

**ELECTRICAL LOCO SHED / KAZIPET
SOUTH CENTRAL RAILWAY
Secunderabad (Telangana)**

Unit Profile

Electrical Loco Shed situated at Kazipet under Telangana state. It is a part of Secunderabad Division of South Central Railway. This is 26th Electric Loco Shed of Indian Railways.

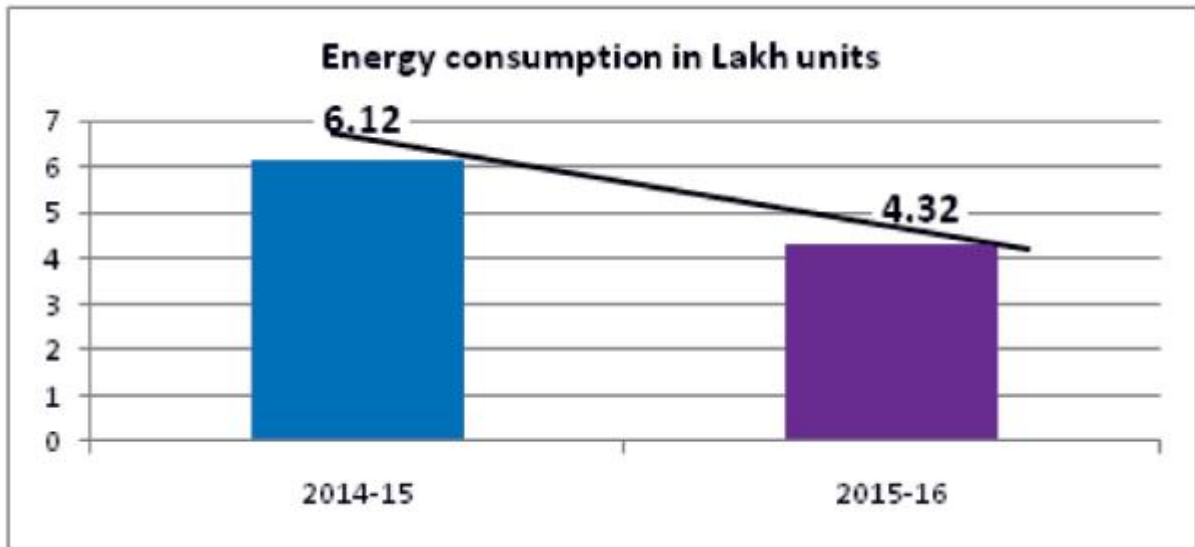
Electrical Loco Shed was sanctioned for homing of 100 locomotives in 1998. The Shed construction started in 2002 and trip shed was inaugurated in November-2004. Main shed commissioned on 01-03-2008. Augmentation works of homing capacity from 100 locos to 125 locos is under progress.

