

## Index

Sno.	Item	Page no.
	<b><i>Elect. (TRS)</i></b>	
1.0	Summary of new items/funds sanctioned under Plan Head - 21 in Budget 2017-18 vis-à-vis 2016-17	1 - 2
2.0	Utilization of funds during 2016-17	2
3.0	Provision of funds (Tentative) during Budget Estimate 2017-18 for Bulk RSP items costing above Rs. 2.5 Crore (Plan Head - 21)	3
4.0	RSP provision of electric locomotives	4
5.0	Summary of New Works/Funds sanctioned under Plan Head - 42 in Budget 2017-18	4
6.0	Right Powering of Freight Trains	5 - 6
	<b><i>Railway Electrification</i></b>	7 - 15
	<b><i>Electrical Energy Management</i></b>	
1.0	Providing solar plant in Railway system - rooftop	17
2.0	Implementation of energy efficiency programme	18 - 19
3.0	Induction of latest measures to reduce OHE failures	20 - 21
4.0	Planning for Financial Year 2017-18 for execution of new works and utilization of full fund	22 - 30
	<b><i>Electrical Development</i></b>	
1.0	RDSO (12000 hp Prototype Locomotive against Madhepura project)	31
2.0	EC.Rly (Madhepura Factory & Township)	
3.0	N.Rly (Saharanpur Company Depot-ELF/ Madhepura project)	
4.0	C.Rly (Nagpur Govt. Depot-ELF/ Madhepura project)	
5.0	CLW/Dankuni	
6.0	CORE	

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**Elect.(TRS)**

## Elect.(TRS)

### 1.0 Summary of new items/funds under sanction for Plan Head – 21 in Budget 2017-18 vis-à-vis 2016-17

1.1 Funds under sanction for Plan Head – 21 (Bulk RSP items) pertaining to electric locomotives are as under:

Amount in Crore of Rs.

Sn	Description	2016-17	2017-18	%age Imp. over last year
<b>A.</b>	<b>New Acquisitions:</b>			
1	<b>New Acquisition in Bulk RSP</b>	289.7	939.4	<b>224%</b>
2	New Acquisition in Itemized RSP.	53.5	68.58	<b>28%</b>
3	Total provisioning of loco for production ex. CLW.	216 Loco	737 Loco	<b>241%</b>
<b>B.</b>	<b>Program Deliveries:</b>			
1	Total funds provided in Bulk RSP	438 (RE) 543 (BE)	610	<b>39%</b>
2	Total funds provided in Itemized RSP	80.7	84	<b>4.1%</b>

### 1.2 Highlights of Bulk RSP - New Acquisitions:

Amount in Crore of Rs.

SN	Description	Alloc.	Qty	Unit rate	Total Value	Proposed Executing agency
1	Development of High Horse Power, High Speed 200 kmph Pass. enger Locos.	CAP	10	27	270	EDEE/Dev. RB
2	Up-gradation of WAG <sub>9</sub> locomotives from 6000 HP to 9000 HP.	CAP	10	16.2	162	CLW
3	Up-gradation of WAG <sub>7</sub> locomotives from 6000 HP to 9000 HP.	CAP	10	16.2	162	CLW
4	Remote diagnostic system	CAP	150	0.072	10.8	CLW
5	DPWCS (for conventional locomotives)	CAP	100	0.4	40	SCR
6	Transformer 7775 for WAP7 locos with Hotel Load winding	CAP	15	0.98	14.7	CLW
7	MPCS with version-3 (for conventional locomotives)	CAP	100	0.165	16.5	DHD W/shop

SN	Description	Alloc.	Qty	Unit rate	Total Value	Proposed Executing agency
8	Repairs / Rehabilitation of Tap Changer	DRF	100	0.15	15	Z. Rlys
9	Vehicle Control Unit (VCU)	DRF	50	0.192	9.6	CLW
10	Mid term Rehabilitation of Electric locomotives.	DRF	70	2.48	173.6	DHD W/shop

## 2.0 Utilization of funds during 2016-17

- Rs. 542.7 Crore under Bulk RSP in Budget Estimate 2016-17 sanctioned and communicated to Zonal Railways & CLW. Funds allotted in BE 2016-17 and surrender in RE 2016-17 is tabulated below:

Rly	Allocation in BE 16-17	Allocation in RE 16-17	Amount surrendered	% surrendered
CR	857920	498257	359663	41.92
ER	392484	417086	-24602	-6.27
ECR	47828	71260	-23432	-48.99
ECOR	70660	97600	-26940	-38.13
NR	319429	118242	201187	62.98
NCR	62429	24276	38153	61.11
SR	61785	132552	-70767	-114.54
SCR	582349	56644	525705	90.27
SER	111877	133305	-21428	-19.15
SECR	79500	39193	40307	50.70
WR	2105649	1920377	185272	8.80
WCR	46285	31931	14354	31.01
CLW	688900	841437	-152537	-22.14
<b>Total</b>	<b>5427095</b>	<b>4382160</b>	<b>1044935</b>	<b>19.25</b>
<b>Amount surrendered = Rs. 1364.641 Crores</b>				

- Most of the Railways could not utilize the amount allocated and surrendered Rs. 104.4 Crores in Revised Estimate 2016-17.
- It may be seen that five Railways have surrendered more than 40% of the Budget outlay allocated to them in BE 2016-17.
- Surrendering of unutilized funds in Revised Estimate shows the inability of Zonal Railways to assess their requirement diligently for the year.
- Zonal Railways are advised to plan for procurement and ensure that outlay provided against each item in Budget 2017-18 is fully utilized without any lapse.

**3.0 Provision of funds (Tentative) during Budget Estimate 2017-18 for Bulk RSP items costing above Rs. 2.5 Crore (Plan Head – 21)**

Amount in Crore of Rs.

Sn	Description	Amount
1	Mid Term Repair of locos	1335404
2	IGBT based Tr. Conv., Aux. conv., Valve sets, GG & WRE modules and PCB cards	839181
3	DPWCS	634600
4	Misc. spares	628868
5	MPCFDS	356979
6	SIVs	306913
7	Rehabilitation of tap changers	290440
8	Motorized Bogies, Gear case assembly and Brake rigging	210997
9	Wheel sets	207235
10	Wheel set roller sus. Bearing	175567
11	TM's, TM stators & rotor	158000
12	Crew Friendly cabs	152710
13	100 nos stainless steel pipe ines	108000
14	Reversers	71001
15	Remote Diagnostic System	71000
16	2000 High reach Pantograph	64650
17	Auxiliary Motors	56400
18	8 nos Hotel load convertors	51000
19	Single Bottle VCBs	45600
20	Up-gradation of BA panels	45360
21	Triplate Panel	44085
22	Up-gradation of 355 3 brdg. rectifier to 4 bridge	32256
23	100 nos Fabricated bolster	27441
24	100 nos. DDU	24000
25	Transformers	55850
26	Conv. of 250 TM plain bearing to sus. Bearing	23295
27	50 nos Higher capacity compressors	23200
28	200 sets of spring & dampers	22000
29	MSU	19900
30	200 nos Cable head Termination	15000
31	300 nos. oil cooling radiators	6000
<b>Total</b>		<b>6102932</b>

#### 4.0 Production Plan of Electric Locomotives

4.1 Provisioning of electric locomotives during next three years i.e. 2017-18, 2018-19 & 2018-19 is as under:

Year	Electric locomotives			
	CLW	DLW	DKAE	Total
2016-17	298	2		300
2017-18	300	10	24	334
2017-18(Revised)	300	25	25	350
2018-19	300	75	50	425

