

Mahindra & Mahindra Ltd.

Farm Division

Nagpur Unit

Welcomes





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Our Product



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At Nagpur we produce 14 Models and 86 Variants on a single assembly line



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Achievements



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- 2001 - ISO 14001 Certification (Environment Management System)
- 2003 - Deming Application Prize for FES
- 2004 - ISO/TS 16949:2002 Certification
- 2005 - OHSAS 18001 Certification
- 2007 - Japan Quality Medal for FES
- 2008 - Awards for Best Energy Management System from Government of Maharashtra
- 2009 - Golden Peacock Award in Safety & Health by world Environment Forum
- 2009 - Frost & Sullivan Golden Award
- 2009 - Award for Water Efficient Unit by CII



Hydraulics Plant



Tractor Plant



Transmission Plant



Engine Plant



Warehouse

- Each Unit consist of Assembly, Testing and Raw material Stores
- Machining Activities in Hydraulics, Transmission and Engine
- Ware House for Material Storage



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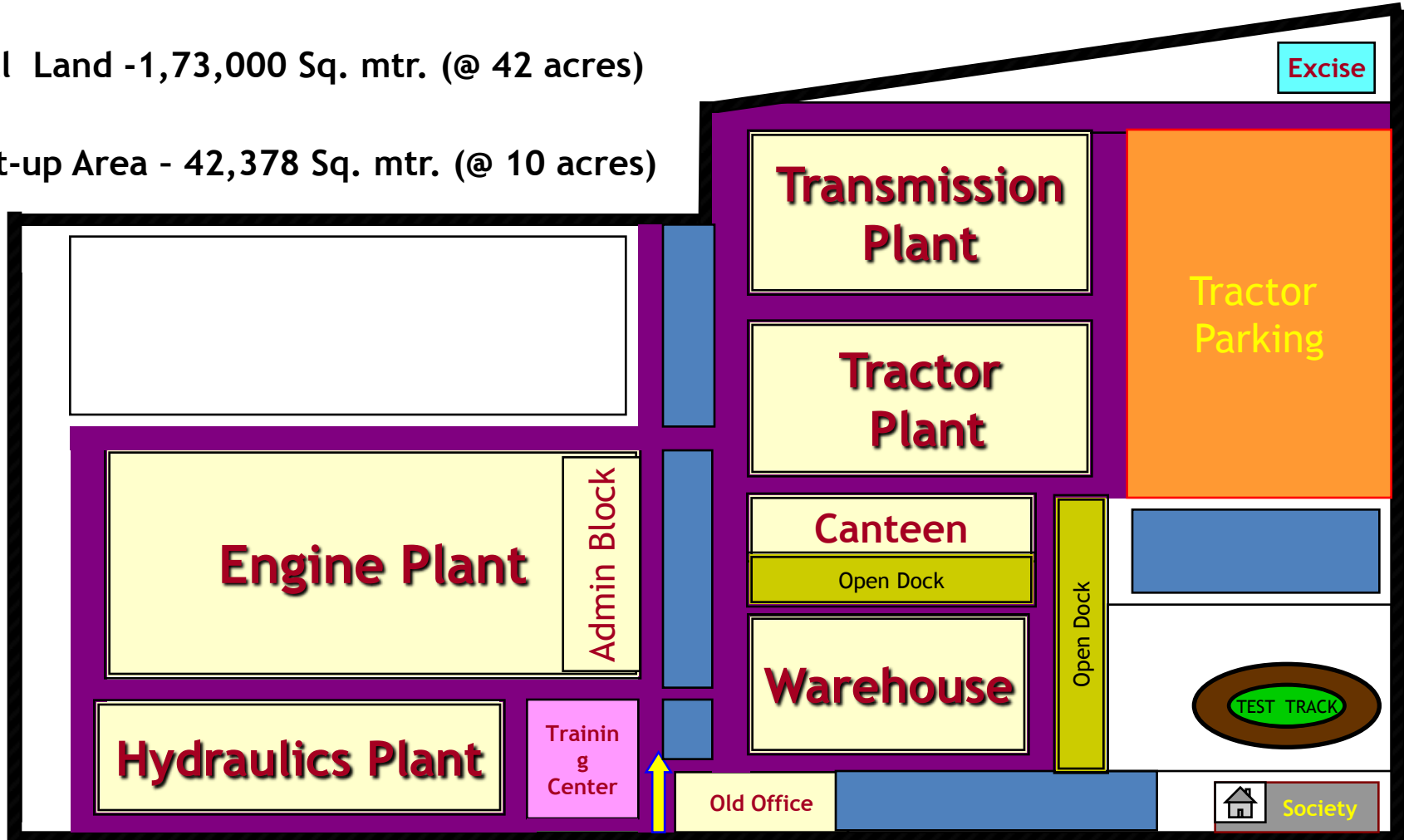


