



No. G.275 / WSSR – 061920 / 2020-21
WORK STUDY TO REVIEW THE
STAFF STRENGTH AT SSE/OHE/CKI,
ERS, KYJ & KZT - TVC DIVISION

SOUTHERN RAILWAY

PLANNING BRANCH

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**WORK STUDY TO REVIEW THE
STAFF STRENGTH AT SSE/OHE/CKI,
ERS, KYJ & KZT - TVC DIVISION**

STUDIED BY

WORK STUDY TEAM
OF
PLANNING BRANCH

MAY - 2020



(i)
INDEX

SERIAL NUMBER	CONTENTS	PAGE NUMBER
(i)	ACKNOWLEDGEMENT	1
(ii)	AUTHORITY	
(iii)	TERMS OF REFERENCE	
(iv)	METHODOLOGY	
(v)	SUMMARY OF RECOMMENDATIONS	2
CHAPTERS		
I	INTRODUCTION	3 – 7
II	PRESENT SCENARIO	8 – 29
III	CRITICAL ANALYSIS	30 – 36
IV	PLANNING BRANCH'S REMARKS ON CO-ORDINATING OFFICER'S VIEWS	37 - 39
V	FINANCIAL SAVINGS	40
ANNEXURES		
I	S A V E STATEMENTS GIVEN BY DPO/o/TVC	41
II	MAN POWER RATIO (BENCH MARK) AS ON OCT-2019	42
III	RAILWAY BOARD YARDSTICK DATED 30.09.2019	43 – 46
IV	CO-ORDINATING OFFICERS REMARKS	47 - 48



(i)**ACKNOWLEDGEMENT**

The study team gratefully acknowledges the valuable guidance and co-operation given by DRM/TVC, ADRM/TVC, Sr.DEE/TRD/TVC, ADEE/ERS, ADEE/KYJ, SSEs/OHE/CKI, ERS & KYJ and other OHE staff for completing the study in time.

(ii)**AUTHORITY**

Annual Programme of work studies for the year 2019-20

(iii)**TERMS OF REFERENCE**

Work study to Review the staff strength at SSE/OHE/CKI, ERS & KYJ in TVC Division.

(iv)**METHODOLOGY**

- i) Collection of data.
- ii) Field Observation.
- iii) Interaction with Divisional Officers, Supervisors and staff of OHE&PSI/CKI, ERS & KYJ
- iv) Assessment of manpower requirement as per the bench marking/yardstick and need base wherever need.

(v)

SUMMARY OF RECOMMENDATIONS

Revised Recommendation No. 1:

OHE/CKI

One post of Tech-II in GP Rs. 2400/- and 2 helper posts in GP Rs 1800/- . **(3-Posts)**

PSI/CKI

One post of Tech-I in GP Rs.2800/- and 3 posts of helpers in GP Rs. 1800/- . **(4-Posts)**

The above posts are found excess to the requirement and the same may be credited to the vacancy bank

(Total - 7 posts)

Recommendation No. 2: NIL

Recommendation No. 3: NIL

* * *

CHAPTER – I**1.0 INTRODUCTION**

- 1.1 The Indian Railways is among the world's largest rail networks. The Indian Railways network is spread over 1,15,000 Km with 12,617 passenger trains and 7421 freight trains each day from 7172 stations plying 23 million travelers and 3 million tons of freight daily. Indian Railways is recognized as one of the largest railway system in the world under single management. The railway net work is also ideal for long distance travel and movement of bulk commodities apart from being an energy efficient and economic mode of conveyance and transport.
- 1.2 In the primitive days, the goods were carried by head loads and gradually changed by animals, tram ways etc. Efforts were simultaneously made to replace that after perfecting the design of steam engine which was invented by George Stephenson in 1814. The railway system of operation for transportation was spread over the world by steam locomotives. As the civilization grew, diesel locomotive was also worked along with steam locos.
- 1.3 Railways emulate from Steam Locomotive to Diesel and further improved to Electric Loco Traction. This modification has given not only enormous advantages in Railway Transportation but also giving pollution free environment to the public. In India, railway electrification was started in Mumbai in 1920, when 388 route Kms were electrified as 1500 V D.C. Thereafter in the year 1957, the standard electric supply in India has been 25 KV, 50 Hz and single phase A.C. the phase wire in over head and negative potential with respect to the rail, and provides the return path for the current. Application of electricity on Railways are Lighting, heating, driving motors, power supply to signaling system, electric traction, refrigeration and air conditioning, storage batteries.

1.4 Traction is the most vital application of electricity of Indian Railways, modern system of railway traction may be divided into two main groups. The first group, locomotives or motor coaches receives electric power either from an overhead line via a pantograph or from third rail through a collecting brush generally used in underground railway. The second group, locomotives or motor coaches generate their own power, the generators being driven by diesel engines. Locomotives of the first group are called straight electric or simply electric locomotives, while diesel electric and battery locomotives belong to the second group. Driving motors in either case are normally D.C. series.

1.5 **Traction Power Supply:**

There are four types of traction power supply used in Indian Railways:

- 25 KV A.C single phase
- 2 x 25 KV A.C single phase
- 1500 Volts D.C
- 750 Volts D.C with third rail provided as the conductor supplying power to the motor coach. Mostly, 25 KV A.C single phase is used.

1.6 **Over Head Equipment:**

The main items are (i) support structure (ii) insulator (iii) bracket assembly (iv) Catenary wire (v) droppers (vi) contact wire. The structure is generally a simple steel mast. In yards, portals with two legs and a boom are also used. Two insulators connect the bracket assembly to the structure. A clamp on the top of the bracket tube holds the catenary wire from which the contact wire is suspended by means of droppers. The catenary wire is made of cadmium copper alloy and consists of 19 strands. Its cross-sectional area is 65 Sq mm. The contact wire is made of hard drawn copper with two grooves where it is held by dropper clips to maintain it horizontal. Its cross sectional area is 107.6 Sq.mm with

12.24 mm diameter. The contact wire is normally kept at a constant height of 4.80 m. above the rail level.

1.7 **High Speed OHE:** With the above described single catenary system, the increased uplift of contact wire at high speeds causes interruptions of flow of power supply. A compound catenary system is therefore provided on high speed tracks. It facilitates uninterrupted current collection.

1.8 **Third Rail System:** To keep the cost of tunnel for an underground railway low, the over head line is replaced by a rail which is laid on the ground supported by insulators by the side of one of the two running rails. A collector brush is fitted on the motor coach, which slides on the third rail to collect current during the run. Since the headway between trains is very small, being 1 1/2 to 3 minutes, the power demand is very high during peak traffic hours. This calls for a very small spacing of 2 to 3 km, between consecutive sub-stations.

1.9 **Earthing of Electrical Equipments & Apparatus:**

As per Indian Electricity Rules, the body of every electrical equipment and apparatus is required to be earthed; so is the enclosure or fencing provided around the equipment / apparatus. The earthing has to conform to Indian Standard : 3043.

In the case of high voltage, the neutral point is earthed by two separate connections with earth through two distinct electrodes. Normally G.I. pipe or G.I plate is used as the electrode. Strip electrode is used in hard and rocky soil. Normally, the earth electrode resistance should be within 5 ohms, while in rocky soil it can be upto 8 ohms.

In the case of sub-stations, two additional earths are to be provided for each transformer body. For the house – wiring, an earth wire connected to an earthing electrode is run along with conductor wires through the building. This facilitates earthing of various appliances and devices.

1.10 Safety Precautions in Electrified Areas:

To save persons working near 25 KV OHE from getting electric shock, following precautions should be taken them.

(i) Loading on or unloading from a wagon or a locomotive is prohibited while it is standing under the O.H.E., unless a 'permit – to work' has been obtained from an electrical supervisor who would earlier switch off power and earth the line.

(ii) Working on any structure within 2m of the O.H.E is prohibited, unless a 'permit-to-work' is obtained as above.

(iii) No aerial wire for low – voltage current or signaling circuit or telecommunication purpose will be strung in the vicinity of, and parallel to, 25 KV, O.H.E as such wire may have dangerously high induced voltage.

(iv) Lever frames and other signaling equipment should be connected to a suitable earthing system.

(v) When unloading rails along electrified tracks, care should be taken that these rails do not form a continuous metallic mass longer than 300 m.

(vi) Since running rails provide the return path for the traction current, any breakage or gap should be carefully bridged with a temporary connection, using gloves and insulated – handle tools.

(vii) Bonds provided on structures and rails should not be opened without due precautions.

1.11 In conducting work study of SSE/TRD/ERS, CKI, KYJ & KZT, but in station KZT unit is not commissioning still date and hence this unit is not considered in work study. The sanctioned and actual statement of all TRD/depots (both OHE & PSI) in the division is given by Sr.DPO/TVC.

- 1.12 An attempt has been made to study the present system of working and the requirement of man power. In the process, Railway board norms, with reference to the maintenance of manuals for OHE, benchmarking, yardstick and need base norms were considered to arrive at the manpower requirement.