4.2 RSP provisions (tentative) for locomotives (New Acquisition FY 2017-18 : 737

#### 5.0 Summary of New Works/Funds under sanction for Plan Head – 42 in Budget 2017-18

5.1 Proposed sanctions under Plan Head – 42 in Budget 2017-18

Sn	Description	2016-17	2017-18	%age Imp. over last year
<b>A. New Acquisitions:</b>				
1	Total nos of New sheds / capacity augmentation. works sanctioned in Budget 2016-17	1+3 works	2+7 works	125%
2	Anticipated cost of 9 works sanctioned in Budget 2017-18	Rs. 118.05 Cr.	Rs. 262 Cr.	121%
<b>B. Program Deliveries:</b>				
1	Total funds provided for on-going PH-42 works.	Rs. 246.04 Cr.	Rs. 249.42 Cr.	1.4%

5.2 Highlights of New Acquisitions under PH-42

5.2.1 More than Rs. 20 Crore

Sn	Railways	Item	Cost (Rs. in Crore)	Proposed Executing agency
1	ECoR	Setting up of an Electric Loco Periodical overhauling (POH) workshop at Kalahandi District of Odisha.	186	IRCON/ RVNL
2	WR	Dahod (Workshop)-Development of MTR Facility for Three Phase Electric Loco	24.5	CAOWR
<b>Total</b>			<b>210.5</b>	

### 5.2.2 Less than Rs. 20 Crore

SN	Railways	Item	Cost (Rs. in Crore)
1	CR/Ajni	Provision of rail connectivity for company depot at Ajni for maintenance of 12000 HP loco	3.3
2	ER/HWH	Extension of Electric Loco Shed, Howrah	15.44
3	SER/SRC	Augmentation of maintenance facilities at ELS/SRC	3.88
4	WCR/NKJ	Augmentation facilities for homing of 3 phase locomotive at ELS/NKJ	16.5
5	CLW	Renovation works in CLW/ Chittaranjan.	5.15
6	ER/HWH	Extension of trip shed	5.14
7	KPA	Provision of dedicated power supply for Kanchrapara Workshop at 33 KV instead of existing obsolete 6.6 KV supply.	4.36
<b>Total</b>			<b>53.77</b>
<b>Grand Total (More than Rs. 20 cr &amp; less than Rs. 20 cr)</b>			<b>264.27</b>

## 6.0 Right Powering of Freight Trains

### 6.1 Mission Raftaar

- The Mission Raftaar envisages doubling of average speed of freight trains from 25 kmph to 50 kmph over next 5 years by providing right powering (close to 2 HP per tonne of trailing load) of locomotives which can haul freight trains at higher speed.
- In order to achieve this, initiatives have been taken for right powering of locomotives by replacing single WAG7 locomotives with multi WAG7 locomotives.
- Three groups have been identified by Mobility Directorate for ensuring right powering (HP/TL ratio of close to 2) for hauling CC+8+2 trailing loads in order to improve average speed of freight train which would require additional locos to be provided to these Zonal Railways.
- This requires an addition of 643 locos. It will substantially increase the speed of freight trains.

- The requirement assessed for these 3 groups by Mobility Directorate based on actual census done by respective Zonal Railways is projected below:

Group	Railway	Requirement of Additional locomotive
Group I	ECoR, SCR, SECR	301
Group II	CR, SCR	46
Group III	ER, ECR, NCR	296
<b>Total</b>		<b>643</b>

6.2 Accordingly, 105 locomotives (93 locos from CLW production & 12 locos from other Railways) has been allotted to Group-I Railways during the current FY 2016-17 (up to 31<sup>st</sup> Jan). Month wise allotment of freight locos to Group-I Railways are as under:

Month	WAG9			Total
	ECoR/WAT	SER/TATA	SECR/BIA	
Apr	0	2	2	4
May	2	0	1	3
Jun	0	5	0	5
Jul	1	0	2	3
Aug	5	3	0	8
Sep	8	2	3	13
Oct	10	2	0	12
Nov	3	8	3	14
Dec	20 (10 + 10*)	12 (10 + 2*)	0	32 (20 + 12*)
Jan	0	4	7	11
<b>Total</b>	<b>49</b>	<b>38</b>	<b>18</b>	<b>105</b>

(\* transferred from WR)



# **Railway Electrification**

**ACHIEVEMENT OF 2016-17  
( up to Jan'17)**

Parameters	CORE		RVNL		RLYS		Total	
	TGT	Ach.	TGT	Ach.	TGT	Ach	TGT	Ach.
Energisation ( In rkms)	2000	1178	1000	280	179	127	3179	1485
CRS (In RKM)	2400	508	700	383	70	122.5	3110	1013.5

**FUNDS UTILISATION IN 2016-'17**

Executing Agency	EXPENDITURE IN RS. Cts.	
	Target	Ach.
CORE	2443.06	1295.17
RVNL	823.90	486.46
Zonal Rly	129.04	38.39
<b>Total</b>	<b>3396.00</b>	<b>1822.02</b>

**ENERGISATION & CRS INSPECTION TARGET OF  
2017-'18**

	Energisation (rkm)	CRS (rkm)
<b>CORE</b>	3000	3000
<b>RVNL</b>	1000	700
<b>ECOR</b>	52	100
<b>CR</b>	125	150
<b>WR</b>	0	15
<b>IRCON</b>	150	0
<b>BITES</b>	120	0
<b>PGCIL</b>	200	0
<b>Total</b>	<b>4647</b>	<b>3965</b>

**RE WORKS TO BE COMPLETED ON PRIORITY – As per  
Traffic Dte.**

Railway	Section/Project
<b>ER</b>	Pakur-Malda
	Andal-Sitarampur ( via Sonachara-Barabani section)
<b>ECR</b>	Mansi-Katihar
	Meralgram-Renukut
<b>ECOR</b>	Jharsuguda-Sambalpur (including all sidings on Jharsuguda-Lapanga section)
	Raigada-Titlagarh
	Angul-Rairakhol
<b>NR</b>	Rohtak-Bhatinda
<b>NCR</b>	Chheeki-Manikpur
	Commissioning of TSS at Sarsoki on JHS-CNB section.
<b>NWR</b>	Rewari-Manheru/Hisar
<b>SER</b>	Ranchi-Tori
<b>NER/NFR</b>	GKP and Katihar yard
<b>WCR</b>	Itarsi-Pipariya

**Balance Section Targeted for CRS Inspection in  
2016-'17**

Section	rkm	PDC
<b>CENTRAL RAILWAY</b>		
Daund-Bhigwan	28	Feb'17
Amla-Parsia	86	
Parsia- Chhindwara	29	Mar'17
<b>EAST CENTRAL RAILWAY</b>		
Mansi-Katihar	112	Feb'17
Meralgram-Renukut	77	
Bakhtiyarpur -Rajgir	53	
<b>EAST COAST RAILWAY</b>		
Lapanga-Sambalpur	32	Feb'17
Lanjigarh Road-Titlagarh Jn incl yard	47	
Singapur Road-KTGA	9	
Boinda-Rairakhol	47	

Section	rkm	PDC
<b>EASTERN RAILWAY</b>		
Andal - Sitarampur via Jamunia - Ikra & Sripur with Kajoragram - Sonachara bypass line	57	Feb'17
<b>NORTH CENTRAL RAILWAY</b>		
Cheeki-Sankargarh	37	Feb'17
Sankargarh-Manikpur	55	
<b>NORTH EAST FRONTIER RAILWAY</b>		
Kumedpur - Malda Town -Singhabad	87	Mar'17
<b>NORTHERN RAILWAY</b>		
Rohtak-Jind	57	Feb'17
Jind-Jakhal	72	