Electric Loco Shed, Kazipet



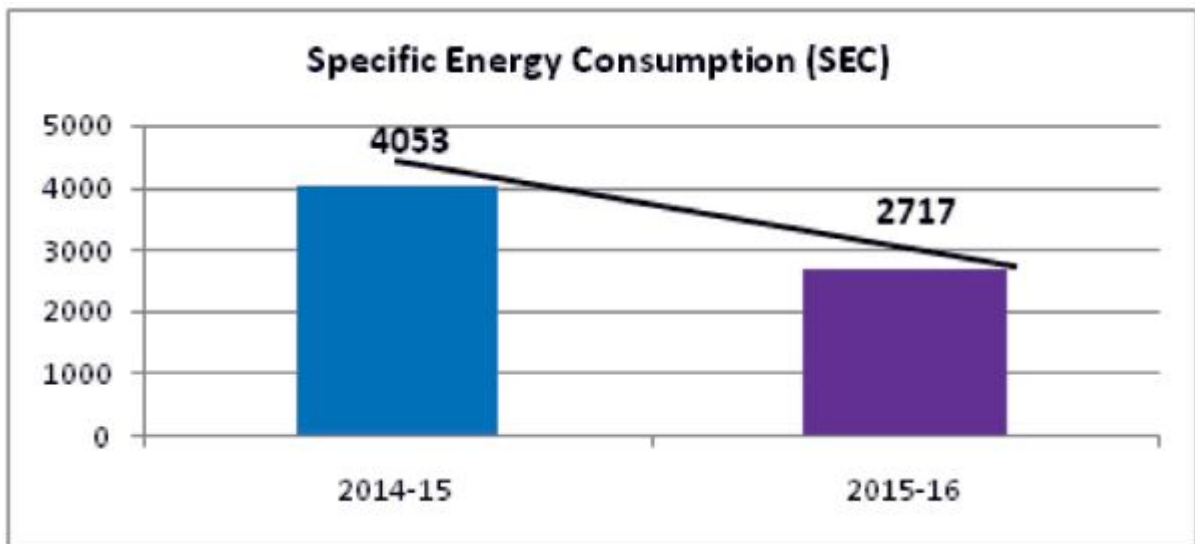
Energy Consumption

Year	2014-15	2015-16
Total energy Consumption in Lakh units	6.12	4.32
% Reduction in Consumption	29.41	



Specific Energy Consumption





YEAR	Specific Electrical Energy consumption KWh/Loco	%Reduction over 2014-15
2014-15	4053	—
2015-16	2717	32.96



Absolute Savings

Elect. Energy Saving (Lakh Units) in 2015-16	Elect. Energy Consumption (Lakh Units) in 2014-15	% Elcet. Energy Saving (Savings achieved/electricity consumption of previous year)
1.8	6.12	29.41

Energy Conservation Measures implemented

01	<p>Energy savers for welding transformers:- 10 nos of Energy savers provided for welding transformers. Energy savers reduce no load current around 7 to 8 Amps during idle hours. Savings in terms of kWh - 0.80 Lakh units Savings in terms of Rs - 6.48 Lakhs Investment -Rs.1.05 Lakhs</p>	
02	<p>Reduction of compressors pressure settings :- Operating of 10 nos of Air compressor Pressure setting is reduced from 9.5 Kg/cm² to 7 Kg/cm². resulted in savings of 10% energy consumption / 1 kg reduction of pressure. Savings in terms of kWh - 0.33 Lakh units Savings in terms of Rs -2.67 Lakhs Investment Rs. Nil</p>	
03	<p>Using of Renewable energy sources 2 nos of 5 HP submersible pumps provided to feeding electrical loco shed with solar supply Savings in terms of kWh - 0.22 Lakh units Savings in terms of Rs - 1.78 Lakhs Investment :Rs. 8.50 Lakhs</p>	
04	<p>Controlling of HVAC temperature & Voltage range :- Operating voltage is reduced to 415V range from 440V range duly reducing voltage tapping. Resulted in saving energy by 3% Savings in terms of kWh - 0.17 Lakh units Savings in terms of Rs- 1.38 Lakhs Investment :Rs. Nil</p>	
05	<p>Operating AC units temperature setting increased from 22°C to 26°C, resulted in saving by 2% for each degree increase Savings in terms of kWh - 0.03 Lakh units Savings in terms of Rs - 0.24 Lakhs Investment: Rs. Nil</p>	
06	<p>Operating Water coolers temperature increased from 15°C to 20°C. Resulted in saving 2% of consumption for each degree increase. Savings in terms of kWh - 0.03 Lakh units Savings in terms of Rs - 0.24 Lakhs Investment :Rs. Nil</p>	
07	<p>Energy efficient LED lighting in place of T5 fittings:- 38 nos of 30W Energy Efficient LED fittings provided in place of T5 100W fittings. Savings in terms of kWh -0.09 units Savings in terms of Rs -0.73 Lakhs Investment :Rs. 0.74 Lakhs</p>	
08	<p>Non star rated AC units replaced with Star rated split AC units :- 7 nos of Non star rated 1.5 Ton AC units are replaced with Star rated 1.5 Ton split AC units Savings in terms of kWh - 0.07 Lakh units Savings in terms of Rs- 0.57 Lakhs Investment :Rs. 2.45 Lakhs</p>	

Energy Policy

Secunderabad Division, South Central Railway is committed towards Nation's Mission for Enhanced Energy Efficiency by making continuous efforts to optimize use of energy and to bring about improvement in the energy efficiency in all our operations & maintenance of train services in an environmentally friendly manner through.

- Adopting energy efficient and environment friendly equipment/technologies.
- Increasing Use of Renewable energy resources.
- Adopting National Energy Conservation norms and codes in new building constructions as well as in existing buildings.
- Conducting periodic Energy Audit and implementing all improvement measures.
- Creating of awareness on energy conservation amongst all employees.
- Monitoring and review of energy performance vis-à-vis targets.
- Sharing our experiences on energy conservation within our Division, with other Divisions and also with other Zonal Railways.
- Complying with National Energy legislations and other related legislations.