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Nagpur Plant : Schematic Layout

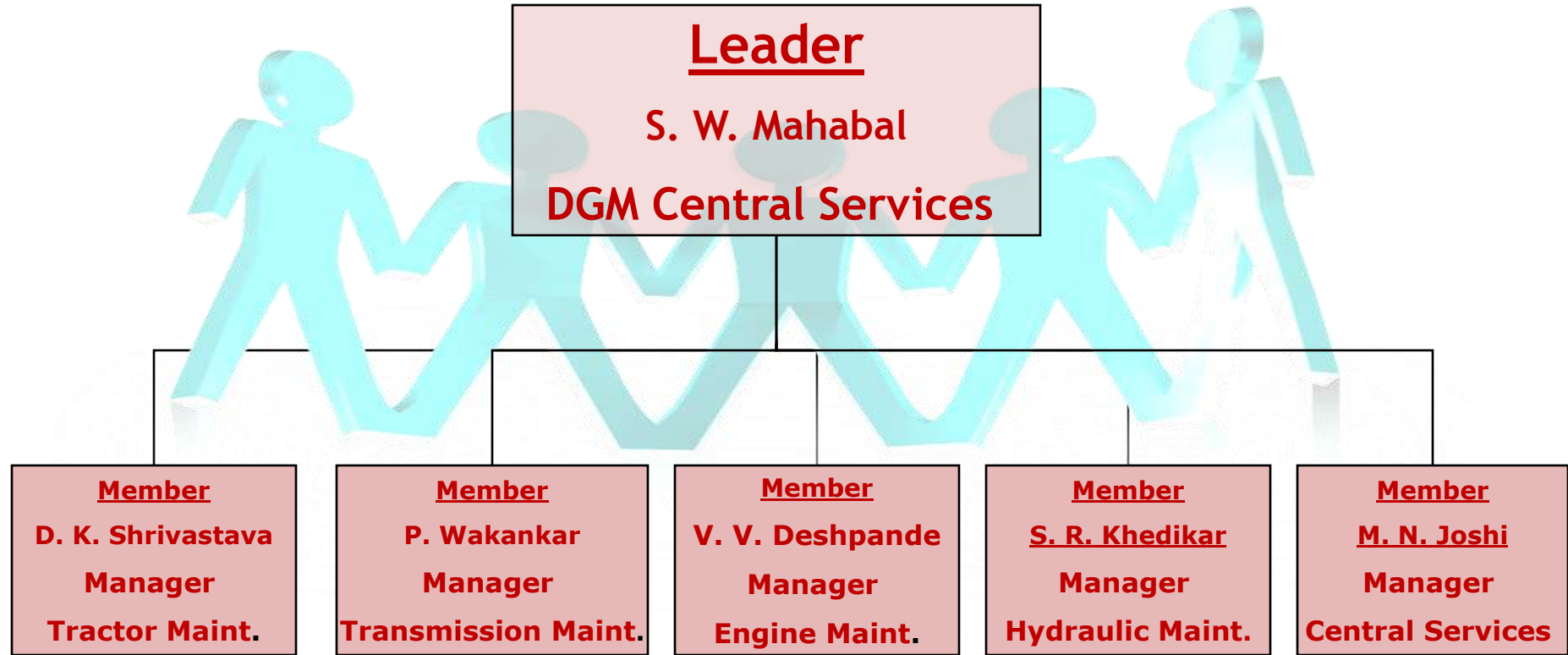
Total Land - 1,73,000 Sq. mtr. (@ 42 acres)

