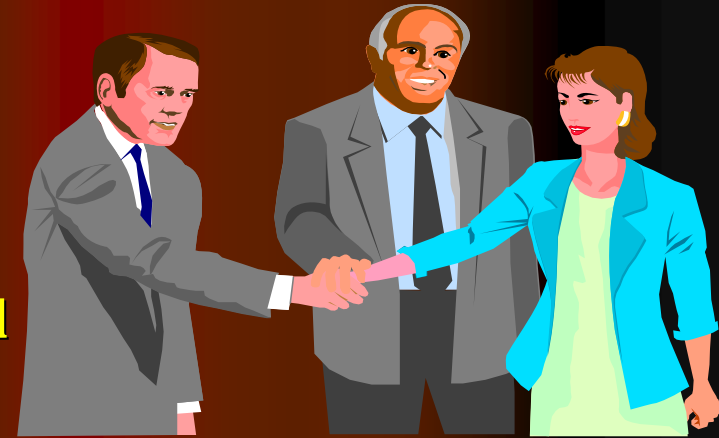
THE FACTORY HAS AN EMPLOYEE STRENGTH OF OVER 5500.

HUMAN RESOURCE IS AN INVALUABLE ASSET FOR ANY ORGANISATION. SO IT IS MOST IMPORTANT FOR SUCH A LARGE FACTORY IS TO MAKE THE EMPLOYEES AWARE OF THE ENCON.

MANY PROGRAMMES OF ENERGY AWARENESS ARE FREQUENTLY ORGANISED UNDER THE GUIDANCE OF ENERGY CONSERVATION CELL.

THE MANAGEMENT ENCOURAGES PARTICIPATION OF ALL EMPLOYEES IN DIFFERENT ACTIVITIES OF THE ENCON.

# EC CELL FUTURE PLANS



- **Improve Power Factor At Load End**
- **Automation In Load Management**
- **Continual Improvement In Energy Conservation**
- **Utilisation Of Waste Water**
- **Increased Use Of Non-conventional Energy Resources**
- **Encon In Residential Areas**
- **Creating Awareness Amongst Employees**
- **Modernisation Of Plant auxiliaries Like Water Pumping System, Boilers, Lighting System, Air Conditioning Etc.**
- **Close Monitoring For Encon**
- **Emphasis On Non Conventional Energy Utilisation**

# LIGHTING PROJECT : 1

- USE OF LED LAMPS OF 1 W INSTEAD OF 6 W INDICATION LAMPS REPLACED 80 nos.  
SAVING : Rs 0.17 L .p a.
- 30 nos OF SOLAR STREET LIGHTS ARE INSTALLED SO FAR INSIDE FACTORY.  
SAVING : Rs 0.24 L .p a.



# LIGHTING PROJECT :2

- **USE OF 23/11/8 W CFLs IN PLACE OF 100/60/40 W LAMPS REPLACED 1000 nos AS ON DATE.  
SAVING : Rs 11.03 L .p a.**
- **USE OF 28 W ERTs INSTEAD OF 40 W NFTs REPLASSED 1700 nos SINCE TILL DATE .  
SAVING : Rs 7.66 L .p a.**
- **METAL HALIDE LAMPS 250 W ARE USED INSTEAD OF 500 W LAMPS 45 nos IN BASTIN  
SAVING : Rs 1.84 L .p a.**



# LIGHTING PROJECT :3

- USE OF HIGH TRANSPARENT SHEETS FOR NATURAL LIGHT PROVISION IN 9 BIG SECTIONS.  
SAVING : Rs 2.58 L .p a.
- STREET LIGHT, CYCLE STAND ARE CONTROLLED WITH TIMER TO SAVE UPTO 50 UNITS PER DAY.
- SIX MONTHLY CHECKING OF HT / LT BUS-BAR CONNECTION  
SAVING 3000 UNITS .  
SAVING : Rs 0.14 L .p a.