CHAPTER – II**2.0 PRESENT SCENARIO**

2.1 The work study has been initiated for Depots viz. CKI, ERS and KYJ. As per latest RBE's revised yardstick for 0.22/TKM of TRD depots dated 30.09.2019 for manpower calculation with conditions regards on outsourcing some activities of OHE & PSI.

Hence the work study team has duly applied Railway Board's yardstick and manpower calculation for both OHE & PSI units. The list of the above OHE Units in TVC division and their workload in terms of Kms to be maintained are listed one by one as below:-

2.2 Details of Track Kilometres (TKM):

Sl. No.	TRD Units	Jurisdiction	TKM
1	CKI	OLR(Excl. yard) – KLMR(Incl. yard) Km 40/17-18 to 94/23-24 with 54 RKM	132
2	ERS	ERS – KLMR(Double line), ERS – SRTL (Single line) & ERS – VARD (Double line)	210
3	KYJ	Km 86/19, 20 to KYJ and KM 84/1, 2 to 134/35, 36 with 64 RKM	161

2.3 The sanction and actual staff strength (Both Group "C" & "D") of the OHE&PSI/CKI, ERS & KYJ is given by Sr.DPO/o/TVC as on 11.11.2019 and tabulated below.

2.3.1 OHE – Depots:

Category	OHE - Depot											
	CKI				ERS				KYJ			
	S	A	V	E	S	A	V	E	S	A	V	E
SSE	2	2	0	0	3	2	1	0	2	2	0	0
JE	1	1	0	0	1	2	0	1	2	1	1	0
Sr.Tech	3	3	0	0	5	4	1	0	3	3	0	0
Tech – I	7	7	0	0	8	7	1	0	6	4	2	0
Tech - II	1	0	1	0	4	4	0	0	2	2	0	0
Tech - III	2	2	0	0	1	1	0	0	3	3	0	0
Helper	14	12	2	0	21	22	0	1	16	16	0	0
Total	30	27	3	0	43	42	3	2	34	31	3	0

The above table is shown that the sanction of **107** (30 + 43 + 34) for three OHE depots and actual is **100** (27 + 42 + 31) the net vacant posts is 7.

2.3.2 PSI – Depots:

Category	PSI - Depot											
	CKI				ERS				PRND(KYJ)			
	S	A	V	E	S	A	V	E	S	A	V	E
SSE	1	1	0	0	1	1	0	0	1	1	0	0
JE	0	1	0	1	1	1	0	0	0	0	0	0
Sr.Tech	2	2	0	0	1	2	0	1	1	1	0	0
Tech – I	3	2	1	0	3	1	2	0	3	2	1	0
Tech - II	0	0	0	0	1	1	0	0	1	1	0	0
Tech - III	1	1	0	0	1	1	0	0	0	0	0	0
Helper	6	6	0	0	6	6	0	0	6	6	0	0
Total	13	13	1	1	14	13	2	1	12	11	1	0

The above table is shown that the sanction of **39** (13 + 14 + 12) for three PSI depots and actual is **37** (13 + 13 + 11) the net vacant posts is 2.

Hence the study team has considered the sanctioned strength taken from Sr.DPO/o/TVC and actual staff position has taken from the various OHE&PSI/depots for conducting work study of both Group C & D staff. This is reproduced and tabulated as below.

Depots	Category	Sanction	Actual	Vacancy	Excess
OHE	Group C & D	107	100	7	0
PSI		39	37	2	0
Total		146	137	9	0

2.4 Jurisdiction of SSE/OHE-Depots:

Over Head Equipments (OHE) at ERS:

2.4.1 Details of Route & Track Kilometres:

Sl.No	Locations	Route KM	Track KM
1	KLMR – ERS	22.953	64.944
2	IPL – VPDM Yard	8.015	10.040
3	ERS – SRTL	33.000	41.23
4	ERS - VARD	32.818	75.631
5	ERS Yard	2.906	17.900
Total		99.692	209.745

2.4.2 Staff position at OHE/ERS:

Category	Sanction	Actual	Vacancy	Excess
SSE	3	2	1	0
JE	1	1	0	0
Sr.Tech	5	5	0	0
Tech-Gr.I	8	7	1	0
Tech-II	4	4	0	0
Tech-III	1	0	1	0
Helpers	21	23	0	2
Total	43	42	3	2
Tower wagon pilot	2	2	0	0
Sr.Clerk	1	1	0	0

2.4.3 Staff distribution:

The OHE staff distribution is formed 3 batches with one supervisor in each batch to work for regular maintenance and power block works in this unit.

2.4.4 Duty Hours:

In Day - 08.00 hrs to 17.00 hrs (Lunch break 12.00 to 13.00 hrs) and Night – 22.00 hrs to 06.00 hrs. The compensatory rest will be given for extra working hours and normally rest is giving on Sunday, Tuesday & Thursday in this unit.

2.4.5 **Hot line Inspection:****KLMR – ERS Section:**

KLMR – ERS DN line	-	04.05.2019
ERS – SRR UP line	-	05.08.2019
SRR – ERS DN line	-	05.08.2019
VTK – ERS DN line	-	11.11.2019

ERS – VARD Section:

ERS – TRVL DN line	-	06.05.2019
ERS – VARD UP line	-	01.08.2019
ERS – VARD DN line	-	01.08.2019
ERS – TRVL DN line	-	14.11.2019
TRVL – ERS UP line	-	14.11.2019
TRVL – ERS	-	25.01.2019
ERS – KTYM – TRVL DN line	-	25.01.2019

ERS – SRTL Section:

HAD – ERS	-	17.05.2019
ERS – SRTL DN line	-	02.08.2019
ERS – SRTL DN line	-	07.11.2019
ERS – SRTL	-	24.01.2019

2.4.6 **Foot Patrolling section of OHE/ERS:**

Sl.No	Section	KM
ERS – SRTL section		
1	ERS – KUMM	107 – 7
2	KUMM - AROR	7 – 13
3	AROR – EZP	13 – 17
4	EZP – TUVR	17 – 23
5	TUVR – VAY	23 – 27
6	VAY – SRTL	27 – 33
ERS – PVRD section		
7	ERS IKM – ERNSSP- D cabin	1 -3 & ERM Yard
8	D – cabin TRTR	4 – 9
9	D – cabin IPN	4 – 6

10	TRTR KFE	9 – 13
11	KFE – MNTT	13 – 17
12	MNTT – KPTM	17 – 22
13	KPTM – PVRD	22 – 28
14	PVRD Yard HNL Yard	Yard
15	PVRD _ VARD	28 – 33
ERS – KLMR Section		
16	ERS – ERN	104 - 107
17	ERN – IPL	98 - 104
18	IPL – KLMR	94 – 97
19	IPL – VPDM	IV 1 – 3
20	VPDM Yard	Yard

2.5 PSI/ERS:

Staff position at PSI/ERS:

Category	Sanction	Actual	Vacancy	Excess
SSE	1	1	0	0
JE	1	1	0	0
Sr.Tech	1	2	0	1
Tech-Gr.I	3	1	2	0
Tech-II	1	1	0	0
Tech-III	1	1	0	0
Assistant/TRD	6	6	0	0
Total	14	13	2	1

2.5.1 Duty Hours:

In Day - 08.00 hrs to 17.00 hrs (Lunch break 12.00 to 13.00 hrs) and Night – 16.00 hrs to 06.00 hrs. However, compensatory rest will be given for extra working hours on week days and on emergency. Normally rest is giving on Sunday, but the minimum staff on hand for maintaining PSI activities on Sunday will be given CR on suitable days with in compensatory rest rules.

2.5.2 Plants & Equipment details:

Two numbers of transformers are available in the capacity of 21.6 MVA, 3 numbers of CB, capacitors bank, reactors series bank, isolators and other necessary accessories in PSI depot. These plants are maintained in judicial manner for daily, monthly, and quarterly, half yearly and yearly basis. At present, the POH activities of transformer are outsourced.

2.5.3 Supply System:

Input supply 110 KV and output is 25 KV. In PSI/ERS power supplied from ERS-ALLP section – 35 Km, ERS – KTYM section – 30 Km and ERS – AWY section – 17 Km.

2.6 OHE & PSI/CKI

2.6.1 Over Head Equipments at CKI:

Total Track KM – 132 and RKM -54.

OLR(Excl.Yard) to KLMR(Incl.Yard) at 40/17-18 to 94/23-24)

2.6.2 staff position at OHE/CKI:

Category	Sanction	Actual	Vacancy	Excess
SSE	2	2	0	0
JE	1	1	0	0
Sr.Tech	3	3	0	0
Tech-Gr.I	7	7	0	0
Tech-II	1	0	1	0
Tech-III	2	2	0	0
Assistant/TRD	14	12	2	0
Total	30	27	3	0
Tower wagon pilot	1	1	0	0
Clerk	1	1	0	0

2.6.3 Brief outline of OHE activities:

SSE/JE:

General Supervision and maintenance of installations to up keep the assets in fettle condition, inspection as per schedule, work to other departments carry out work nearby OHE, dealing with contract works, staff matters related to safety etc.

Technicians:

- Maintenance activities for both power block and non power block as per instruction from supervisors.
- Carry out foot patrolling of OHE.
- Works like bonding, tree branches cutting nearby OHE etc during Non-power block.