Section	rkm	PDC
NORTH WESTERN RAILWAY		
Rewari-Kanwat	122	Mar'17
SOUTH CENTRAL RAILWAY		
Nallapadu-Perecherla-Kurichedu	104	Feb'17
Kurichedu-Cumbum-Diguvametta	109	Mar'17
Guntakal - Dhone	68	Feb'17
Guntakal-Irangullu	88	Mar'17
Irangullu-Chiksagur	55	Mar'17
SOUTHERN RAILWAY		
Charvattur-Mangalore	82	Mar'17
SOUTH EAST CENTRAL RAILWAY		
Gondia-Nagbhir	132	Feb'17

Section	rkm	PDC
SOUTH WESTERN RAILWAY		
Ramanagram-SettihalIi-Yeliyur-Mysore	91	Feb'17
WESTERN RAILWAY		
Ahemdabad-Mahesana	73	Mar'17
WEST CENTRAL RAILWAY		
Itarasi-Pipariya	67	Feb'17

### SECTION FOR CRS INSPECTION IN 2017-'18

SN	Section	Railway	Executing Agency	rkms
1	Panvel - Pen - Thal	CR	CR	75
2	Jasai-Uran	CR	CR	10
3	Jasai-JNPT	CR	GR	9
4	Gulwarga-Wadi	CR	RVNL	32
5	Amrawati-Narkhed	CR	CR	138
6	Parasia -Chhindwara	CR/SECR	RVNL	28
7	Boinda-Sambalpur	ECoR	ECoR	118
8	Sambalpur - Titlagarh	ECoR	CORE	183
9	Lanjigarh-Titlagarh	ECoR	CORE	47
10	Lapanga-Sambalpur	ECoR	CORE	32
11	Meral Gram- Renukut-Chopan-Singrauli incl. Shaktinagar-Kairala Rd.	ECR	CORE	203
12	Bakhtiarpur-Rajgir	ECR	CORE	53

SN	Section	Railway	Executing Agency	rkms
13	Rajgir-Manpur	ECR	CORE	79
14	Kiul - Tilaya	ECR	CORE	87
15	Valmiki Nagar-Sugauli	ECR	CORE	110
16	Kumedpur-Kanki including Katihar-Mukuria & Katihar-Dillidwanganj	ECR/NFR	CORE	135
17	Katwa-Azimganj-Nalhati	ER	CORE	118
18	Malda - Singhabad & Pakur - Malda	ER/NFR	CORE	99
19	Shankargarh-Manikpur	NCR	CORE	55
20	Lalitpur - Udaipura	NCR	CORE	32
21	Bhimsen-Khairar	NCR	CORE	119
22	Ghazipur City -Varanasi	NER	RVNL	79
23	Jind-Jakhal-Bhatinda	NR	CORE	170
24	Jakhal-Hisar	NR	RVNL	79

SN	Section	Railway	Executing Agency	rkm
26	Rajpura - Dhuri - Lehra Mohabat	NR	RVNL	151
27	Una Himachal-Amb Andaura	NR	CORE	25
28	Rohtak - Bhiwani	NR	CORE	48
29	Hisar- Barwala	NWR	RVNL	50
30	Manheru - Hissar	NWR	RVNL	74
31	Ajmer-Bhilwara	NWR	CORE	132
32	Rewari-Phulera	NWR	CORE	215
33	Chisagur-Raichur	SCR	RVNL	16
34	Raichur-Guntakal	SCR	RVNL	121
35	Cumbum- Diguametta-Guntakal incl. Gooty-Pendekallu	SCR	CORE	266
36	Nallapadu-Nadikudi	SCR	CORE	95

SN	Section	Railway	Executing Agency	rkm
37	Guntakal-Kalluru	SCR	RVNL	40
38	Gondia-Balharshah	SECR	CORE	250
39	Yeltyur-Mysore	SWR	CORE	38
40	Piparia-Jabalpur	WCR	CORE	178
41	Ahmedabad-Mehsana	WR	CORE	73
42	Indore-Mhow	WR	WR	21
<b>Total</b>				<b>4006</b>

## DPRs REQUIRED FROM ZONAL RAILWAY

- DPR of following sections are still awaited from Zonal Railway.

SN	RLY	Name of Project	rkm
1	NER	Chhitauni-Tumkahi Road	60
2		Gorakhpur-Anand Nagar- Gonda & Anandnagar--Nautanwa	262
3		Moradabad-Kashipur-Ramnagar & Rampur-Kathgodam incl. Lalkuan-Kashipur and Bareilly-Lalkua	309
4		Gonda-Bahraich-Mailani	266
		<b>Sub Total</b>	<b>897</b>
5	NFR	Rangiya-Rangapara	123
6		Ambari-Falakata-New Moyanaguri	45
7		Katihar-Jogbani	108
8		Raninagar-Haldibari	30
9		Lumding-Badarpur	169
		<b>Sub Total</b>	<b>475</b>

SN	RLY	Name of Project	rkm
10	NR	Akbarpur-Faizabad-Barabanki incl. Faizabad-Sultanpur	209
11		Bathinda-Kotkapur-Firozpur City-Jalandhar City incl. Lohiankhas-Nakodar-Philaur and Nakodar-Jalandhar	301
12		Ludhiana-Firozpur Cantt.-Firozpur City-Husiniwala incl. Firozpur City-Fazilka-Abhor and Kotkapur-Fazilka	332
		<b>Sub Total</b>	<b>842</b>
13	NWR	Luni-Samdari-Munabao	296
14		Bikaner-Merta-Jodhpur and Merta-Phulera	430
		Suratgarh-Jaisalmer-Bhilldi	902
		<b>Sub Total</b>	<b>1628</b>
15	SECR	Tumsar Road-Tirodi	47
16	SCR	Pimpalkuti-Mudkhed	183
17		Parbhani-Parli-Vajjnath-Vikarabad	332
		Manmad-Mudkhed-Secunderabad & Mehboobnagar-Dhone	756
		<b>Sub Total</b>	<b>1271</b>



SN	RLY	Name of Project	tkm
18		Salem-Vridhachalam-Guddalore Port	196
19	SR	Shoranur-Nilambur	66
20		Dindigul-Palghat	215
21		Kollam-Punalur	44
		<b>Sub Total</b>	<b>521</b>
22	SWR	Mysore-Hasan-Mangalore incl. Hasan-Arsikere	349
23	WR	Rajkot-Jetalsar-Verval	185
24		Jetalsar-Wansjaliya Jn	91
25		Kanalus-Porbandar	105
		<b>Sub Total</b>	<b>381</b>
		<b>TOTAL</b>	<b>6411</b>

### REQUIREMENT OF SUPERVISOR AND STAFF

Railway	Railway Supv.	TW Drivers/ Loco Pilots	Technicians
NWR	10	6	12
NFR	4	0	6
SCR	10	6	10
WR	10	3	10
WCR	15	5	28
ECoR	6	3	12
ECR	2	3	6
SWR	5	2	6
NR	6	6	10
NER	3	4	8
NCR	6	4	10

## ISSUES WITH RDSO

- Change in design of compact TSS for saving of land requirement.
- Development of additional vendors for 220 kV & 25 kV circuit breakers, Porcelain insulators and control and relay panel.
- Development of Vendors for enhanced pace of electrification.
- RDSO to urgently send comments with regard to Modification of IRSOD of following.
  - (1) ACS-13 of IRSOD, Para no. 11(iv):-

“ In special circumstances, the Electrical Inspector may permit a lesser distance being adopted to any condition he deems fit to impose”
  - (2) ACS-16 of IRSOD, and in note ( C ) of Para 11(B):-

“ Further, in case of alteration to works in existing yards, for item 11 (B) (vii) & 11 (B) (viii), the minimum horizontal distance shall be maintained as 2360mm and 2510mm respectively, after making full efforts for providing prescribed clearances as far as possible.”