As a part of our energy efficiency improvement strategy Secunderabad Division will make every effort to reduce our specific energy consumption by 5 to 10% per year by promoting culture of innovation, creativity and commitment at all levels.

TRACTION MACHINE WORKSHOP CENTRAL RAILWAY Nasik Road (Maharashtra)

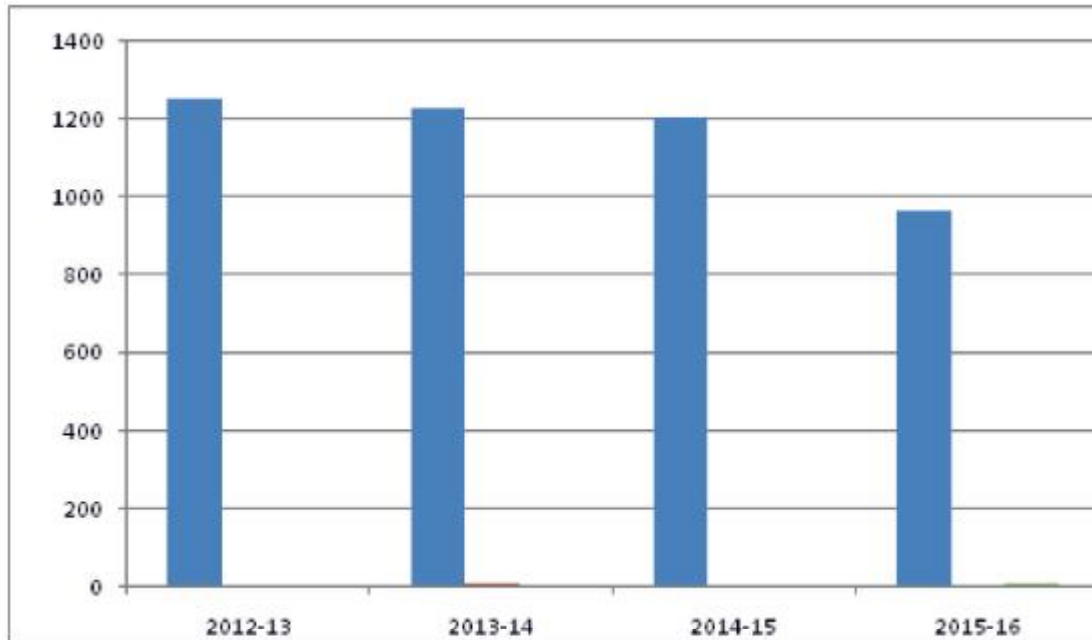
Unit Profile

Traction Machine Workshop was commissioned in the year 1981 with an initial investment of Rs. 4.13 crores. This workshop was established for the rewinding/rehabilitation of 30 TAO armatures per month of traction motors of electric locos. Traction machine workshop progressed continuously both in terms of production rise and infra-structure development. Over the years, TMW has diversified its activities in rehabilitation of armatures & stators of different types of DC traction motors, Smoothing reactors. Further this workshop has updated its activities in manufacturing and rehabilitation of rotors and stators of different types of three phase traction motors. Today the workshop has the capacity of rewinding/rehabilitation of 545 armatures of different type of DC traction motors. In addition to this, the workshop is manufacturing/rehabilitating 120 rotors and 90 stators of different type of 3 phase traction motors. The workshop is enriching the quality of it's human resources through training, motivation, delegation, reward and recognition. The workshop has a strong track record of performance of its rehabilitated equipments among the customer sheds and other workshops. Today this workshop is the biggest rewinding/rehabilitation workshop of armatures and stators of DC traction motors. This workshop is the only workshop of rewinding/rehabilitation of rotors and stators of different types of three phase traction motors of EMU and electric locos in Indian railways.



Energy consumption:

Specific energy consumption (KWH/Eq. Unit)



Energy Conservation Measures:

Various projects were undertaken to reduce specific power consumption (KWH/ Eq. unit) in TMW/NKRD.

- 1) 130 nos. of 40W conventional Tube lights have been retro-fitted with 130 nos. of Energy efficient 18W LED Tube lights in administrative buildings and other offices.

Results: Reduction in specific energy consumption by 5.43 KWH/Eq. unit

- 2) 10 nos. of timers provided to water coolers (150 liters capacity) for switching ON/OFF as per pre-set timings.