Assistant/TRD:

Assist supervisors and technicians to carry out maintenance of OHE and other activities.

2.6.4 Details of staff distribution in category wise:

Sl.No	Nature of work	Staff allotted
1	Foot patrolling	2
2	Power block work Including power block and isolator (AOH, POH of ATD, RD etc)	6+6 (day)
3	Issue of PTW to other departments including power block and isolator	5
4	Bonding work (depends on intensity of work)	3
5	Tree cutting and trimming work	5
6	Steel unloading at KLMR, isolator operation	1
7	Accompany to inspection of supervisor & officer	3
8	Manning duty at depot	2
9	Store maintenance	4
	Total	37

2.6.5 Details of Contract/ Outsourced activities for past 2 years:

Sl. No	Nature of work	Reference	Agreement Amount Rs.
1	OHE modification in connection with PF extension at Koratty Angadi (KRAN) Station	V/TRD/III/220/WO/20/2017-18, dated : 22.02.2018	4,47,597
2	AFK-OHE modification at Angamali FCI siding to rectify damage due to hitting lorry	V/TRD/III/220/WO/17/2017-18, dated : 23.02.2018	65,500
3	Painting of traction bonds in the section between ERS-SRR stations in the jurisdiction of ADEE/TRD/ERS sub division in connection with GM inspection	V/TRD/III/220/WO/11/2018-19, dated : 26.11.2018	4,37,640
4	Provision of new earthing stations at various locations in open line and supply of concrete casting embodiment for earthing stations in TRD/ERS sub division	V/TRD/III/220/WO/22/2018-19, dated : 08.02.2019	3,74,080
5	Re-stenciling of OHE mast location No, Parameters and particulars in SRR-ERS section of ERS sub division of TVC division, in connection with ensuing GM's inspection	V/TRD/III/220/WO/25/2018-19, dated : 14.02.2019	285,000
6	Chalakudi(CKI)- Hiring of 10(9+1) seater multiutility passenger vehicle for the use of TRD Depot for a period of three years	V/TRD/III/220/196, dated : 20.12.2018	8,25,300
7	Chalakudi(CKI)- Hiring of Road vehicle (lorry) for the use of TRD Depot for a period of three years	V/TRD/III/220/182, dated : 16.01.2018	26,83,800
8	OHE modification in connection with extension of platform for 24 coaches at Pudukkad (PUK), Divine Nagar(DINR)	V/TRD/III/220/187(Re tender), dated : 30.10.2019	45,67,799
9	TVC Division Periodic overhauling (POH) of Automatic Tensioning Devices (ATDs) in the jurisdiction of Ernakulam sub division	V/TRD/III/220/181, dated : 06.04.2018	51,31,000

2.6.6 Proposal for Contract/ Outsourced details for 2020-21:

1. Repairing of Flood affected generators and machineries
2. ATD modification with POH-100 Nos
3. Replacement of rusted cantilever assembly

4. Relocation of OHE mast due to leaning at 47/43, 92/22
5. Relocation of OHE mast due to critical implantation at various location (25 nos)
6. Provision of scarifying mast at FCI siding at AFK
7. Relocation of PHE mast at AFK, CKI and PUK due PF extension work
8. OHE height adjustment at LC(6 locations)
9. Tree cutting in the vicinity of OHE to maintain clearance.

2.6.7 **Other particulars:**

Earthing connections: 27 locations in various stations.

Plants and equipments in OHE:

23 numbers of plants and equipments are using for OHE operations duly using with Safety Helmet, Safety Belt and Safety Shoe.

2.6.8 **Details regarding schedule of inspection:**

Sl.No	Type of Inspection	Time Schedule
1	Foot patrolling of OHE by technicians	Once in fortnight
2	Foot inspection by supervisor	Once in 3 months
3	Foot plate inspection on cab in section	Once in fortnight
4	Inspection of track circuit with signal	Once in a year
5	Inspection of power lines crossing with state EB	Once in a year
6	Inspection of over line structure with PWI	Once in a year
7	Tower wagon inspection	Once in 3 months
8	Depot/batch inspection	Intermittent
9	Stock verification of store	Once in 6 months
10	Checking of loading appliance	Once in 3 months
11	Checking of earthing connection	Once in 6 months
12	Inspection of implantation of structure	Once in a year
13	AOH of OHE	Once in a year
14	Thermal imager checking	Once in 6 months

2.6.9 Foot patrolling and trolley inspection of OHE for past two years:

Sl.No	Foot Patrol section	Inspection details
1	OLR – PUK	Once in fortnight
2	PUK – NYI	
3	NYI – IJK	
4	IJK – CKI	
5	CKI – KRAN	
6	KRAN – KUC	
7	KUC – AFK	
8	AFK – CWR	
9	CWR – AWY/SP	
10	AWY/SP - KLMR	

2.6.10 Hot line Inspection done by OHE inspection car for past two years:

Sl.No	Location	Date
1	OLR-KLMR UP Line	16.11.2017
2	OLR-KLMR DN Line	16.11.2017
3	KLMR-OLR UP Line	25.05.2018
4	OLR-KLMR DN Line	25.05.2018
5	ERS-VTK UP Line	10.01.2019
6	TCR-ERS DN Line	10.01.2019
7	ERS-VTK DN Line	04.05.2019
8	ERS-VTK UP Line	04.05.2019
9	ERS-SRR UP Line	05.08.2019
10	SRR-ERS DN Line	04.05.2019

2.6.11 Break down particulars for past two years.

- 10.06.2018 – Tree fallen at lo AFK/1075.
- 19.12.2018 – OHE snapped on IOL at loc 77/30-34
- 08.08.2019 – Tree fallen at 66 Km.
- 09.08.2019 – Tree fallen on OHE at Loc KLMR/1076
- 13.10.2019 – Bat electrocuted between DJ Unit and Loco roof of Loco No.22556 (12695 Exp).

2.6.12 **Special inspection schedule given by HQ/RB.**

1. Summer special drive check.
2. Winter special drive check.
3. Observation of Pantograph movement of Loco over Turnout location.
4. One round checking of movement of regulating equipment.

2.6.13 **Activities regarding rehabilitation of OHE works.**

1. Provision of anti crow nest measures on portal boom.
2. Provision of additional droppers at plus RT.
3. Provision of additional jumper connection on cross track and along track feeder.
4. Provision of additional jumper at location under portal boom.

2.6.14 **Location of stores:**

OHE Depot store, Tower wagon store, Breakdown vehicle store, OHE mast and structures are kept in different locations throughout the section.

2.7 **PSI/CKI:**

2.7.1 **Staff position at PSI/CKI:**

Category	Sanction	Actual	Vacancy	Excess
SSE	1	1	0	0
JE	0	1	0	1
Sr.Tech	2	2	0	0
Tech-Gr.I	3	2	1	0
Tech-II	0	0	0	0
Tech-III	1	0	1	0
Assistant/TRD	6	6	0	0
Total	13	12	2	1

2.7.2 Duty Hours:

In Day - 08.00 hrs to 17.00 hrs (Lunch break 12.00 to 13.00 hrs) and Night - 16.00 hrs to 06.00 hrs. However, compensatory rest will be given for extra working hours on week days and on emergency. Normally rest is given on Sunday, but the minimum staff on hand for maintaining PSI activities on week days will be given CR on suitable days with in compensatory rest rules.

2.7.3 Plants & Equipment details:

Two numbers of transformers are available in the capacity of 21.6 MVA, 7 numbers of CB, capacitors bank, reactors series bank, isolators and other necessary accessories in PSI depot. These plants are maintained in judicial manner for daily, monthly, and quarterly, half yearly and yearly basis. At present, the POH activities of transformer are outsourced.

2.7.4 Supply System:

Input supply 110 KV and output is 25 KV. In PSI/CKI power supplied from CKI - ERS section - 28 Km, and CKI - TCR section - 28 Km.

2.8 Over Head Equipments at KYJ:

Total Track KM - 161 and RKM - 64.

OLR(Excl.Yard) to KLMR(Incl.Yard) at 40/17-18 to 94/23-24)

2.8.1 Staff position at OHE/KYJ:

Category	Sanction	Actual	Vacancy	Excess
SSE	2	2	0	0
JE	2	1	1	0
Sr.Tech	3	3	0	0
Tech-Gr.I	6	4	2	0
Tech-II	2	2	0	0
Tech-III	3	3	0	0
Assistant/TRD	16	16	0	0
Total	34	31	3	0
Tower wagon pilot	1	1	0	0
Sr.Clerk	1	1	0	0

One Assistant staff also is working in Re-engagement account.