Built-up Area - 42,378 Sq. mtr. (@ 10 acres)



■ Road ■ Plants/Bldg ■ Garden ■ Open Area







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Specific Energy consumption



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SEC Per Tractor





Sr No	Projects
1	Incorporation of Energy efficient Pumps in Place of Conventional Pumps at 18 Locations
2	Use of Turbo ventilators' in place of exhaust Pumps
3	Use of Natural Lighting by using Poly carbonate sheets on Roof
4	Timers to Package Airconditionars
5	Solar Heating for Kitchen
6	Compressor Air Management
7	Incorporation of Heat Pump
8	Water siphon & Timer circuits for OH water Tanks
9	Using Electrical Motor's in Star connections as possible.
10	Improving the design of the Hot air circulation on ovens
11	Monitoring the Heat loss from all Hot air circulations fans & improving the Insulation
12	Incorporation of VFD's for major induction motors
13	Replacement of Conventional lamps with LED lamps

BEFORE

AFTER

Optimizing power by Replacing Conventional Pump
with Energy Efficient Pump





BEFORE

AFTER

**Optimizing Power by replacing conventional pump with
Booster Pump**



BEFORE

AFTER

**Optimizing power by Replacing Conventional Pump
with Energy Efficient Pump**



Use of Natural Resources



**Maximum Usage
of Natural Lights**



**Use of Eco Friendly
Ventilation System**

Timer on AC's

BEFORE



PACKAGED AC WITH NO TIMER

AFTER



PACKAGED AC WITH TIMER





BEFORE



AFTER



Earlier Two Compressors of 900 CFM & one Compress or of 200 CFM was required.

Now One Compressors of 900 CFM & one Compress or of 200 CFM is required

BEFORE



Heaters
Power MCB
ON



Heaters panel
(6 x 4 = 24KW)

High consumption Electrical Heater

AFTER



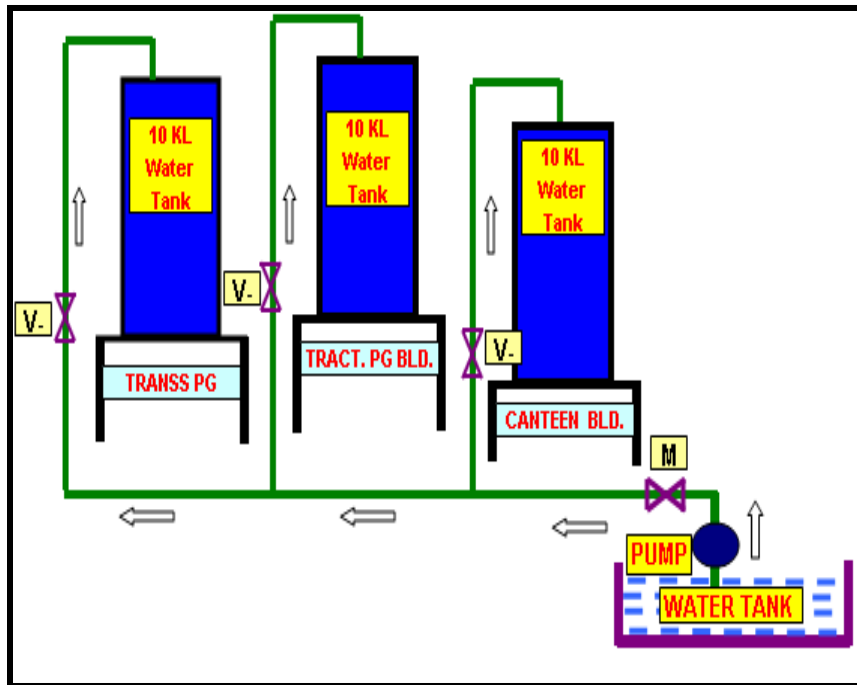
New Heat
Pump
(6KW)