# LIGHTING PROJECT :4

- REPLACEMENT OF TWO 1000 KVA, TEN 500 KVA, ONE 250 KVA OF OIL COOLED TRANSFORMER WITH DRY TYPE TRANSFORMER.  
SAVING :Rs 9.78 L. p a.
- FACTORY GETS REBATE OF MORE THAN 48 LAKH ANNUALLY FROM MSEB WHICH IS LARGEST REBATE GIVEN BY MSEB IN PUNE REGION .
- COMMON DRIVE MACHINES ARE REPLACED INDIVIDUAL MOTORS.  
SAVING :Rs 50.22 L. p a.



# LIGHTING PROJECT :5

- 11KV/3.3KV/415 VPOWER SYSTEM IS BEEN REPLACED BY 11KV/415V .LOSSES OF TRANSFORMER AND TRANSMISION LINES SAVED.

SAVING : Rs 8.55 L .p a.

- EARIER TWO TRANSFORMERS USED TO SHARE LOAD OF SUB-STATION BUT NOW ONLY ONE TRANSFORMER IS FULL LOADED.

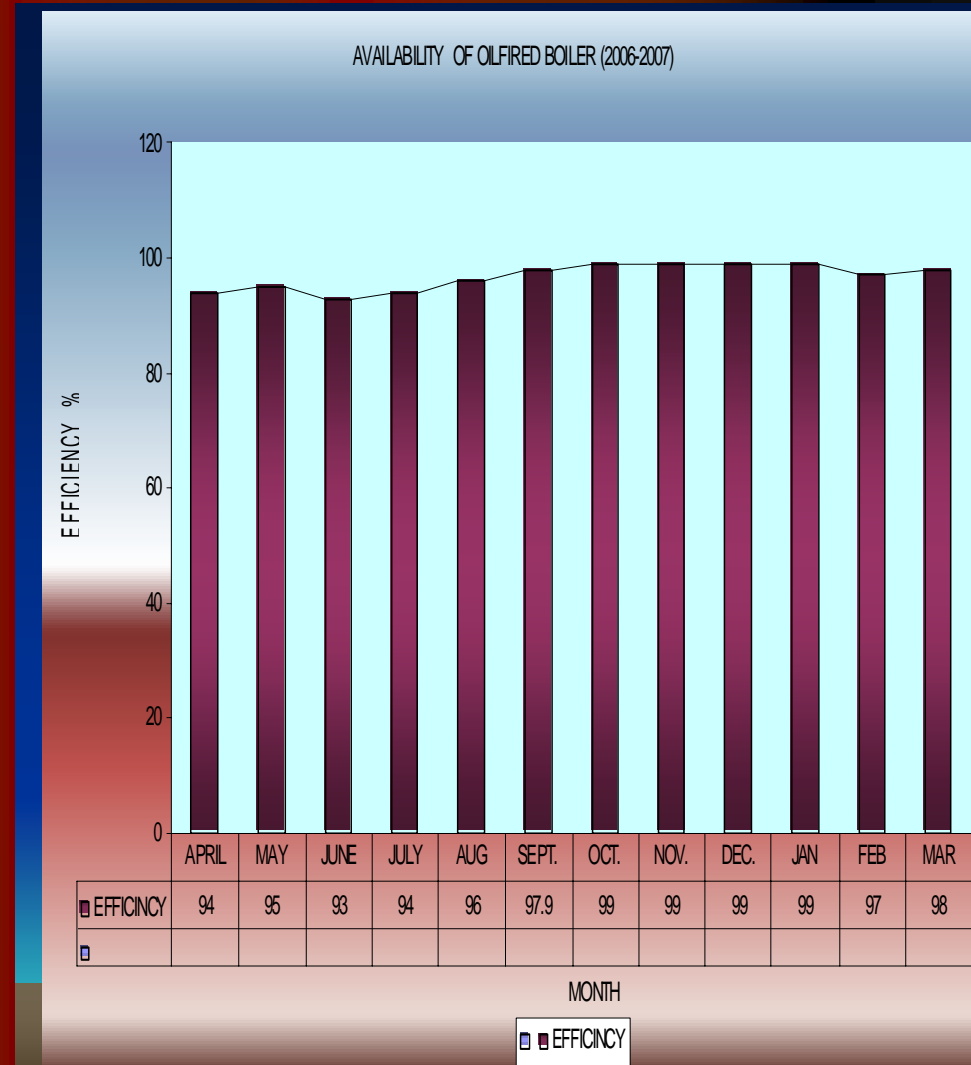
SAVING : 5 % OF ENERGY CONSUMED BY ONE TRANSFROMER .