2.8.2 **Activities and staff distribution:**

Sl. No	Activity	Schedule (Once)	Staff distribution		
			SSE/JE	Tech	Asst
1	Foot patrolling of OHE sections (both routine & emergency)	15 days	-	1	1
2	AOH of OHE	Yearly	1	6	7
3	POH of OHE	1/8 yearly	1	6	7
4	AOH of ATD	Yearly	1	6	7
5	POH of ATD	1/8 yearly	1	6	7
6	AOH of Turn -outs	Yearly	1	6	7
7	AOH of Cross overs	Yearly	1	6	7
8	AOH of SI	Yearly	1	6	7
9	AOH of Gantry	Yearly	2	8	8
10	AOH of Isolators	Yearly	1	5	6
11	Thermal imager checking of entire section	6 months	1	1	1
12	Current collection	Quarterly	1	1	2
13	Hot line checking of OHE	Quarterly	1	3	3
14	Foot inspection	Weekly	1	0	0
15	Foot plate inspection	weekly	1	0	0
16	Over line structure checking	Yearly	1	3	3
17	Level crossing checking	Yearly	1	3	3
18	Power line crossing checking	Yearly	1	1	1
19	Joint inspection of implantation with PWI	Yearly	1	2	2
20	Joint inspection of bonds in track circuit area	Yearly	1	2	2
21	Earth pit meggering	Yearly	1	3	3
22	Loading appliances testing	Quarterly	1	6	6
23	Bond fabrication and rusted bond replacement	Routine	1	3	3
24	ATD pulley servicing at Depot	Routine	1	3	3
25	Earth discharge rod checking	15 days	1	3	3
26	Load testing of insulators	Routine	1	4	4

27	Fire extinguishers/fire appliances & first aid box checking	Yearly	1	2	2
28	Stock checking of stores	Routine	1	2	2
29	Routine maintenance of tower wagon	Routine	1	2	2
30	Updating of maintenance register	Routine	1	2	2
31	Updating of store register/ledgers	Routine	1	1	1
32	Tree trimming	Routine	1	3	3
33	Bonding due to rail renewal work	Routine	0	2	2
34	Bonding due to track machines work	Routine	0	2	2
35	ADEE & SSE office work	Routine	1	2	2

2.8.3 Breakdown details for past two years:

Sl.No	Date	Breakdown details
1	20.07.19	16525 Panto entanglement at 136 Km STKT
2	07/8.08.19	Staff with TW deputed for breakdown attention at 27 Km/TUVR of OHE/ERS
3	07/8.08.19	Staff with TW deputed for breakdown attention at 193 Km/CRY of OHE/KZK
4	07/8.08.19	Staff deputed for breakdown due to tree fallen on OHE at 113/31-33 KYJ
5	09.08.19	Staff with TW deputed for breakdown attention at 54 Km of OHE/ALLP

2.8.4 Other Details:

Total earth pit available – 12

Some of the Plants and Equipments:

- ✓ Insulator testing machine
- ✓ Pedestal drilling machine
- ✓ Thermal imaging camera
- ✓ Tower wagon – 8 wheeler ICF make

2.8.5 **Details of Contract/ Outsourced activities for past 2 years :**

Emergency cutting/trimming of trees/branches posing immediate threat to OHE at Kayankulam subdivision vide letter no V/TRD/III/220/WO/10/2019 dated 20.05.2019. The outsourcing details are tabulated below.

Sl.No	Description	Unit	Qty	Rate in Rs	Total Amount in Rs
1	Cutting and trimming the following sizes of tree branches using ropes and deploying suitable machinery without disturbing rail traffic				
A	Tree branches of circumference upto 0.30m	Per tree	716	100	71,600
B	Tree branches of circumference above 0.30m and upto 0.60m	Per tree branch	428	140	59,920
C	Tree branches of circumference above 0.60m and upto 0.90m	Per tree branch	530	185	98,050
D	Tree branches of circumference above 0.90m and upto 1.20m	Per tree branch	555	260	1,44,300
2	Cutting of coconut / palm trees	Nos	62	750	46,500
Total					4,20,370
Provision of GST at 12%					50,444
Grand total					4,70,814

2.9 **PSI/PRND**

2.9.1 **Staff position at PSI/PRND:**

Category	Sanction	Actual	Vacancy	Excess
SSE	1	1	0	0
JE	0	0	0	0
Sr.Tech	1	1	0	0
Tech-Gr.I	3	2	1	0
Tech-II	1	1	0	0
Tech-III	0	0	0	0
Assistant/TRD	6	6	0	0
Total	12	11	1	0

2.9.2 Duty Hours:

In Day - 08.00 hrs to 17.00 hrs (Lunch break 12.00 to 13.00 hrs) and Night - 16.00 hrs to 06.00 hrs. However, compensatory rest will be given for extra working hours on week days and on emergency. Normally rest is given on Sunday, but the minimum staff on hand for maintaining PSI activities on week days will be given CR on suitable days with in compensatory rest rules.

2.9.3 Plants & Equipment details:

There are two transformers are available in which one is of 21.6 MVA and other one 12.5 MVA. 7 numbers of CB, capacitors bank, reactors series bank, isolators and other necessary accessories in PSI depot. These plants are maintained in judicial manner for daily, monthly, and quarterly, half yearly and yearly basis. At present, the POH activities of transformer are outsourced.

2.9.4 Supply System:

Input supply 110 KV and output is 25 KV. In PSI/PRND power supplied from PRND - QLN - PVU section - 22 Km, PRND - KYJ - PHPD section - 50 Km and PRND - KYJ - CYN section - 49 Km.

2.10 Some of the general TRD/OHE activities:

AOH of OHE feeder wire, cantilever assembly, catenary and contact wires, droppers, PTFE neutral section, insulators, crossover and turnouts, uninsulated and insulated overlaps, jumpers, auto tensioning device, insulator cleaning, current collection test, hotline checking of OHE, reliability improvement, defects rectification works on OHE line like splicing (due to wire strands cut during shorting by birds foreign materials etc),

OHE wire stagger and height re-adjustment due to variation in track parameters during Engineering works, replacement of rusted cantilevers in polluted zones especially in ERS section. Replacement of flashed and failure prone insulators, removal of foreign material on OHE kite strings, crow nest and scare provision, clearance to trees - tree trimming, tree cutting etc.

2.10.1 **Bond connections:**

Replacement of damaged bonds, periodic checking of bonds, bond painting of entire section, Working along with engineering dept for track renewal, Machine works-Power block with bond disconnection required for BCM, SQRS machines, Permit to work to other departments after availing power block as and when required. Foot patrolling of entire section and find out reason for tripping and rectifying of defects. Testing of loading appliances every 3 months

2.10.2 **Maintenance of Tower car:**

Monthly joint inspection with C&W, Battery maintenance, B checks –once in 3 months, C check per year, Daily checks- Checking of engine, brakes, applying lubricants ULTRASONIC testing once in a year. Periodical painting of tower wagons, defect rectification works in tower wagon like attention of electrical and EP contactors, brake system issues, alternator and built in generator complaints, lifting and surveling platform repair works, maintenance etc.

2.10.3 **Earth connections:**

Each and every metallic structure near to OHE is connected to rail through bonds, which is eventually connected to earth at Traction substation. Earth electrodes are provided at girder bridges, FOB, ATs, SSP, SP, TSS, PTFE, water column, ROB etc.

2.10.4 **Plants and Equipments:**

The common plants and equipments are available in TRD depots such as Wood cutting machine, Welding generator, Rail hole drilling machine and portable drilling machine etc.

2.10.5 Schedule of inspection:

- Supervisory foot inspection-once in 3 months entire section
- Loco footplate by supervisor-fortnightly
- Hotline inspection using tower car in quarterly
- Current collection test-once in 6 months
- Bond joint inspection with S&T-once in 12 months
- Joint inspection of implantation and rail level with P.way-once a year
- Foot patrolling of each section is done once in every 15 days.

2.10.6 Maintenance of the OHE:

- ❖ AOH/POH of Cantilever Assembly
- ❖ AOH / POH of ATD
- ❖ Insulator Cleaning
- ❖ Replacement of flashed or defective insulators
- ❖ Maintenance of PTFE Neutral section
- ❖ Maintenance of Section insulators
- ❖ Maintenance of Isolator switches
- ❖ Maintenance of Turnouts and cross-overs
- ❖ Maintenance of Feeders (Cross-Track and Along Track)
- ❖ Maintenance of overlaps (IOL 7 UIOL)
- ❖ Maintenance of all types of Bonds
- ❖ Maintenance of Anchors (ACA, FTA etc)
- ❖ Regular inspection of OHE at LC gates and under OLS
- ❖ Trimming / Cutting vulnerable trees near OHE.
- ❖ Replacement of damaged and faded number plates of OHE masts being done by departmental staff.
- ❖ Maintenance and attention of damaged bonds of PSC masts from bonds masts top to ground land being done departmentally in ERS-SRR section about 600 numbers of PSC masts.

2.10.7 Maintenance of Depot / Office / Stores :

- ✓ Maintenance of all the items and spares in Stores
- ✓ Maintenance of T&P items and its regular inspection.
- ✓ Looking after staff matters including issuing Pass / PTO etc.
- ✓ Maintaining registers regarding staff matters.
- ✓ Maintaining technical registers and records
- ✓ Technical Correspondence
- ✓ Co-ordination with other departments like P.way, Sig etc.
- ✓ Co-ordination of manpower and materials
- ✓ Planning of the daily works and special works
- ✓ Indenting, procurement and inspection of materials, maintaining T&P in good fettle.
- ✓ Scrap disposal DS-8 of materials
- ✓ Materials verification in stores every 6 months, which require at least 3 days.
- ✓ Maintenance of sufficient materials in Breakdown Train / ART at ERS.
- ✓ Carrying out all the clerical works in the depot.
- ✓ Checking and forwarding of staffs TA journals, NHA & NDA, OT and mileage of TWD.
- ✓ Fabrication of cantilever assemblies, traction bonds, drppers at depot.

