

# INDIAN RAILWAY ELECTRIFICATION DETAILED ANALYSIS

## (1950-1997)

Year	Total Route (Kms.) - Electrified	Total Route (Kms.) - Total	Percentage Route (%) Electrified	Running Track (Kms.) - Electrified	Running Track (Kms.) - Total	Percentage Track (%) Electrified	Total Track* (Kms.) - Electrified	Total Track* (Kms.) -	PercentageT otal Track* (%) Electrified
1950-51	388	53596	0.724	937	59315	1.58	1253	77609	1.615
1960-61	748	56247	1.33	1752	63602	2.755	2258	83706	2.698
1970-71	3706	59790	6.198	7447	71669	10.391	9586	98546	9.727
1980-81	5345	61240	8.728	10474	75860	13.807	13448	104480	12.871
1990-91	9968	62367	15.983	18954	78607	24.112	25305	108858	23.246
1991-92	10653	62458	17.056	20049	78969	25.388	26585	109338	24.315
1992-93	11064	62486	17.706	20819	79200	26.287	27423	109149	25.124
1993-94	11260	62462	18.027	21223	79188	26.801	27898	108920	25.613
1994-95	11772	62660	18.787	21866	79495	27.506	28648	108513	26.401
1995-96	12306	62915	19.56	22684	80441	28.2	29425	108336	27.161
1996-97	13018	62725	20.754	24101	80754	29.845	31583	107360	29.418

MAX	13018	62915	24101	80754	31583	109338
MIN	388	53596	937	59315	1253	77609
AVERAGE	8202.545	60813.3	15482.36	75190.909	20310.182	102255.909

### Total Route (Kms.) -

Counter	100
Iterations	100
Average	8202.545
Probabilty Above	1.79
probabilty Below	3.21

### Total Route (Kms.)

Counter	100
Iterations	100
Average	75190.909
Probabilty Above	0.28
probabilty Below	0.72

### Running Track(Kms.) - Electrified

Counter	100
Iterations	100
Average	15482.364
Probabilty Above	0.35
probabilty Below	0.65

### Total Track (Kms.) - Electrified

Counter	100
Iterations	100
Average	20310.182
Probabilty Above	0.45
probabilty Below	0.55

Iteration no.	Random_Res
1	4867.416207

Iteration no.	Random_Res
1	77616.89197

Iteration no.	Random_Res
1	21292.46859

Iteration no.	Random_Res
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481 3574.794352  
482 9951.094692  
483 7171.323316  
484 5127.129798  
485 11211.9828  
486 3370.250825  
487 4671.436074  
488 6443.738537  
489 3072.406824  
490 9627.467558  
491 7300.693355  
492 4315.541726  
493 6403.632988  
494 8247.032916  
495 8070.964976  
496 4932.644664  
497 9528.315939  
498 11106.14798  
499 6658.145399  
500 11925.00827

## Triangular Distribution Random Number Generator

*Lower Range=Mode-Min*

*Higher Range=Max-Mode*

*Total Range=Max-Min*

*Cumulate\_Prob=***RAND()**

*if cumulate\_Prob < (Lower Range/Total Range) then*

*Random\_Res=Min+sqrt(cumulate\_Prob\*Lower Range\*Total Range*

*else*

*Random\_Res=Max-sqrt((1-cumulate\_Prob)\*Higher Range\*Total Range*

### Total Route (Kms.) - Electrified

MIN		MAX	AVG		
388		13018	8202.545		
Lower Range	Higher Range	Total Range	Cumulate_Prob	Random_Res	
7814.545	4815.455	12630	0.015468686	1623.606631	

### Total Route (Kms.)

MIN		MAX	AVG		
53596		62915	60813.273		
Lower Range	Higher Range	Total Range	Cumulate_Prob	Random_Res	
7217.273	2101.727	62915	0.15854187	52366.72344	

### Running Track(Kms.) - Electrified

MIN		MAX	AVG		
937		24101	15482.364		
Lower Range	Higher Range	Total Range	Cumulate_Prob	Random_Res	
14545.364	8618.636	23164	0.017325168	3353.060483	

### Running Track(Kms.) Total

MIN		MAX	AVG		
59315		80754	75190.909		
Lower Range	Higher Range	Total Range	Cumulate_Prob	Random_Res	
15875.909	5563.091	21439	0.787409282	75718.61719	

### Total Track (Kms.) - Electrified

MIN		MAX	AVG		
1253		31583	20310.182		
Lower Range	Higher Range	Total Range	Cumulate_Prob	Random_Res	
19057.182	11272.818	30330	0.481990748	17944.0976	

### Total Track (Kms.)

MIN		MAX	AVG		
77609		109338	102255.909		
Lower Range	Higher Range	Total Range	Cumulate_Prob	Random_Res	
24646.909	7082.091	31729	0.257618903	91802.7871	