Results: Reduction in specific energy consumption by 9.41 KWH/Eq. unit

- 3) 1 no. 2 Ton Window AC unit (non-rated) replaced with 1.5 Ton Star Rating Split AC.

Results: Reduction in specific energy consumption by 2.92 KWH/Eq. unit

- 4) 5 nos. 2 Ton capacity Window AC units (non-rated) replaced with 2 Ton Star Rating Window AC units.

Results: Reduction in specific energy consumption by 9.06 KWH/Eq. unit

- 5) Decentralizing the compressed air system by replacement of 125 HP capacity old over-aged compressor (Centralized) with small capacity 20 compressors.

Results: Reduction in specific energy consumption by 27.17 KWH/Eq. unit

- 6) Installation of VVVF Drives in place of Resistance box used in 5 Ton EOT Crane.

Results: Reduction in specific energy consumption by 9.75 KWH/Eq. unit

- 7) Installation of VVVF Drives in place of Resistance box used in 3 Ton EOT Crane.

Results: Reduction in specific energy consumption by 6.97 KWH/Eq. unit

- 8) Monitoring the proper functioning of Timer, Thermostats and Thermocouples in different capacity Ovens (15 nos)

Results: Reduction in specific energy consumption by 146.73 KWH/Eq. unit

- 9) Monitoring the proper functioning of Vacuum circuit, Pressure circuit, Thermostats and Thermocouples of VPI Plant (**Hitachi Armature**)

Results: Reduction in specific energy consumption by 14.81 KWH/Eq. unit

- 10) Monitoring the proper functioning of vacuum circuit, Pressure circuit, Thermostats and Thermocouples of VPI Plant (**3 Phase**) Results: Reduction in specific energy consumption by 14.96 KWH/Eq. unit

Results: Reduction in specific energy consumption by 17.68 KWH/Eq. unit

Major Energy Conservation initiatives taken in FY 2015-16:

S. No.	Project Description	Achievement of Annual Energy Savings in 2015-16				
		Electricity (Lacs kwh)	Fuels*		Total Savings (Rs. Lacs after deducting investment)	Investment incurred on the project Rs. (Lacs)
			Coal (tonnes)	F. Oil (kL)		
1	130 nos. of 40W conventional Tube lights have been retro-fitted with 130 nos. of Energy efficient 18W LED Tube lights in administrative buildings and other offices.	6240	0	0	0.59	0.92
2	10 nos. of timers provided to water coolers (150 liters capacity) for switching ON/OFF as per pre-set timings.	10800	0	0	1.02	0.15

3	1 no. 2 Ton Window AC unit (non-rated) replaced with 1.5 Ton Star Rating Split AC.	3360	0	0	0.32	0.4
4	5 nos. 2 Ton capacity Window AC units (non-rated) replaced with 2 Ton Star Rating Window AC units.	10400	0	0	0.98	1.8
5	Decentralizing the compressed air system by replacement of 125 HP capacity old over-aged compressor (Centralized) with small capacity 20 compressors.	31200	0	0	2.95	4.0
6	Installation of VVVF Drives in place of Resistance box used in 5 Ton EOT Crane.	11198	0	0	1.06	3.25
7	Installation of VVVF Drives in place of Resistance box used in 3 Ton EOT Crane.	8000	0	0	0.76	3.0
8	Monitoring the proper functioning of Timer, Thermostats and Thermocouples in different capacity Ovens (15 nos)	168450	0	0	15.93	NIL
9	Monitoring the proper functioning of Vacuum circuit, Pressure circuit, Thermostats and Thermocouples of VPI Plant (Hitachi Armature)	17000	0	0	1.6	NIL
10	Monitoring the proper functioning of vacuum circuit, Pressure circuit, Thermostats and Thermocouples of VPI Plant (3 Phase)Results: Reduction in specific energy consumption by 14.96 KWH/Eq. unit	20300	0	0	1.92	NIL