2.10.8 Staff distribution:

One supervisor is always required for batch working for routine maintenance, considering safety of equipment and personnel. Staff distributed in all kinds of works according to their skills and ability. Power block and non power block works are distributed evenly among staff. Staffs deputed for Engineering works and permit to work for other departments.

Supervisor required for issuing

- Permit to works at major work sites
- Joint inspection of track circuits, critical locations, OLS etc with S&T and Engg departments
- For supervising major non power blocks like bonding at yards and effective utilization of manpower for tree cutting and other non power block works.
- Recouping and maintaining store depot, BD lorry, tower wagon and BD coach.
- For preparing reports, records for submitting higher authorities.
- Joint inspection with CN at various construction work sites.

2.10.9 **Special inspection:**

Winter drive and Pre-monsoon drive inspection

2.10.10 **POH/Rehabilitation:**

OHE – once in 8 years

2.10.11 **Protective equipments for staff:**

Protective equipments are commonly used for staff working at TRD depots as Safety shoe, safety helmet, safety belt and raincoat.

2.10.12 **Stores:**

Indenting, procurement and inspection of materials, maintaining T&P in good fettle, scrap disposal and DS – 8 of materials. Material collection is required from DMS/QLN once in quarterly and GSD/PER once in yearly. Store items are verified once in every 6 months. Generally, the location of store items is available at Depot, breakdown vehicle and tower car.

2.11 **Other details:**

2.11.1 **Special works:**

Slewing/profiling of OHE is required with the introduction of new bridges.

2.11.2 Clerical works:

- Issue of pass/PTO/EDP
- Checking and forwarding of TA sheet, NDA, OT and mileage of TWD.
- Maintaining leave particulars, CR, OT particulars, preparing absentee statement in every month.
- Staff matters, grievance redressal, quarters, daily movement.

2.11.3 Technical:

- ✓ Planning of work
- ✓ Requesting power block/line block
- ✓ Co-ordination with Engineering and operating departments.
- ✓ Co-ordination of manpower and materials
- ✓ Technical correspondence.

2.12 DUTIES OF OHE STAFF

To maintain the failure free OHE, the following activities are carried out.

- Annual overhauling of all Cantilever Assembly, Insulators, Section Insulators, Turn-outs, Cross-over, Jumpers, Insulator over laps and un-insulated over laps.
- Periodical overhauling of OHE.
- Periodical overhauling of regulatory equipment.
- Foot plate inspection once in a week in sub-urban sections and fortnightly in non-sub-urban sections.
- Attending remarks of foot patrolling.
- Maintenance of contact wire height in entire track length.
- Painting of Cantilever Assembly.
- Periodical checking of contact wire and Catenary's wire.
- Inspection of new track lines before commencing along with P.Way and S&T staff.

- Tree branch cutting, cleaning of danger boards and warning boards.
- Attending emergency derailments and accidents.
- Defect rectification on OHE & daily maintenance using Tower wagons (including wire splicing at strands cut locations, OHE stagger, height re-adjustment due to Engg works)
- Cleaning of Insulators fitted in OHE.

2.13 Duties of PSI (Power Supply Installations)

- Maintenance of transformers and circuit breakers under various schedules viz., quarterly, half yearly and annually.
- Maintenance of batteries placed in various way side stations
- Manning of PSI in round the clock shifts.
- Maintenance of all other PSI equipments like CTs, PTs, Isolators, capacitor banks, Lightening arresters, earthing stations, bus bars, control panel etc.

2.14 Traction Power Control

The duties of CTPC are -

- Maintaining continuous contact with Power supply from KSEB to ensure the power supply for train operations.
- Co-ordination with the division control for weekly power block programme.
- Imposition of power block as required by the OHE Unit
- Doing power block through remote control in case of an emergency.

CHAPTER – III

3.0 CRITICAL ANALYSIS

The prime task of the work study is to right size the man power in the general interest of productivity of the Indian Railways. Right sizing of Man power is a continuous and comprehensive measure referring with the current work load and the present processes methods. Also RITES recommended the concept of zero based budgeting in man power planning on regular basis as in such to justify the presence of every employee.

3.1 There are lot of tools available to measure the Man power requirement, normally the activities are split up into small groups and analyzed into micro level to arrive the required Man power. In Indian Railways, the work study conducted to the unit basis level, hence Macro level study is only possible and it is being carried out with the help of

- i. Bench Mark/Yardstick
- ii. Need basis

3.2 **Benchmarking** is a tool for the Administration to compare the performance/productivity between similar activity centers of the same organization. The resources which are fed as input are compared with the other, so that the optimum utilization of the same can be arrived at. Benchmarking is not a one time affair but it is a continuous process of comparing similar activity centers, organizations, resources, products and their output.

3.3 Right sizing the Manpower in Railways is being achieved through conventional studies by Efficiency Cells in Zonal Railways. But, of late, Railways have started adopting benchmark concept for right sizing the staff strength.

3.4 In general, the function of TRD section is in two parts, such as PSI and OHE. The total track kilometre maintained and staff deployed in these units is compared and staff requirement is assessed based on bench marking/yardstick technique. The staff strength of TRD depots given by DPO/o/TVC as on 11.11.2019 is tabulated below.

3.5 **Staff strength at TRD depots (both OHE & PSI) at CKI, ERS & KYJ:**

Station	Category	OHE				PSI			
		Sanc	Act	Vac	Ex	Sanc	Act	Vac	Ex
CKI	SSE	2	2	0	0	1	1	0	0
	JE	1	1	0	0	0	1	0	1
	Sr.Tech	3	3	0	0	2	2	0	0
	Tech - I	7	7	0	0	3	2	1	0
	Tech - II	1	0	1	0	0	0	0	0
	Tech - III	2	2	0	0	1	1	0	0
	Helpers	14	12	2	0	6	6	0	0
	Total - A	30	27	3	0	13	13	1	1
	TWD	1	1	0	0	-	-	-	-
	Sr.Clerk	1	1	0	0	-	-	-	-
ERS	SSE	3	2	1	0	1	1	0	0
	JE	1	2	0	1	1	1	0	0
	Sr.Tech	5	4	1	0	1	2	0	1
	Tech - I	8	7	1	0	3	1	2	0
	Tech - II	4	4	0	0	1	1	0	0
	Tech - III	1	1	0	0	1	1	0	0
	Helpers	21	22	0	1	6	6	0	0
	Total - B	43	42	3	2	14	13	2	1
	TWD	2	3	0	1	-	-	-	-
	Sr.Clerk	1	1	0	0	-	-	-	-

KYJ	SSE	2	2	0	0	1	1	0	0
	JE	2	1	1	0	0	0	0	0
	Sr.Tech	3	3	0	0	1	1	0	0
	Tech - I	6	4	2	0	3	2	1	0
	Tech - II	2	2	0	0	1	1	0	0
	Tech - III	3	3	0	0	0	0	0	0
	Helpers	16	16	0	0	6	6	0	0
	Total - C	34	31	3	0	12	11	1	0
	TWD	1	1	0	0	-	-	-	-
	Sr.Clerk	1	1	0	0	-	-	-	-
Total A+B+C	107	100	9	2	39	37	4	2	

The above table is furnished by the DPO/o/TVC with regard to TRD/Depots of both OHE and PSI units. The work study has considered the sanctioned strength from DPO/O/TVC and the actual is at individual depots of SSE/OHE & SSE/PSI for manpower calculation. Further, the work study team has allowed for TWD & Sr.Clerk as applicable to the present working system continued as such.

Since pinpointing of TRD depot wise is implemented for both OHE & PSI units, the work study team has adopted for the manpower calculation based on the depot wise TKM details given by the SSE/CKI, ERS & KYJ depots.

- 3.6 As per the latest Railway board's yardstick of Operation & Maintenance of various departments has revised vide letter No. E(MPP)2019/1/12 dated on 30.09.2019 (Placed as Annexure – II). The revised Yardstick for **TRD activity of Electrical department for Non-Suburban Area is fixed as 0.22/Track Kilometre**, with the following activities to be additionally outsourced.

Activity	Remarks
OHE Non – Power block	These activities to be outsourced. Only minimum Supervisory agency and related work to be in house.
OHE other works	
PSI Maintenance	All PSI activities to be outsourced. Only minimum Supervisory and supporting staff required to monitor.
PSI Operation & Manning	
Centralized Activities	Activities excluding TPC manning, drawing, and technical staff including clerical staff and helpers at home.

- 3.7 Further, the current **Man Power Ratio (benchmark) issued by RB in the Month of Oct - 2019, (Placed as Annexure – II)**, it is shown that **MLDT division of ER is at 0.04 men per electrified TKM**. Current Indian railways average is 0.29 men per electrified TKM for Non-Suburban Area. Moreover the Southern Railway Man Power Ratio for various divisions as tabulated below.