Heaters Power MCB off

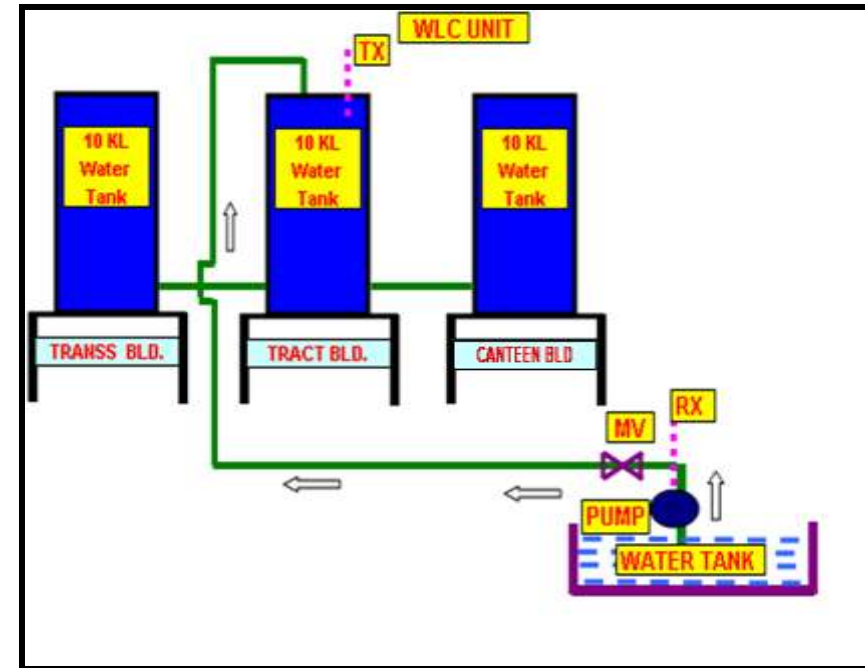
Heat Pump installed

BEFORE



Unnecessary Running Of
Water pump while
overflowing.

AFTER



Unnecessary Running Of
pump eliminated.

Improvement in hot air circulation inside oven system for faster baking

BEFORE

AFTER



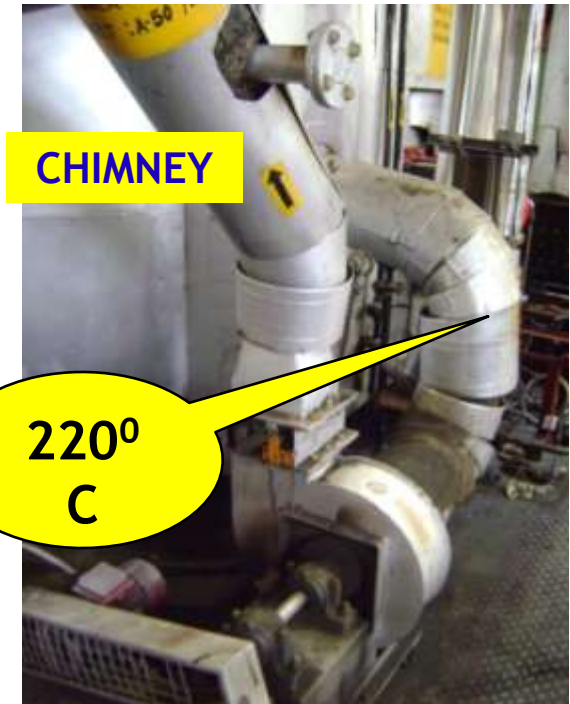
Induced draft fan removing the heat from the combustion chamber

Method of Testing:

Checked the Flue gas temperature.