# **THERMAL ENERGY CONSERVATION**

- ***AVERAGE FUEL CONSUMPTION PER DAY FOR RUNNING OF OIL FIRED BOILER AT JN MARSHALL BOILER HOUSE REDUCED TO 1750 LITRES FROM 1900 LITRES THAN LAST YEAR***
- ***BY RUNNING THE BOILER EFFICIENTLY***
  - ***IMMEDIATE RECTIFICATION OF STEAM LEAKAGES.***
  - ***AUTOMISATION OF STEAM SUPPLY.***
  - ***UNUSED BRANCHES OF STEAM PIPE LINE DISMANTLED .***
  - ***ENSURED PROPER INSULATION OF STEAM LINE***
  - ***SAVING Rs. 9 LAKH / YEAR.***

# RUNNING BOILER EFFICIENTLY

- Atomization of fuel properly
- Maintain the air fuel ratio properly.
- REGULAR Cleaning of smoke tube avoid formation of scale inside the tube -resulted in reduction in fuel consumption by 2.5%



# THERMAL PROJECT :1

- *IN PRIMER DRYING UNIT- INTRODUCED STEAM SOLENOID VALVE AT INLET AND STEAM TRAP AT OUT LET OF STEAM COIL, FOR CONTROLLING THE STEAM SUPPLY & TO MAINTAIN TEMP.OF CAP BETWEEN 45<sup>0</sup>C TO 49<sup>0</sup>C*
- *ACCURACY OF TEMPERATURE MAINTAINED*
- *TOTAL AUTOMATIC OPERATION*
- *10% SAVING IN THE STEAM SUPPLY ACHIVED*

# THERMAL PROJECT :2

FOUR COAL FIRED BOILER REPLACED WITH TWO  
OILFIRED BOILER

## OLD COAL FIRED BOILERS



## NEW OIL FIRED BOILERS



## ADVANTAGES

- LOW EMISSION
- LESS MANPOWER
- LOW OPERATING COST
- AUTO-OPERATION
- MORE SUITABLE FOR VARYING LOAD IN AFK
- INSTANT START
- HIGH GURRANTED EFFICIENCY

# WHY AFK IS ELIGIBLE FOR AWARD

- † ENCON IS THE PRIMARY CONCERN OF EACH MEMBER OF AFK FAMILY.
- † AFK IS ADDRESSING THE DEPLETION OF THE CONVENTIONAL ENERGY SOURCES WITH THE REQUIRED ZEAL AND ENTHUSIASM.
- † SINCERE AND FRUITFUL EFFORTS ARE MADE TO TAP THE POTENTIALS OF RENEWABLE ENERGY SOURCES.
- † THOUGH HT CONSUMER WITH A DEMAND OF 4000 - 4700 KVA, AFK HAS BEEN RUNNING AT UNITY POWER FACTOR- WHICH IS AN ACHIEVEMENT ITSELF.
- † ABSOLUTE ENERGY SAVINGS HAVE BEEN MADE FROM THE EXISTING CAPITAL ASSETS AND FROM NEW INVESTMENTS.
- † AFK HAS AN EFFICIENT MANAGEMENT OF ENCON PROGRAMMES.
- † THEREFORE AFK IS ELIGIBLE FOR THE AWARD.

Thanks