Sl.No	Division	Man Power Ratio
1	MAS	0.29
2	TPJ	0.21
3	MDU	0.23
4	SA	0.23
5	PGT	0.25
6	TVC	0.31

From the above table, it is shown that the Man Power Ratio of two divisions (MDU & SA) is almost the same as per Railway Board yard stick of 0.22/TKM and TPJ division is the below the RB yard stick. The TVC division man power ratio is above the current IR average and also RB yard stick that is 0.31/TKM. The reason behind the increasing of man power ratio of TVC division is functioning & operating as OHE & PSI separately, but the other divisions such as MDU & TPJ are operated as a single unit of TRD depots in Southern Railway.

Hence, the work study team has considered the Railway board's revised yardstick of 0.22/TKM and calculated the man power requirement of all TRD depots for both OHE & PSI and is tabulated accordingly.

3.8 TRD Depots wise TKM Vs Staff Requirement:

Sl. No	Depot	RKM	TKM	Yardstick = 0.22xTKM	RG for 9 staff	Office /Store	LR @ 12.5%	Staff Required
1	CKI	54	132	29.04	2	1	4.01	36
2	ERS	99.692	210	46.20	2	1	6.15	56
3	KYJ	64	161	35.42	2	1	4.80	44
				110.66	6	3	14.96	136

From the above table, it is shown that, if 2 staff/shift (6 staff) in each PSI has deputed to PSI units and one staff/shift (3 staff) in each OHE deputed for OHE manning duties round the clock, the provision of RG at 16.66% for 9 staff is 1.5 say 2 staff. Further one staff is allowed for office/store maintenance in each TRD depot.

3.9 Cumulative Staff Sanction Vs Requirement at TRD depots (both OHE & PSI) at CKI, ERS & KYJ (PRND):

Station	Category	OHE				PSI			
		Sanc	Act	Req	Sur	Sanc	Act	Req	Sur
CKI	SSE	2	2	2	0	1	1	1	0
	JE	1	1	1	0	0	1	0	0
	Sr.Tech	3	3	3	0	2	2	2	0
	Tech - I	7	7	7	0	3	2	2	1
	Tech - II	1	0	0	1	0	0	0	0
	Tech - III	2	2	2	0	1	1	1	0
	Helpers	14	12	12	2	6	6	3	3
	Total - A	30	27	27	3	13	13	9	4
ERS	SSE	3	2	3	0	1	1	1	0
	JE	1	2	1	0	1	1	1	0
	Sr.Tech	5	4	5	0	1	2	1	0
	Tech - I	8	7	8	0	3	1	2	1

	Tech - II	4	4	4	0	1	1	1	0
	Tech - III	1	1	1	0	1	1	1	0
	Helpers	21	22	21	0	6	6	6	0
	Total - B	43	42	43	0	14	13	13	1
KYJ/ PRND	SSE	2	2	2	0	1	1	1	0
	JE	2	1	2	0	0	0	0	0
	Sr.Tech	3	3	3	0	1	1	1	0
	Tech - I	6	4	5	1	3	2	2	1
	Tech - II	2	2	2	0	1	1	1	0
	Tech - III	3	3	3	0	0	0	0	0
	Helpers	16	16	16	0	6	6	6	0
	Total - C	34	31	33	1	12	11	11	1
	Total A+B+C	107	100	103	4	39	37	33	6

As per the RBE letter No. E(MPP) 2019/1/12 dt. 30.09.2019, the work study team has taken the revised Yardstick for entire manpower calculation of SSE/CKI, ERS & KYJ for both OHE & PSI and treated as TRD depots. The division may initiate to merge the OHE & PSI activities as single unit of TRD depots. The 10 posts **(OHE-4 Posts & PSI - 6 Posts)** identified by the work study as surplus may be surrendered after merging of the OHE&PSI activities. Therefore the following 10 posts in various categories may be surrendered.

3.10 Recommendation No.1:

OHE/CKI

One post of Tech-II in GP Rs. 2400/- and 2 helper posts in GP Rs 1800/- . **(3-Posts)**

PSI/CKI

One post of Tech-I in GP Rs.2800/- and 3 posts of helpers in GP Rs. 1800/- . **4-Posts)**

The above posts are found excess to the requirement and the same may be credited to the vacancy bank

(Total - 7)

3.11 Recommendation No.2:**PSI/ERS**

One post of Tech-I in GP Rs.2800/- is found excess to the requirement and the same may be credited to the vacancy bank

(Total - 1)

3.12 Recommendation No.3:**OHE/KYJ**

One post of Tech-I in GP Rs.2800/- **(1-Post)**

PSI/PRND

One post of Tech-I in GP Rs.2800/- **(1-Post)**

The above posts are found excess to the requirement and the same may be credited to the vacancy bank

(Total - 2)

(Grand Total – 10 Posts)

NOTE: During the course of work study, the way of arrival of requirement of man power based on Railway board yard stick was discussed with the coordinating officers (ADEE/ERS & ADEE/KYJ) and briefed them.

CHAPTER – IV

4.0 REMARKS OF PLANNING BRANCH ON CO-ORDINATING OFFICER'S VIEWS

The Co-ordinating officer views/remarks are received on 19.03.2020 vide letter No.V/TRD/ERS/WSSR dated on 05.03.2020 & Letter No. V/TRD/KYJ/WS dated on 16.03.2020. The planning branch remarks are given against the Co-ordinating officers views as below.

4.1 Co ordinating Officers views:

ADEE/ERS	ADEE/KYJ										
<p>As per the latest Railway board's letter No. E(MPP)2019/1/12 dated on 30.09.2019, yardstick of operation & maintenance of various departments, has been revised. The revised yardstick for TRD activity of Electrical department for Non-Suburban area is fixed as 0.22/TKM, with the following activities to be additionally outsourced.</p> <table border="1" style="width: 100%;"> <thead> <tr> <th style="text-align: left;">Activity</th> <th style="text-align: left;">Remarks</th> </tr> </thead> <tbody> <tr> <td>OHE Non – power block</td> <td rowspan="2">These activities to be outsourced, only minimum supervisory agency and related work to be in house.</td> </tr> <tr> <td>OHE other works</td> </tr> <tr> <td>PSI Maintenance</td> <td rowspan="2">All PSI activities to be outsourced, only minimum supervisory and supporting staff required to monitor</td> </tr> <tr> <td>PSI operation & Manning</td> </tr> <tr> <td>Centralized activities</td> <td>Activities excluding TPC manning, drawing and technical staff including clerical staff and helpers at home</td> </tr> </tbody> </table> <p>It is clearly mentioned vide above, that the revised yardstick of 0.22/TKM to be implemented on outsourcing of above activities only whereas none of the above activities are outsourced now, except bonding work in section in</p>	Activity	Remarks	OHE Non – power block	These activities to be outsourced, only minimum supervisory agency and related work to be in house.	OHE other works	PSI Maintenance	All PSI activities to be outsourced, only minimum supervisory and supporting staff required to monitor	PSI operation & Manning	Centralized activities	Activities excluding TPC manning, drawing and technical staff including clerical staff and helpers at home	<p>The yardstick for the activity of Electrical traction for Non suburban area was 0.3men/TKM for OHE and 0.15men/TKM for PSI. Now it is revised as 0.22 men/TKM with majority of the OHE non power block work and PSI work to be outsourced. So the implementation of yardstick of 0.22 men/TKM has to be done after outsourcing the activities mentioned in the Railway board letter no.E/MPP02019/1/12 dated 30.09.2019.</p> <p>The manpower requirement for additional assets created due to doubling work in various sections in TVC division is not considered.</p> <p>Hence the proposal for surrender of 10 posts cannot be agreed to considering serious repercussions on OHE/PSI maintenance activities for</p>
Activity	Remarks										
OHE Non – power block	These activities to be outsourced, only minimum supervisory agency and related work to be in house.										
OHE other works											
PSI Maintenance	All PSI activities to be outsourced, only minimum supervisory and supporting staff required to monitor										
PSI operation & Manning											
Centralized activities	Activities excluding TPC manning, drawing and technical staff including clerical staff and helpers at home										

<p>connection with various Engineering works.</p> <p>Also the manpower requirement for additional assets created due to doubling works in various sections in TVC division is not considered, even if brought to the notice of work study inspector.</p> <p>During work study the above aspects were brought to the notice of work study inspector for highlighting in report, during discussion on manpower requirement vide revised yardstick, advised by Railway Board.</p> <p>Hence proposal for surrender of 10 posts cannot be agreed to, considering serious repercussions on OHE/PSI maintenance activities for existing assets as well as going to be added in next few months due to doubling works.</p>	<p>existing assets as well as going to be added due to doubling work.</p>
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4.2 Planning Branch Remarks:

From the above table shown that, the both Co-ordinating officers have mentioned the Doubling and Railway Electrification works in various sections of TVC division and due to above reason to increase the additional assets in future. The doubling works are involved throughout TVC division.