# **Electrical Energy Management**

## Electrical Energy Management

### **1.0 Providing solar plant in Railway system – rooftop (page no. 17)**

- Solar plant commissioned Railway wise.
- RFP/RFQ finalized.
- Year wise plan for commissioning.

### **2.0 Implementation of energy efficiency programme (page no. 18 - 19)**

- 100% LED light stations commissioned.
- Year wise plan for commissioning Railway wise.
- Specific Energy Consumption (kWH/1000 GTKM) improvement.

### **3.0 Induction of latest measures to reduce OHE failures (page no. 20 - 21)**

- Thermography.
- Revision of maintenance schedules.
- Load curves.

### **4.0 Planning for Financial Year 2017-18 for execution of new works and utilization of full fund (page no. 22 - 30)**

- Progress of sanctioned works - Utilization of funds in FY 2016-17.
- Timelines and action plan for works sanctioned in work programme 2017-18.

RFP due for Finalization

S. No-1

RFQ due for Finalization

Annexure I

Status of 50 MW Solar Rooftop Plant

S.No.	Railway	Allocated Capacity (MW)	States/UT covered	Avilability of Net Metering in State	RFQ Status	RFP Status	Remarks
1	2	3	4	5	6	7	8
1	NR	5	Delhi	Yes	Finalized on 30.06.16	Finalized	LOA issued on 20.10.16
2	NCR	1	U.P.	Yes	Finalized on 18.05.16	Finalized	LOA issued on 01.09.16
3	WR	4	Maharashtra	Yes	Finalized on 26.09.16	Finalized	LOA issued on 18.01.17
4	SR	1	Gujarat	Yes	Finalized on 24.06.16	-	RFP under 1st round of negotiations
5	SCR	1	T.N.	Yes	Finalized on 03.05.16	Opened on 29.11.16	RFP under TC
			A.P.	Yes	Finalized on 25.07.16	-	RFQ under TC
			Telangana	Yes	Finalized on 25.07.16	Finalized	LOA issued on 23.12.16
6	SECR	750 KWp at Gvbjm Jind 750 KWp at Bilaspur Rly Stn.	Chattisgarh	Yes	RFQ opened on 17.09.16 Finalized on 25.07.16	Finalized	LOA issued on 23.12.16
7	CR	1	Maharashtra	Yes	Finalized on 15.11.16	Due for opening on 07.02.17	
			M.P.	Yes			
8	ECOR	1	A.P.	Yes	Finalized on 13.07.16	Finalized	LOA issued on 29.09.16.
			Oddisha	Yes			
9	SWR	1	Karnataka	Yes	Finalized on 07.06.16	Finalized	LOA issued on 07.09.16.
10	ER	500 KW at Sealdah Div. 500 KW at Howrah Div.	W.B.	Yes	Finalized on 15.07.16 Finalized on 15.11.16	Finalized	LOA issued on 05.12.16 Railway to give date for finalization of RFQ
11	NAWR	1	Rajasthan	Yes	Finalized on 15.11.16	Opened on 04.01.17	RFP due for finalization on 10.02.17
12	SER	2	Orrisa	Yes	Finalized on 26.05.16	Finalized	LOA issued on 11.09.16.
			W.B.	Yes			
13	ECR	500 KW at Sonpur 500 KW at Danapur	Bihar	Yes	Finalized on 02.01.17 Finalized on 24.11.16	Due on 17.02.17 Opened on 10.01.17	Briefing note under accounts vetting
14	NER	500 KW (Varanasi) 500 KW (Zamania) 500 KW (Gorakhpur)	U.P.	Yes	Finalized on 28.12.16 Finalized on 07.12.16 Finalized	- - -	Railway to give target for RFP finalization. Railway to give target for RFP finalization. Railway to give target for RFQ finalization. Railway to give target for RFP finalization.
15	NER	1	Assam	Yes	RFQ opened on 07.10.16 Finalized	- -	Under TC Being Retendered
16	WCR	500 KW at Kota Division 1 MW at Kota Division 500 KW at Bhopal W/S 1 MW at Bhopal Division 1 MW at Jabalpur Div.	Rajasthan	Yes	Finalized Finalized	Finalized Opened on 10.01.17	LOA issued on 23.01.16 RFP due for finalization on 03.02.17
			M.P.	Yes	Finalized on 18.03.16	Finalized	LOA issued on 19.01.17
					Finalized	Due for opening on 20.02.17	Railway to give date for RFP finalization
17	WCR	1	W.B.	Yes	Due for finalization	-	Under TC (Finance)
18	WCR	1	Karnataka	Yes	Under finalization and retender	-	-
19	RCE	1	Punjab	Yes	Finalized on 29.07.16	Opened on 09.12.16	RFP under finalization
20	ICF	2	T.N.	Yes	Finalized	Finalized	LOA issued on 23.12.16
21	DMV	2	U.P.	Yes	No Action taken	-	Work transferred to RPFMCL
<b>Total</b>		<b>50</b>					

-17-

### Action Plan for Provision of LED at Rly. Stations over IR

Railway	Total no. of Stations	No. of Stations with 100% LED lights already provided	No. of Balance Stations	Target for 2016-'17 for no. of station	Target for 2017-'18 for no. of station	Target for 2018-'19 for no. of station
CR	475	73	402	100	346	29
ECR	688	27	661	20	224	417
ECoR	304	17	287	4	99	184
ER	566	150	416	200	216	0
NCR	372	36	336	15	112	209
NER	490	21	469	25	155	289
NFR	505	6	499	25	166	308
NR	995	61	934	44	149	741
NWR	516	43	473	20	159	294
SCR	704	190	514	50	162	302
SER	373	20	353	25	115	213
SECR	310	30	280	20	173	169
SR	736	84	652	15	223	414
SWR	336	16	320	20	105	195
WR	792	34	714	15	285	429
WCR	288	41	247	34	75	138
Metro	23	2	21	0	7	14
<b>TOTAL</b>	<b>8473</b>	<b>851</b>	<b>7578</b>	<b>632</b>	<b>2772</b>	<b>4344</b>

**Specific Energy Consumption (kWH/Thousand GTKMs) for Traction Railway wise 2015-16  
& 2016-17 upto Dec.**

SN	RLY	Goods (upto Dec.)			Passenger (upto Dec.)		
		2015-16	2016-17	% Imp(+)/Det(-)	2015-16	2016-17	% Imp(+)/Det(-)
1	CR	6.31	5.4	14.42	18.4	18.2	1.09
2	ER	7.33	4.2	42.70	11.96	18.32	-53.18
3	ECR	10.52	10.73	-2.00	19.55	19.45	0.51
4	ECoR	6.16	5.84	5.19	19.71	19.81	-0.51
5	NR	4.94	4.97	-0.61	18.48	18.48	0.00
6	NCR	4.43	4.43	0.00	18.56	18.52	0.22
7	NER						
8	NFR						
9	NWR						
10	SR	6.69	5.91	11.66	18.5	18.6	-0.54
11	SCR	5.4	4.58	15.19	18.66	18.77	-0.59
12	SER	6.94	7.03	-1.30	19.4	19.4	0.00
13	SECR	5.89	6.04	-2.55	20.03	19.73	1.50
14	SWR	10.63	10.25	3.57	19.43	19.53	-0.51
15	WR	7.94	6.54	17.63	19.7	19.65	0.25
16	WCR	6.51	5.89	9.52	18.7	18.4	1.60
	IR	<b>6.51</b>	<b>5.89</b>	9.52	18.5	18.6	-0.54