It is observed that the temperature of Flue Gas is 220 degree centigrade which reduces below 180 degree when ID fans is kept OFF.

Recommended Flue Gas temperature is 190 degree C.



- Thermal Insulation of 4” has been provided on the Circulation FAN.
- Skin temperature is reduced from 90 degree centigrade to 40 degree centigrade.

BEFORE



95° C

AFTER



40° C



Induced draft fan removing the heat from the combustion chamber

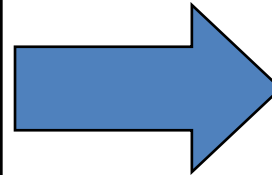
- Induced draft of one Burner stopped and chimney directly connected so that Flue gas can move with **Natural Draft.**



VFD installation for exhaust blowers in paint booth



Variable frequency
Drive installed for
blower motors



Before	After
(1) Dampers with 40% throttle.	(1) Dampers fully open & VFD installed.
(2) Power consumption Units – 2,20,000 Kwh / annum Cost - Rs. 10,56,000 / annum	(2) Power consumption Units – 1,80,000 Kwh / annum Cost – Rs. 8,64,000 / annum
(3) Air velocity 2.4 m / sec	(3) Air velocity 2.4 m / sec



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Energy Saving Through Administration control & People Involvement

Sr No	Projects
1	Energy conservation Audits
2	Training on Energy conservation to all Employees
3	Awareness through Banners & Poster
4	Idea Generation campaigns
5	Implementation of all Feasible Energy saving Ideas
6	Rewards & Recognitions' for all participants contributing to Energy conservation drive.



People Involvement



The Campaign received euphoric response from the employees and contract labor as well.





Banner Display





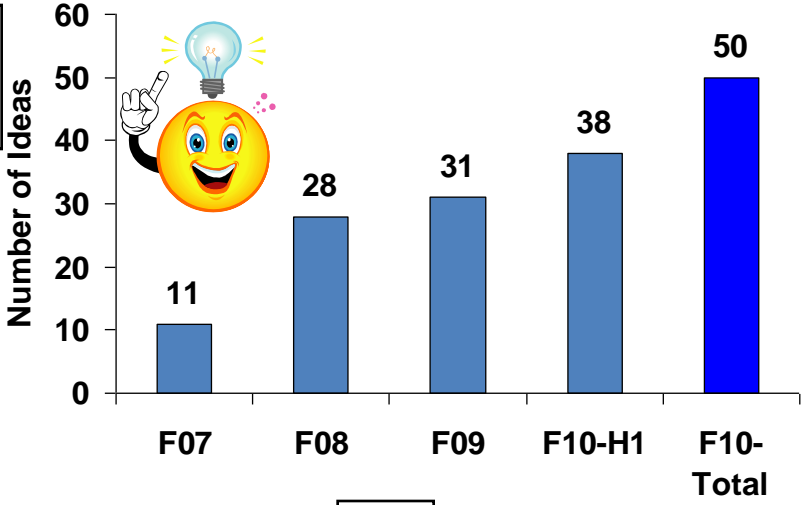
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Consistent Performance by the Team Since F'07