The most of the doubling works are carried out in ALLP, KTYM, TVC, NCJ, CAPE & NNN sections. Further the doubling work of ETM road No. 1 & 2 is under the jurisdiction of TRD/KTYM and AMPA – HAD section is under TRD/ALLP. But the work study has been conducted in TRD depots at CKI, ERS and KYJ (PSI/PRND). In ERS – CHTS line is under progress about 6.75 Km. However, the work study team has allowed the sanctioned strength of PSI/ERS, OHE/KYJ & PSI/PRND to continue to work as such.

Hence, one post in PSI/ERS, one post in OHE/KYJ and one post of PSI/PRND recommended for surrender is now allowed in view of remarks from Co-ordinating officers.

There is no further doubling works in ERS –TCR section. Hence, the TRD/CKI, the division may initiate to merge the OHE & PSI activities as single unit of TRD depot. Therefore, now the revised recommendation is surplus of 7 posts (OHE-3 Posts & PSI – 4 Posts) identified by the work study duly scrutinizing the Co-ordinating officers views. The surplus may be surrendered after merging of the OHE & PSI activities.

Moreover, for any additional assets increase the division may create new posts accordingly.

Revised Recommendation:

OHE/CKI

One post of Tech-II in GP Rs. 2400/- and 2 helper posts in GP Rs 1800/-
(3-Posts)

PSI/CKI

One post of Tech-I in GP Rs.2800/- and 3 posts of helpers in GP Rs. 1800/-.
(4-Posts)

The above posts are found excess to the requirement and the same may be credited to the vacancy bank

(Total - 7)

CHAPTER-V

5.0 FINANCIAL SAVINGS

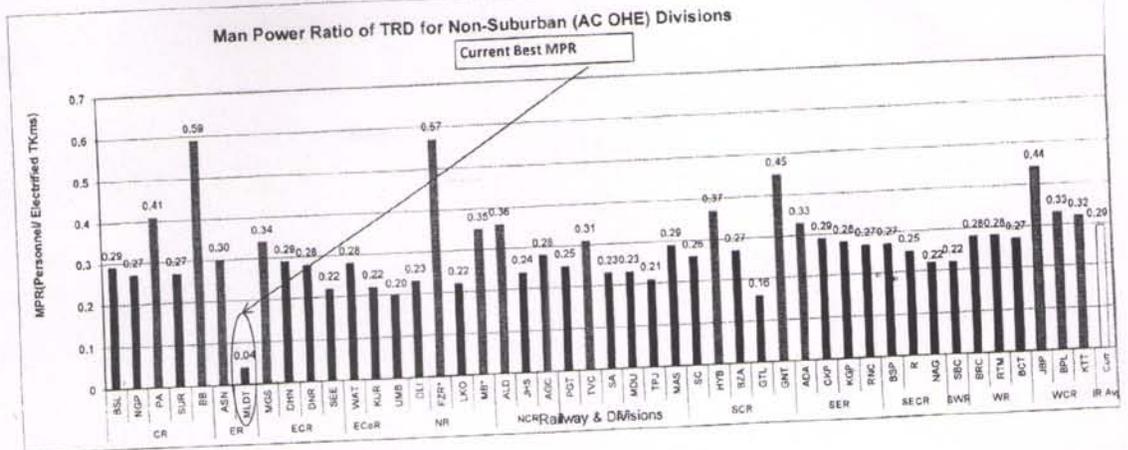
5.1 If the recommendations made in the study report are implemented, The annual recurring financial savings will be as under:

Sl. No.	Category	Grade Pay (Rs.)	No. of Posts	Mean Pay (Rs.)	Annual Financial savings (Rs.)
1	Tech - I	2800	1	71078	852936
2	Tech - II	2400	1	62361	748332
3	Helpers	1800	5	43817	2629020
Total			7		42,30,288

Depot	SSE			JE			Sr.Tech			Tech-I			Tech-II			Tech-III			Helper		
	S	A	V	S	A	V	S	A	V	S	A	V	S	A	V	S	A	V	S	A	V
OHE/TCR	1	1	0	1	1	0	4	4	0	6	6	0	2	2	0	1	1	0	11	11	0
OHE/CKI	2	2	0	1	1	0	3	3	0	7	7	0	1	0	1	2	2	0	14	14	0
OHE/ERS	3	2	1	1	1	0	5	5	0	8	7	1	4	4	0	1	0	1	21	23	-2
OHE/KTYM	1	1	0	1	1	0	2	1	1	4	3	1	1	1	0	1	0	1	8	9	-1
OHE/ALLP	1	1	0	1	1	0	1	1	0	4	3	1	0	0	0	1	0	1	6	7	-1
OHE/KYJ	2	2	0	2	1	1	3	3	0	6	4	2	2	2	0	3	2	1	16	17	-1
OHE/QLN	1	1	0	1	1	0	2	2	0	7	7	0	0	0	0	1	0	1	10	11	-1
OHE/KZK	2	2	0	2	1	1	2	1	1	4	4	0	2	3	-1	3	0	3	11	12	-1
OHE/NCJ	2	1	1	2	2	0	4	4	0	6	3	3	1	1	0	3	2	1	14	17	-3
OHE/NNN	1	1	0	1	0	1	1	0	1	2	2	0	1	1	0	1	2	-1	5	9	-4
TOTAL	16	14	2	13	10	3	27	24	3	54	46	8	14	14	0	17	9	8	116	130	-14

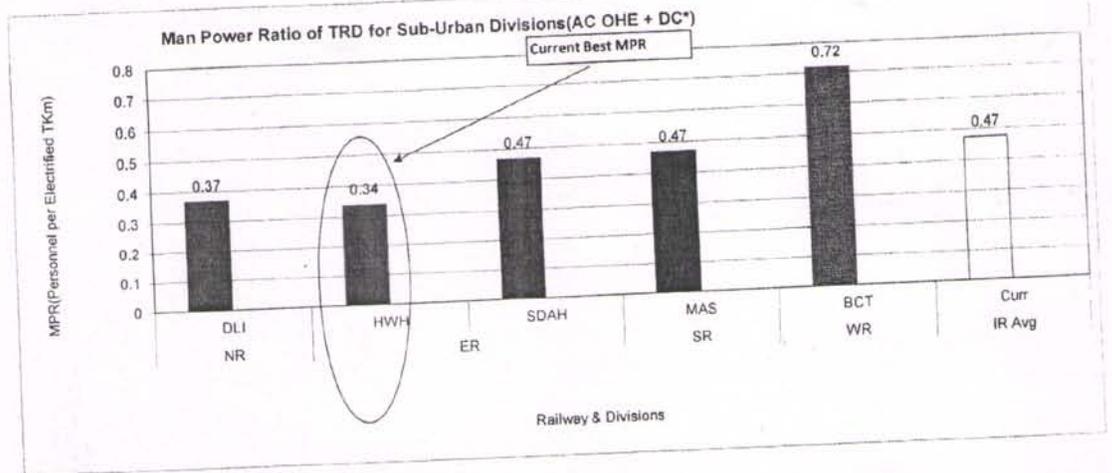
PSI																					
	SSE			JE			Sr.Tech			Tech-I			Tech-II			Tech-III			Helper		
	S	A	V	S	A	V	S	A	V	S	A	V	S	A	V	S	A	V	S	A	V
PSI/CKI	1	1	0	0	1	-1	2	2	0	3	2	1	0	0	0	1	0	1	6	6	0
PSI/ERS	1	1	0	1	1	0	1	1	0	3	1	2	1	1	0	1	0	1	6	7	-1
PSI/PNPR	1	0	1	0	1	-1	1	1	0	2	2	0	0	0	0	1	0	1	4	4	0
PSI/CGV	1	1	0	0	0	0	2	2	0	1	0	1	0	0	0	1	0	1	5	7	-2
PSI/PRND	1	1	0	0	0	0	1	1	0	3	2	1	1	1	0	0	0	0	6	7	-1
PSI/KZK	1	0	1	0	1	-1	2	2	0	2	2	0	0	0	0	1	1	0	5	6	-1
PSI/ERL	1	1	0	0	0	0	1	0	1	2	1	1	0	1	1	1	1	0	4	5	-1
PSI/NNN	1	1	0	0	0	0	1	0	1	1	1	0	0	1	-1	2	0	2	3	4	-1
RC/TVC	1	1	0	1	1	0	1	0	1	2	2	0	0	0	0	0	0	0	4	4	0
TPC/TVC/CTA/ Works	9	8	1	3	2	1	0	0	0	3	3	0	0	0	0	0	0	0	5	5	0
TOTAL	18	15	3	5	7	-2	12	9	3	22	16	6	2	4	-2	8	2	6	48	55	-7

TRD STAFF IN DIVISIONS



CURRENT IR AVERAGE: 0.29 Men per Electrified TKM.
 CURRENT Man Power Ratio: MLDT of ER is at 0.04 men per electrified TKM.
 EXCEEDING THE AVERAGE: 14 Divisions are above the current IR average.

*- FZR and MB divisions are not taken as Man Power Ratio because the divisions are under the process of electrification and staff sanction.



CURRENT IR AVERAGE: 0.47 Men per Electrified TKM.
 CURRENT Man Power Ratio: HWH division of ER at 0.34
 EXCEEDING THE AVERAGE: 1 Divisions is above the current IR average.