**ANALYSIS FOR LOSS OF PUNCTUALITY OF MAIL/EXPRESS TRAINS ON THE OHE ACCOUNT DURING**

C.N-4

**(April-Jan-2016-17 VIS-A-VIS April-Jan-2015-16)**

(A - No. of incidences @B - No. of trains lost punctuality)

Cause of OHE failures	CR		ER		NR		SR		SCR		SER		WR		ECR		ECOR		NCR		SECR		NER		SWR		WCR		Total			
	A	@B	A	@B	A	@B	A	@B	A	@B	A	@B	A	@B	A	@B	A	@B	A	@B	A	@B	A	@B	A	@B	A	@B	A	@B		
<b>(i) Panto entanglements</b>	2016-17	2	6	2	9	3	3	3	8	1	17	2	2	2	4	6	25	0	0	0	0	2	11	1	1	0	0	1	5	25	91	
	2015-16	3	20	0	0	5	17	1	2	0	0	3	6	0	0	6	34	0	0	2	3	3	9	0	0	0	0	4	5	27	96	
<b>(ii) Insulator failures</b>	2016-17	4	13	3	8	5	21	4	50	1	3	4	9	2	5	7	40	2	13	4	25	6	26	0	0	0	0	1	2	43	215	
	2015-16	6	27	2	7	3	8	0	0	1	4	1	3	2	2	7	82	1	1	1	4	3	6	0	0	0	0	0	0	27	144	
<b>(iii) SS Wire rope failures</b>	2016-17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	1	2	
	2015-16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<b>(iv) Material failures/PSI equipment failure</b>	2016-17	5	11	0	0	4	17	2	12	1	1	0	0	0	0	6	32	3	9	4	14	3	10	2	2	0	0	0	0	0	0	
	2015-16	6	13	1	3	1	40	1	1	2	4	3	5	1	1	7	14	2	2	0	0	4	5	0	0	0	0	0	0	1	1	29
<b>(v) OHE parting/contact wire splice failures etc.</b>	2016-17	4	44	2	10	7	66	2	2	0	0	2	2	7	15	13	61	2	6	6	57	5	23	2	3	0	0	1	2	53	291	
	2015-16	8	33	1	2	17	121	1	1	4	10	4	17	1	2	14	45	4	7	3	20	8	18	0	0	0	0	2	4	67	280	
<b>(vi) Tower wagon failures</b>	2016-17	0	0	2	3	0	0	0	0	0	0	0	0	0	2	5	0	0	0	0	1	2	0	0	0	0	0	0	1	1	6	11
	2015-16	1	9	5	14	0	0	2	3	1	1	0	0	2	4	4	13	1	2	5	12	1	1	0	0	0	0	1	1	23	60	
<b>(vii) PB bursting</b>	2016-17	2	3	1	1	8	14	0	0	0	0	5	6	0	0	10	15	1	1	5	14	1	1	1	1	0	0	0	0	34	56	
	2015-16	5	8	0	0	6	9	0	0	1	1	5	12	0	0	7	9	2	8	8	13	5	8	2	3	0	0	3	4	44	75	
<b>(viii) CB tripping/ RCC failure/ Signal failure</b>	2016-17	3	7	0	0	6	10	0	0	0	0	0	0	1	4	6	18	1	1	4	15	3	10	1	1	1	1	4	1	17	27	87
	2015-16	1	1	1	1	4	4	2	4	0	0	1	1	0	0	3	10	0	0	4	5	3	3	0	0	1	1	1	1	1	21	31
<b>Total</b>	2016-17	20	84	10	31	33	137	11	72	3	21	13	19	12	28	50	196	9	30	24	127	21	83	7	8	1	4	5	27	219	861	
	2015-16	30	111	10	27	36	199	7	11	9	20	17	44	6	9	48	207	10	20	23	57	27	50	2	3	1	1	12	16	238	775	

-20-



**ANALYSIS FOR LOSS OF PUNCTUALITY OF MAIL/EXPRESS TRAINS ON THE OHE ACCOUNT DURING**

5.11.17

(April-Jan-2016-17 VIS-À-VIS April-Jan-2015-16)

Cause of OHE failures		CR		ER		NR		SR		SCR		SER		WR		ECR		ECOR		NCR		SECR		NER		SWR		WCR		Total				
		A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B			
<b>II. External Causes:</b>																																		
<b>(i) Grid failures</b>																																		
	2016-17	0	0	2	5	6	9	2	4	0	0	3	4	0	0	26	44	8	25	3	5	4	7	2	2	1	4	0	0	0	0			
	2015-16	2	4	2	2	5	10	4	6	0	0	3	7	1	3	23	44	6	6	11	29	9	16	3	4	1	2	2	2	2	57	109		
<b>(ii) Thefts</b>																																		
	2016-17	0	0	0	0	1	5	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2015-16	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	6	
<b>(iii) Mast hitting cases/Transmission line falling</b>																																		
	2016-17	0	0	0	0	1	10	0	0	0	0	1	18	0	0	4	30	1	13	0	0	0	0	0	0	0	0	0	0	0	0	0	7	71
	2015-16	0	0	0	0	0	0	1	1	0	0	1	13	0	0	2	5	1	4	0	0	0	0	0	0	0	0	0	0	0	0	1	6	24
<b>(iv) Power Supply, AT, Change over switch</b>																																		
	2016-17	1	2	0	0	1	1	0	0	0	0	0	0	2	14	1	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	29
	2015-16	0	0	0	0	0	0	1	2	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	3
<b>(v) Miscreant activity/Miscellaneous</b>																																		
	2016-17	5	27	3	47	7	41	1	1	0	0	0	0	0	0	5	30	2	4	3	6	2	2	0	0	0	0	0	0	0	0	2	3	
	2015-16	2	2	3	3	7	15	4	5	0	0	3	6	0	0	7	29	3	32	4	7	4	9	0	0	2	4	1	11	40	123			
<b>(vi) Bad weather (Lightning surges, falling of trees etc.)</b>																																		
	2016-17	2	80	4	6	2	10	1	1	0	0	0	0	0	0	5	14	6	32	2	22	4	20	1	2	0	0	2	3	29	190			
	2015-16	2	8	4	6	0	0	2	2	0	0	3	5	0	0	7	30	5	9	0	0	5	11	0	0	0	0	0	0	1	1	29	72	
<b>(vii) Due to RE Work</b>																																		
	2016-17	0	0	0	0	5	23	0	0	0	0	0	0	0	0	0	0	0	0	2	4	0	0	0	0	0	0	0	0	0	0	7	27	
	2015-16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<b>Total</b>																																		
	2016-17	8	109	9	58	23	99	4	6	0	0	4	22	2	14	41	130	18	75	10	37	10	29	3	4	3	6	2	3	137	592			
	2015-16	6	14	9	11	13	27	12	16	0	0	11	32	1	3	39	108	15	51	15	36	13	36	3	4	3	6	5	15	150	359			
<b>III. Dispute cases/ Wrong logging</b>																																		
	2016-17	0	0	1	2	1	1	0	0	0	0	0	0	0	0	4	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	9	
	2015-16	0	0	1	1	0	0	1	4	0	0	0	0	1	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<b>GRAND TOTAL</b>																																		
	2016-17	28	193	20	91	57	231	15	78	3	21	17	41	14	42	95	332	27	105	34	164	31	112	10	12	4	10	7	30	362	1462			
	2015-16	36	125	20	39	49	226	20	31	9	20	28	76	3	24	87	315	25	71	38	93	45	86	5	7	4	7	18	39	392	1159			
<b>Failure/1000TKM</b>																																		
	2016-17	6.0	34.5	4.8	21.6	8.9	36.2	2.6	13.7	0.5	3.5	3.2	7.8	3.4	10.1	21.3	74.4	7.2	28.0	7.5	36.1	8.3	29.9	16.1	19.3	8.2	20.4	1.8	7.9	6.17				
	2015-16	6.7	23.1	4.8	9.3	7.7	35.5	4.0	6.2	1.5	3.4	6.4	14.7	0.0	0.0	19.5	70.6	6.7	18.9	3.4	20.5	12.5	23.8	6.1	11.3	9.2	14.3	4.7	10.2	6.82	20.15			
	Imp/det.	25	-49	0	-133	-16	-2	35	-120	0	0	10	47	0	0	-9	-5	-8	-48	11	-76	34	-26	-100	-71	0	0	0	0	0	0			
	TKM 2015-16	5392	5592	4204	4204	5374	6374	5688	5688	5963	5963	5265	5265	4138	4138	4464	4464	3749	3749	4541	4541	3740	3740	621	621	490	490	3806	3806	58635	58635			
	TKM 2014-15	5413	5413	4204	4204	5374	6374	4967	4967	5951	5951	5186	5186	4138	4138	4464	4464	3749	3749	4541	4541	3568	3608	621	621	490	490	3806	3806	57812	57512			