**DIESEL LOCO SHED
SOUTH CENTRAL RAILWAY
Vijayawada (Andhra Pradesh)**

Unit Profile

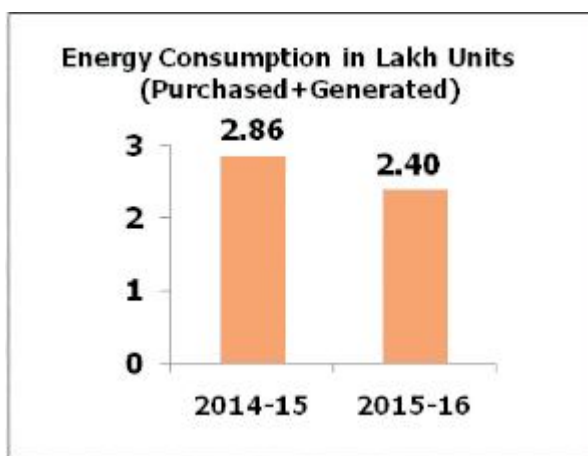
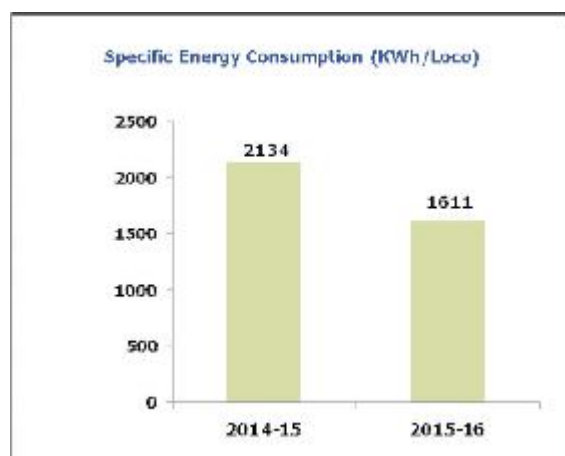
Diesel Loco Shed, Vijayawada was established in the year 1979 at the cost of about Rs.170 lakhs to maintain 20 WDS4 locomotives. With the reduction of WDS4 locomotives and increase in Electric traction in BZA Division, DEMU services started in Vijayawada during 1996 with 5 consists placed under Diesel Loco Shed, Vijayawada to ease severe traffic constraints both in passenger/express services and also in suburban traffic of BZA, GNT, GTL and SC divisions. In March 2007, 2 RAIL BUSES were received from NED division to run between COA-KLPH section of BZA division are also being maintained at DLS/BZA. The present holding of the DLS/BZA is mentioned here under




Holding	2014-15	2015-16
DEMU	31	37
WDP1	17	17
WDM2	15	14
WDM2 M/L	07	04
Total holding	70	72








ENERGY CONSUMPTION


DESCRIPTION	UNITS	2014-15	2015-16
Total Units purchased per annum	Lakh KWh	2.67	2.28
Self Generated per annum	Lakh KWh	0.19	0.12
Total Energy Consumption per annum	Lakh KWh	2.86	2.40
Specific Energy consumption	KWh/ Loco	2134	1611



Implementation of Energy conservation measures in Diesel Loco Shed/ BZA:

S.No	Measure	Images
1.	Provision of 42 Nos. of LED 20W fittings in place of T5 28W fittings leading to save of 1,840 units per annum amounting to Rs.14,742/-.	

S.No	Measure	Images
2.	Provision of 04 Nos. of LED 25W in place of T5 2x24W leading to saving of 400 units per annum amounting to Rs.3276/- .	
3.	Provision of 18 Nos. of LED 40W fittings in place of 150W MH fittings leading to saving of 10,249 units per annum amounting to Rs.83,538/- .	
4.	Provision of 66 Nos of LED 18W fittings in place of T5 28W fittings leading to save 3,460 Units per annum amounting to Rs. 27,846 /- .	
5.	Provision of 04 Nos. of LED 160W fittings in place of 250W MH fittings to save 1,708 units per annum amounting to Rs. 13,923 /- .	
6.	Provision of 4 Nos. of LED 2' 15W fittings in place of T5 28W fittings leading to save of 263 units per annum amounting to Rs.1,638/-.	
7.	Provision of 20 Nos. of star rated ceiling fans in place of overaged ceiling fans leading to saving of 4,672 Units per annum amounting to Rs.38,264/- .	
8.	Provision of 02 Nos. of Star rated AC Units in place of over aged AC Units leading to saving of 4,745 units per annum amounting to Rs.38,862/- .	

S.No	Measure	Images
9.	Provision of 03 Nos of Induction 200W fittings in place of 250W MH fittings leading to save 2,190 Units per annum amounting to Rs. 16,380 /- .	
10.	Provision of 05 Nos. of Auto-weld Energy Savers for Welding plants to save 6,000 units per annum amounting to Rs. 49,140 /- .	