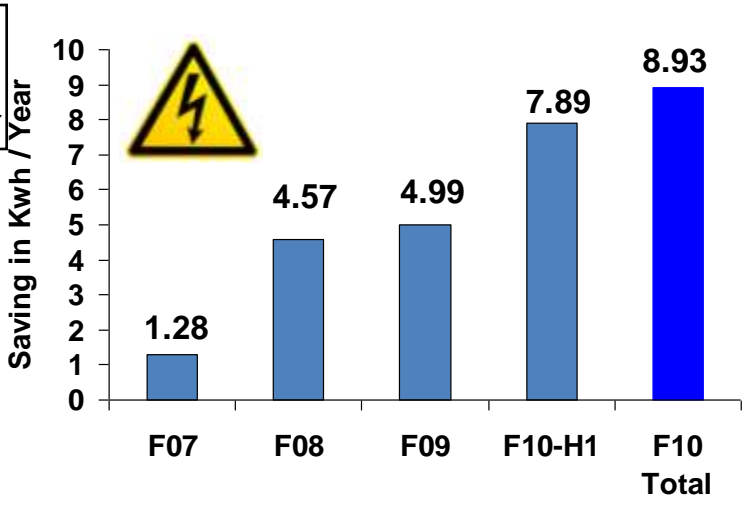


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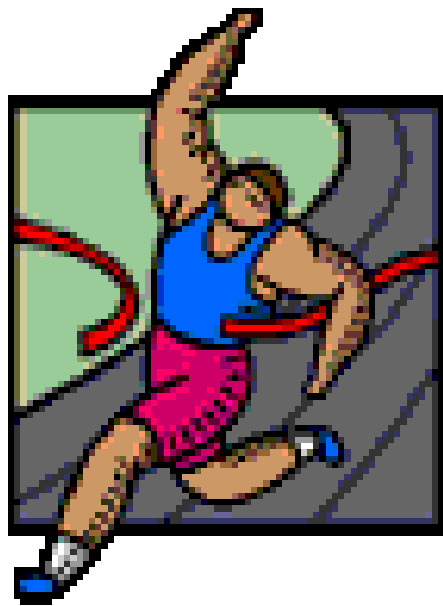
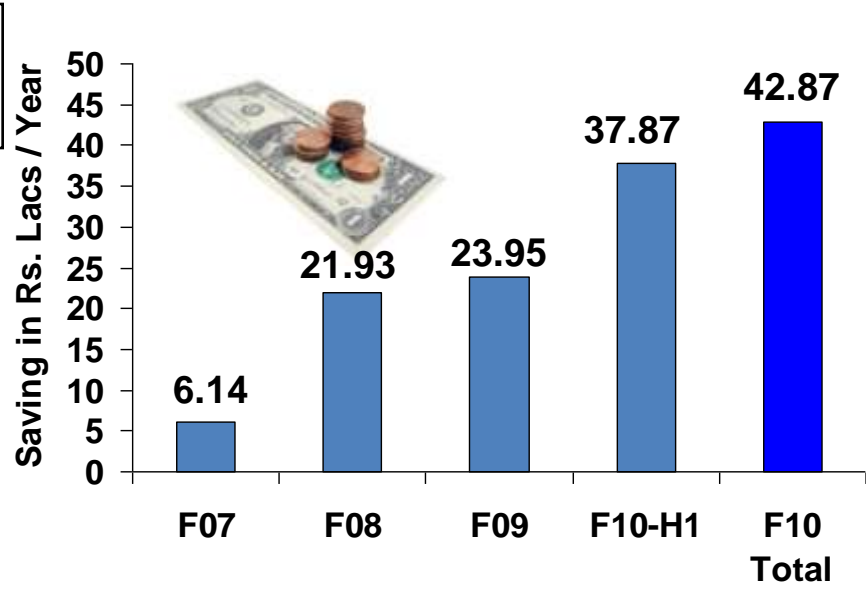
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Better



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Better



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Better





Future plans

**Stabilized supply to
plant**

**for saving Energy
during**

Non Peak Hours

**Installation of 3.2 MW
Wind Mill Projects for
Power Generation**



**PIR CONTROLS
FOR OFFICES**

**Auto Tap changer
for street lights**

**Solar
power
project**

**Incorporation
of Energy
Efficient
Motors**

**Energy saving
luminaries**



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THANKS