-21-



## Budget Grant under Plan Head "OEW "-36 &amp;"TDW"- 37 for year 2017-18

(Fig. in Rs. Cr.)

SN	PLAN HEAD 36								PLAN HEAD 37		
	RLY	CAP	DF	DRF	RRSK	EBR(P)	OLWR	TOTAL	CAP	RRSK	TOTAL
1	CR	0.01	1.06	2.27	1.80			5.14	10.50	55.66	66.16
2	ECR	25.09	1.50	3.12	3.45			33.17	0.01	95.23	95.24
3	ECoR	5.36	1.97	3.82	2.00			13.15	0.00	19.54	19.54
4	ER	2.00	0.67	4.93	4.73			12.33	0.00	28.65	28.65
5	NR	32.72	4.88	4.02	1.08	400.00		442.70	0.00	12.41	12.41
6	NER	0.00	3.35	5.04	3.97			12.36			
7	NFR	0.25	7.75	2.03	2.80			12.83			
8	SR	40.00	2.08	2.17	1.80	136.00	0.05	182.10	16.72	48.16	64.88
9	SCR	2.50	4.00	4.55	2.30			13.35	0.85	36.73	37.58
10	SER	1.00	3.21	7.37	1.90			13.48	0.50	90.75	91.25
11	WR	0.00	0.28	3.15	2.31			5.74	1.10	53.64	54.74
12	NCR	39.00	8.61	7.78	1.80			57.19	0.42	26.67	27.09
13	NWR	0.00	5.93	3.79	1.80			11.52			
14	SECR	15.30	1.65	5.25	1.80			23.99	0.00	11.02	11.02
15	SWR	5.00	1.81	2.30	1.80			10.91	0.00	3.96	3.96
16	WCR	0.00	0.85	8.72	1.80			11.37	12.00	17.58	29.58
17	MR	13.42	2.43	11.55	2.80			30.20			
18	CLW	1.33	0.00	0.53	0.03			1.89			
19	DLW	0.00	0.00	0.00	0.00			0.00			
21	ICF	0.00	0.00	2.15	0.02			2.17			
22	RCFK	2.02	0.00	0.00	0.01			2.03			
	<b>TOTAL</b>	185.00	52.02	84.54	40.00	536.00	0.05	897.61	42.10	500.00	542.10

## Approved New Works under plan head "Other Electrical Works"-36, FY 2017-18

(Cost in Rs. thousand)

S.N	RLY	NAME OF WORK	ALLOC.	COST
1	ER	Provision of LED light fittings in office building, Station building, Hospitals and street light of staff colonies in replacement of T5, T8 and T12 tube light fittings including HPSV & M.H. lights over Howrah division (Ph-1).	CAP	48516
2	ER	ASN:-Provision of SCADA system for power management in ASN Divn.(19 Nos. sub-stations).	CAP	28881
3	ER	Replacement of overhead line by underground cable for reducing theft of electricity and improvement in reliability of power supply over Howrah Division in station and yard area (Ph- 1).	DRF	19307
4	ER	Provision & replacement of VRF air conditioning system in ICU(S), ITU(M), OT and Female surgical ward, remaining important part of BRSH/SDAH.(scope cover air conditioning of OT and ICU only and associated works)	DF3	10941
5	ECR	PTRU: Rehabilitation of Power supply system including replacement of Transformers and other ancillary works of 33KV Sub station at Pataratu	DRF	15639
6	ECR	Replacement of existing old, Overaged and damaged HT OH conductor over MGS Division	DRF	44260
7	ECR	At SEE Division-: Adequate lighting arrangement with energy efficient fitting & fixture on platform & FOB/Circulating area/ Concourse at A1,A & B class station.	CAP	18180
8	ECR	MFP: Strengthening of 33/11 KV power substation by replacement of damaged 33 KV over head line, replacement of defective 33 KV & 11 KV VCB with CT & PT & at BJU supply & laying of 33 KV cable etc. as required.	DRF	13122
9	ECOR	Energy conservation in Railway Station lighting, Street lighting, High mast lighting, Service buildings, Coaching depots, Loco sheds and Workshop by providing LED luminaries with lamps over ECoR.	CAP	159737
10	NR	Provision of 33 KV HT sub.stn at GZB and 11KV HT ring main system and Interlinking of HT sub stations at GZB,TKD & DKZ over DLI Divn with provision of SCADA system.	DF3	76096
11	NR	Replacement of conventional type luminaries with energy efficient LED luminaries in service building over Delhi division.	DRF	42239
12	NR	Electrical work in connection with replacement of overaged street and yard light fittings with LED fittings over Ambala Division.	DRF	13487
13	NR	Indian Railways - Setting up of 10 kw/5 kw solar photo voltaic power plant on roof-tops of D &E-category stations under Indian Railways Solar Mission (800 stations on IR)	CAP	250000
14	NCR	Agra division :- Replacement of T-5 tube light/conventional tube light HPSV,MH fittings of service building, Platform, Circulating area, 65/85 watt CFL street light fittings and yard high mast tower lights of 400 watt fitting etc. with Energy Efficient LED light fittings of Agra Division	CAP	47252