*-Mumbai(CR) is a mix of DC OHE and AC OHE, while other divisions are AC OHE only

GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
RAILWAY BOARD

No. E(MPP)2019/1/12.

New Delhi, Dated: 30/09/2019

The General Managers,
All Indian Railways, including Production Units and
Others.

Sub: Revision of Yardsticks

An action plan was formulated by Board for Manpower Management, wherein, it was decided that yardsticks of O&M activities of various departments be revised taking into account technology Upgradation, Outsourcing experience and Benchmarking standards set by different Railways.

2. Accordingly, the yardsticks of certain activities have been revised and enclosed as an Annexure

3. Henceforth, the requirement of Manpower for the said activities should be calculated based on the revised Yardsticks. The Manpower strength for the existing assets should be reviewed, based on the revised Yardsticks and excess posts be surrendered.

4. All the clarifications/queries/references, if any, regarding revised yardsticks are to be made to respective Directorates.

5. This issues with the concurrence of Finance Directorate of the Ministry of Railways.

6. This supersedes all earlier instructions on the Yardsticks of the respective activities, specified in the annexure enclosed.

7. Please acknowledge receipt.


Ajay Jha
Director E(MPP)

Annexure

Annexure to Board's letter no. E(MPP)2019/1/12 dated 30/09/2019

1. Yardstick for TRD activity of Electrical Department for Non-Suburban Area is fixed as 0.22/Track Kilometer, with the following activities to be additionally outsourced

Activity	Remarks
OHE non-power block	These activities to be outsourced. Only minimum Supervisory agency and related work to be in house.
OHE other works	
PSI Maintenance	All PSI activities to be outsourced. Only minimum supervisory and supporting staff required to monitor.
PSI Operation & Manning	
Centralized Activities	Activities excluding TPC manning, drawing and technical staff including clerical staff and Helpers at home

2. The revised staff Yardsticks for Electric Loco Maintenance (TRS) in loco sheds for different types of locomotives are decided as under:

Type of Locomotives	Revised Yardstick
Conventional Loco(freight) with DC drive with Hitachi TM(WAG5) and NAG7	3 staff / loco
Other conventional locos with DC drive including coaching locos	3.5 staff / loco
3-phase locomotive (WAG9, WAP7)	2.5 staff / loco

with activities for outsourcing noted hereunder.

Already a number of activities are mandated to be outsourced and are being outsourced in various loco sheds. In addition the following activities to be additionally outsourced:

Conventional Locomotives – DC TM overhauling; overhauling of contractors by OEMs; Overhauling of auxiliary motor.

Three Phase Locomotives – Compressor overhauling; TM overhauling; Overhauling of Auxiliary motors.

Further, activities to be outsourced can be identified by respective loco sheds and followed accordingly with the approval of respective PCEE on local need basis and local conditions.

3. Crew Review – Freight Services

After review of various methods followed by different Zonal Railways, it was decided to uniformly adopt on all Zonal Railways, the following method for requirement of freight crew:

4. Coach Maintenance - Electrical Maintenance & escorting staff for AC coaches as well as maintenance staff for TL coaches.

Revised yardstick for Coaching stock (Electrical) for maintenance for AC coaches, TL coaches, power cars, escorting staff & train passing staff in the Coaching depot is as under.

Activity	Revised yardsticks
(a) TL COACHES.	
(a) Primary maintenance: SG TL/LHB TL coaches	0.24 staff per coach holding for primary maintenance (ICF).
(b) Secondary maintenance: SG TL/LHB TL coaches	0.15 staff per coach handled for secondary maintenance.
(c) Train passing for TL/AC coaches	0.05 staff per coach holding
(d) Sick line attention	0.05 per coach holding
(ii) AC COACHES.	
(a) Primary maintenance :	
ICF & LHB SGAC coach with RMPU	1.10 staff/coach holding for primary maintenance
ICF & LHB EOG AC coach with RMPU	0.8 staff/coach holding for primary maintenance
(b) Secondary maintenance	
ICF & LHB SGAC coach with RMPU	0.48 staff/coach holding for Secondary maintenance
ICF & LHB EOG AC coach with RMPU	0.36 staff/coach holding for Secondary maintenance
(c) Sick line attention	0.20 staff per coach

(Signature)
5/1/19
R. J. MPP

Primary Maintenance	ICF/LHB STOCK	0.85/Coach (ICF&LHB) with Interior amenity attention to be outsourced
Terminal attention under RPC-4	ICF/LHB STOCK	0.3 Man/Coach
PF return trains nominated for Rolling in Examination + Clean Train Station etc.	ICF/LHB STOCK	0.2 Man/Coach
Sick Line		0.12 Man /Coach
Inspection Carriages	Per IC holding	1.76 Man/IC holding
Staff training (Requirement of trainer)		As per training norms
<ul style="list-style-type: none"> • ART & Accident relief, • Mill Wright, • Welfare measure, • Ancillary staff 		<ul style="list-style-type: none"> • Existing norms for ART & Accident relief • Balance activities to be on need basis
Linen Management	Per AC coach holding	0.18/AC Coach holding* * Zonal Railways to consider outsourcing this activity

Note:

1. Leave reserve & rest givers may be provided as applicable in addition to above yardstick.
2. The norm does not cover Ministerial staff and Divisional Control staff.

Activities to be outsourced:

1. All coach cleaning and watering activities including en-route watering (Already identified for outsourcing).
2. Coach amenity attention including carpentry, welding, trimming, plumbing/pipe fitting and provision of items like window glass, mirror, bottle holder, snack table, taps and faucet etc.
3. Attention to fire extinguishers (Already outsourced).
4. Linen washing and distribution (Already outsourced on most of the depots).
5. New amenity/security activities like PA/PIS, CCTV & infotainment etc.


 2/1/16
 J. P. M. T.

Southern Railway

No. V/TRD/ERS/WSSR



Office of the
 Asst. Divisional Electrical Engineer
 TRD/ Ernakulam
 Date: 05.03.2020

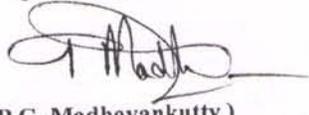
Dy. Chief Planning Officer
 Planning Branch,
 Chennai-600 003

Sub: Work study to review the staff strength at SSE/OHE/CKI, ERS& KYJ-TVC Division reg:-
Ref: Dy. Chief Planning Officer Ltr No. G.275/WSSR-061920/2019-20. dtd 25.02.2020.

As per the latest Railway board's letter No.E(MPP)2019/1/12 dated on 30.09.2019, yardstick of Operation & Maintenance of various departments, has been revised. The revised yardstick for TRD activity of Electrical department for Non-Suburban Area is fixed as 0.22/Track kilometer, with the following activities to be additionally outsourced.

Activity	Remarks
OHE Non-Power block	These activities to be outsourced. Only minimum Supervisory agency and related work to be in house.
OHE other works	
PSI Maintenance	All PSI activities to be outsourced. Only minimum Supervisory and supporting staff required to monitor.
PSI Operation & Manning	
Centralized Activities	Activities excluding TPC manning, drawing, and technical staff including clerical staff and helpers at home.

- * It is clearly mentioned vide above, that the revised yardstick of 0.22/TKM to be implemented on outsourcing of above activities only whereas none of the above activities are outsourced now, except bonding work in section in connection with various Engineering works.
- * Also the manpower requirement for additional assets created due to doubling works in various sections in TVC Division is not considered, even if brought to the notice of work study Inspector.
- * During Work study the above aspects were brought to the notice of Work study Inspector for highlighting in report, during discussion on manpower requirement vide revised yardstick advised by Railway Board.
- * Hence proposal for surrender of 10Nos posts cannot be agreed to, considering serious repercussions on OHE/PSI maintenance activities for existing assets as well as assets going to be added in next few months due to doubling works.


 (P.G. Madhavankutty)
 ADEE/TRD/ERS
 स म वि डे/टी आर डी/

SR

Southern Railway

Office of the Asst.Div.Elec.Er.

V/TRD/KYJ/WS

Traction Distribution,

16.03.2020

Kayamkulam.

Sr.DEE/TRD/TVC

OC/Plg
19/3/2020

Sub: Work study to review the Staff strength at SSE/OHE/CKI,ERS& KYJ-TVC Division

Ref: Dy.Chief Planning Officer letter no. G.275/WSSR-061920/2019-20 dated 25.02.2020

The yard stick for the activity of Electrical Traction Department for Non-Suburban area was 0.3 men/TKM for OHE and 0.15 men/TKM for PSI. Now it is revised as 0.22 men/TKM with majority of the OHE non-power block work and PSI work to be outsourced. So the implementation of yardstick of 0.22 men/TKM has to be done after outsourcing the activities mentioned in the Railway Board letter no. E(MPP02019/1/12 dated 30.09.2019.

The manpower requirement for additional assets created due to doubling work in various sections in TVC Division is not considered.

Hence the proposal for surrender of 10 no.s posts cannot be agreed to considering serious repercussions on OHE/PSI maintenance activities for existing assets as well as assets going to be added due to doubling work.

A.G. JOSEPH *16/3/2020*
ADEE/TRD/KYJ
S RAILWAY

Copy to: Dy.Chief Planning Officer/MAS