15	NCR	Allahabad: Replacement of conventional luminaries by Energy Efficient LED based Luminaries in GM office.	CAP	12100
16	NCR	Mughalsarai-Ghaziabad: Replacement of conventional luminaries by Energy Efficient LED based Luminaries in E Category Stations(77 Nos) of Allahabad Division.	CAP	55000
17	NCR	Mughalsarai-Ghaziabad:-Replacement of conventional MH/HPSV luminaries of existing high mast by LED luminaries of Allahabad Division(110 High Masts).	CAP	24800
18	NER	Gorakhpur- Augmentation of power supply by replacement of old & over aged H.T. overhead lines by under ground cable.	DRF	35330
19	NER	Gorakhpur- Provision of SCADA and metering system at 20 nos. sub stations to upgrade the controlling of power supply arrangements.	CAP	24948
20	NFR	At Nambari: Replacement of existing dilapidated outdoor distribution power panels & replacement of defective power cables at Officers colony at Nambari	DRF	23689
21	NWR	Replacement in distribution network along with associated work at JU/MKN/ JOR/DQN/RNV/BLT/ BUT/ GDD/LN/PMY/ POK/BGKT/RDRA/OCN/ SUJH/DIA/LAU/MBNL/PPR/RKB station staff colony over JU division.	DRF	30000
22	NWR	JP Div- Replacement of HT/LT overhead lines by Underground cables over Jaipur division.	DRF	22000
23	SR	Replacement of age old and defective HTUG cable in Chennai division	DRF	35895
24	SR	TVC- Strengthening of power distribution arrangements at Thiruvananthapuram Central Railway Station	DF3	19517
25	SCR	NED Division- Replacing Higher wattage light fittings with LED light fittings in view energy conservation over the division.	CAP	11540
26	SCR	GTL Divn & GNT Divn.: Replacement of Conventional lights with LED Lights at all stations over GTL and GNT Division.	CAP	25193
27	SCR	BZA Division- Replacement of high wattage light fitting with LED light fitting in view of energy conservation over the division.	CAP	12000
28	SCR	SC Division: Replacement of higher wattage light fittings with energy efficient LED based lighting system in view of energy conservation measure.	CAP	24165
29	SCR	Hyderabad Division - Replacement of higher wattage light fittings with energy efficient LED based lighting system in view of energy conservation measures	CAP	22903
30	SCR	Hyderabad division - Replacement of drive, relays and associated electrical equipment of lifts ie., Except body - 4 Nos	DRF	11076
31	SCR	Guntakal Division - Modification of 12 nos of 33KV/11KV overhead power line crossings to UG cables over the Division.	DF3	31924
32	SER	Central Hospital, Garden Reach- Replacement of 3 no. 120 TR capacity old Central Air Conditioning Plant by new CAC Plant of capacity 125TR with eco-friendly refrigerant along with associated accessories.	DRF	33109
33	SER	Replacement & Rehabilitation of electrical power supply system under Ranchi Division( 4 transformer and accordingly other associated works)	DRF	26303

34	SER	Provision of 33kv sub-station for availing of 1.5MVA Power at 33KV from 33KV BIADA Sub station of DVC to Bokaro Rly Settlement and Pump House (Non - traction) at Balidih in Bokaro Rly Settlement.	DF3	31018
-35	SECR	Bilaspur Division - Provision of LED light fittings in all Railway stations, service building, Circulating areas, Yards, Colony Street Lighting.	CAP	28370
36	SECR	Raipur Division - Replacement of T-5, 40watt tube light, Metal Halide light fittings with LED lights in stations ,(23 nos.),LC gates & cabins (90 nos.), phase-II	CAP	12655
37	SECR	Nagpur Division - Replacement of energy intensive light fittings by energy efficient LED light fittings in service buildings over Nagpur division.	CAP	22500
38	SWR	Provision of LED light fittings in stations over South Western Railway	CAP	52822
39	WR	Mumbai Division- Replacement of LT power panels on age cum condition basis	DRF	17234
40	WR	Ahmedabad Division :- Replacement of conventional type light fittings with energy efficient light fittings.	CAP	15711
41	WR	Ratlam Division :- Rehabilitation of street lighting system with replacement of Conventional street lights by Energy efficient LED Street lights with automation .	CAP	15657
42	WR	Vadodara Division:- Replacement of convensional fittings by energy efficient LED fittings at various stations and other energy conservation measures.	CAP	19837
43	WCR	Bhopal division- replacement of overaged/ defective earthing at sub station and provision of ELCB	DRF	14157
44	MR	KDMI~~KMUK Replacement of overaged 11KV panel, LT panel, Distribution boards (AC and DC) control panels at different stations of Metro Railway Kolkata	DRF	25903
45	MR	KDMI~~KMUK~~ Provision of LED lights through retrofitment in tunnel section of Metro Railway/Kolkata	CAP	47766
46	MR	KDMI~~KMUK ~~~Replacement of ventilation fans in different underground metro stations	DRF	25902
47	MR	DumDum~~Mahanayak Uttam Kumar Replacement of overaged 33KV,11 KV and 750V DC grade cable,Metro Railway,Kolkata	DRF	297822
48	MR	KDMI~~KMUK~~Provision of emergency power supply for feeding air conditioning and ventilation loads in underground stations	CAP	372829
<b>Total</b>				<b>2269332</b>

## Approved New Works under plan head "Traction Distribution Works"-37, FY 2017-18

(Cost in Rs. thousand)

S.N	RLY	NAME OF WORK	ALLOC.	COST
1	CR	BSL/TRD - Replacement of over aged PTFE Neutral Sections and Conversion of Overlap type Neutral section into PTFE Neutral Section in Bhusawal Division. (11 Nos.)	DRF	19457
2	CR	Replacement of 33 KV and 11 KV overhead crossing into underground in Bhusawal division. (27 Nos.)	DRF	47476
3	CR	Up-gradation of protection scheme and SCADA system in Lonavala - Pune section in Pune division.	DF3	50268
4	CR	Replacement of leaned OHE masts in Nagpur division of Central Railway	DRF	17061
5	CR	Replacement of wornout 193 Sqmm copper contact wire in Mumbai division ( 100 Kms)	DRF	148811
6	CR	Transmission line network on Chennai-Mumbai route(Route length-1284 kms) of IR	EBR(IF)	11280000
7	CR	Central Railway - Traction energy management on Railways as deemed licensee for effecting saving in electrical energy charges	CAP	1090000
8	ER	Sealdah Division: Replacement of Existing old & obsolete SCADA system.	DRF	44879
9	ER	Replacement of Traction Mast of tight implantated & leaning masts - Phase-V over Sealdah Division of Eastern Railway.	DRF	19046
10	ER	Replacement of Feeder Wire from Belur Feeding Post to Liluah GSS with anciliary works in Howrah Division.	DRF	30123
11	ER	Replacement & straightening of Leaning Mast/TTC/Portal (Phase-II) and replacement of Tight Implanted Mast (Phase-II) in Howrah Division.	DRF	54777
12	ECR	Provision for feeding 25 KV supply to major yard JAJ, KIUL & FUT through Circuit Breaker Over Danapur division.	DF3	12126
13	ECR	Replacement of Stay, Bracket fittings and cantilever assembly complete with insulator in MGS division (5000 nos.)	DRF	60747
14	ECR	Provision of 50 nos single pole motorized isolator in place of manual operated Single pole Isolator over Danapur division.	DRF	13776
15	ECR	Replacement of over aged PSI equipment and cross feeder wire Aluminum to copper cross feeder wire (150mm) .	DRF	17073
16	ECR	Replacement of leaning mast, Stay, Bracket fittings & cantilevers assembly complete with insulators in MGS division (200 nos.)	DRF	16961
17	ECR	Replacement of over aged OHE from PES/SP to SSG/SSP in MGS division (57 KM x 2 = 114 KM)	DRF	241673
18	ECR	Replacement of over aged OHE from SSG/SSP to CDMP/SP in MGS division (72 KM x 2 = 144 KM).	DRF	303110
19	ECR	Provision of 132 KV 3 Phase D/C Transmission Line from North Karanpura/GSS of DVC to Richughuta/TSS.	DF3	1120609

20	ECoR	Replacement of static/electro mechanical feeder protection and DC supervision relays with numerical relays in various traction substations in KK line and main line of Waltair Division	DRF	40352
21	ECoR	OHE modification involved in connection with replacement of critical and leaning traction masts in Waltair Division.	DRF	54929
22	ECoR	Replacement of anti creep steel wire with cadmium copper catenary wire in coastal areas of Waltair Division	DRF	18208
23	ECoR	Shifting of IOL/SI where clear distance of 120 Mtrs is not available between stop signals to the centre line of the IOL/SI in Waltair Division at 18 no locations.	DF3	25334
24	ECoR	Replacement of out dated SCADA system of Khurda Road(KUR) Division by latest SCADA system with Annual maintenance contract for 4 years as per latest RDSO specification.	DRF	75787
25	ECoR	Replacement of existing Aluminum cross feeder with 150 sq.mm copper cross feeder wire for switching stations at TSS, SP, SSP of Waltair Division.	DRF	28489
26	NCR	Mugalsarai -Ghaziabad: Replacement/Upgradation of existing 25 KV single pole isolators with High Capacity 25 KV single pole isolators	DRF	76455
27	NCR	Mugalsarai-Ghaziabad: Provision of Poly Tetra Fluro Ethelene (PTFE) neutral section at Feeding Post & Traction sub station	DF3	38726
28	NCR	Jhansi division- Upgradation of protection relays with numerical relay at Datia, Basai, Hetampur & Gwalior Traction sub stations of Jhansi Division.	DRF	17100
29	NCR	Adjustment of Presag of Main Line for the running of High speed train (Gatimaan Express) from Agra to Palwal section of Agra Division	DF3	30467
30	NCR	Mugal sarai -Ghaziabad: Replacement of 11 KV & 33 KV Over conductors by under ground cables	DF3	39577
31	NCR	Mugalsarai -Ghaziabad: Provision of New 220/132 KV GSS at Bhogaon, 220 & 132 KV Transmission Line and its associated work for obtaing direct Power supply from National Grid	CAP	1259386
32	NCR	Mugalsarai -Ghaziabad: Stengthening and Replacement/Upgradation of 132 KV double circuit Conductor Transmission line by Panther Conductors	DRF	297191
33	NCR	Mugalsarai - Ghaziabad: Provision of New 220/132 KV GRID SUB STATION at Fatehpur, -220 KV Transmission Line and its associated work for obtaing direct Power supply from NTPC	CAP	838800
34	NR	Provision of 2nd circuit of 132 KV 2 phase transmission line between Taraori and Shahabad Markanda including associated works of both ends to improve reliability of power supply.	DF3	26886
35	NR	Replacement of Catenary Wire of OHE over Delhi Division.	DRF	36428



36	NR	TRD work in c/w new modification of OHE due to remodeling of Amritsar Yard of Firozpur Division.	DF3	12608
37	SR	Chennai Division - Replacement existing contact wire on age cum condition basis - 40 km	DRF	37557
38	SR	Chennai Division-Up gradation of existing Control and relay panel with numerical type relay panel with all accessories at Traction substations - 7 Nos	DRF	43686
39	SR	Replacement of MCI fittings in cantiliver assembly in between TPT - KPPR sections in SA Divisions( cantilever assembly-250 nos , cantilever fitting-2000 nos, transfer of OHE-2250 nos)	DRF	42858.5
40	SR	TVC Division: Replacement of Static type Control & Relay panel with Microprocessor based Numerical Relay type control panel for reliabilty improvement at CKI and ERS Traction Sub Stations.	DRF	21739
41	SR	TVC Division - Provision for additional Protective screens to fill the gaps in FOBs/ROBs in electrified sections of TVC division.	DRF	13967
42	SR	Transmission line network on Chennai-Howrah route(Route length-1662 kms) of IR	EBR(IF)	15670000
43	SCR	BZA Division: OGL - BZA section - Replacement of Copper Cadmium Catenary wire 65 Sq.mm (19/2.10mm) along with in span droppers etc.	DRF	43000
44	SCR	SC Divn: Replacement of aluminium catenary wire with cadmium copper catenary wire (65sq.mm) for 94TKM.	DRF	60443
45	SCR	Provision of PTFE Neutral section at Traction sub-stations in SC Division	DF3	25833
46	SCR	BZA Division- Provision of PTFE Neutral Section at Feeding Post of Nidiguntapalem/TSS and updating of Lay Out Plans.	DF3	25798
47	SER	Renewal of OHE in suburban Section under Kharagpur Division of S. E. Railway (Phase-II)	DRF	160592
48	SER	Upgradation/Modification of Remote Control Centre(RCC) and Replacement of HART make Remote Terminal Units(RTU) over Kharagpur Division	DF3	35524
49	SER	Renewal of OHE in Kharagpur-Tatanagar Section under Kharagpur Division of S. E. Railway (Phase-V)	DRF	153956
50	SER	provision of replacement of over aged PSI assets switch gear of SP,SSP and railway owned traction sub station in CKP Division.	DRF	54019
51	SER	Adra Division : Provision of 132kV/25kV Railway owned Traction su	DF3	280017
52	SECR	Raipur Division: Replacement of Insulators (Stay arm, Bracket and 9 Tonne) over Raipur division of SECR.	DRF	29956
53	SECR	Bilaspur Division : Replacement of Insulators ( Stay arm, Bracket and 9 Tonne).	DRF	27496
54	SECR	Bilaspur Division - Improvement of reliability of OHE.	DRF	29940
55	SECR	Raipur Division: Improvement of reliability of OHE in Raipur divison of SECR.	DRF	28705
56	WR	Virar-Jalgaon section : Replacement of existing leaned OHE structures	DRF	19518

57	WR	Vadodara division : Replacement of Rusty Cantilever Assemblies	DRF	15088
58	WR	Churchgate-Virar Section – Replacement of droppers, re-spanning, re-tensioning & re-sagging of OHE for adjustment of gradient and OHE profile improvement.	DRF	34500
59	WR	Mumbai Central – Top wiring of yard for attachment of ‘HOG compliant Loco’ with HOG compliant rakes’ of Rajdhani and August Kranti Rajdhani Express Trains	DF3	18040
60	WR	Churchgate-Borivali Section -Replacement of 22KV Circuit Breaker at different locations on age cum condition basis .	DRF	22524
61	WR	Churchgate-Virar Section - Replacement of corroded OHE structures	DRF	36074
62	WR	Borivali-Bhayandar section - Replacement of 65 Sq.mm catenary wire of UPTH & DNTH line by 125 Sq.mm catenary wire	DRF	49860
63	WCR	Kota Division-Provision of ABT meters with telemetry (including CT&PT) in 06 nos. GSS/TSS in Rajasthan state.	CAP	59262
64	WCR	Bhopal Division :Replacement of existing porcelain ST & BT insulator (BHEL make 86 and 87 batch)	DRF	14957
65	WCR	JBP division- Provision of telemetry data system for 40 TSS in M.P. State to avail open access supply.	CAP	55432
66	WCR	JBP division-Provision of ABT meters with CT/PT of 0.2S class in 36	CAP	220586
		<b>Total</b>		34835624

# **Electrical Development**

## **Electrical Development**

### **1.0 RDSO (12000 hp Prototype Locomotive against Madhepura project)**

- Review of Design & Drawings
- Trial & Testing

### **2.0 EC.Rly (Madhepura Factory & Township)**

- 132/33 kV S/S
- 132/25 kV S/S
- Rail Connectivity
- 19 acres land

### **3.0 N.Rly (Saharanpur Company Depot-ELF/ Madhepura project)**

- Shifting of 132 kV Transmission Line (Deposit to UP Electricity Board)
- Road & Rail Connectivity
- Shifting of S&T cable

### **4.0 C.Rly (Nagpur Govt. Depot-ELF/ Madhepura project)**

- Rail Connectivity with Electrification

### **5.0 CLW/Dankuni**

- Sparing of willing staff for posting in ELAAU/Dankuni
- Supply of material from CLW to ELAAU
- Posting of Stores Officer
- Sanction of Gazetted Posts

### **6.0 CORE**

- Electrification of Mansi-DMH section