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APPENDIX-A

DATA FOR IEEE 33-BUS RADIAL DISTRIBUTION SYSTEM

The details of IEEE 33-bus radial distribution system are taken from [95]. Line and load data of the system are shown in Table A.1. The single line diagram of the system is shown in Fig. A.1.

Table A.1 Line and load data for IEEE 33-bus radial distribution system.

From Bus	To Bus	Resistance, R (Ω)	Reactance, X (Ω)	Load at To bus	
				P(kW)	Q(kW)
1	2	0.0922	0.0470	100	60
2	3	0.4930	0.2511	90	40
3	4	0.3660	0.1864	120	80
4	5	0.3811	0.1941	60	30
5	6	0.8190	0.7070	60	20
6	7	0.1872	0.6188	200	100
7	8	1.7114	1.2351	200	100
8	9	1.0300	0.7400	60	20
9	10	1.0440	0.7400	60	20
10	11	0.1966	0.0650	45	30
11	12	0.3744	0.1238	60	35
12	13	1.4680	1.1550	60	35
13	14	0.5416	0.7129	120	80
14	15	0.5910	0.5260	60	10
15	16	0.7463	0.5450	60	20
16	17	1.2890	1.7210	60	20
17	18	0.7320	0.5740	90	40
2	19	0.1640	0.1565	90	40
19	20	1.5042	1.3554	90	40
20	21	0.4095	0.4784	90	40
21	22	0.7089	0.9373	90	40

3	23	0.4512	0.3083	90	50
23	24	0.8980	0.7091	420	200
24	25	0.8960	0.7011	420	200
5	26	0.2030	0.1034	60	25
26	27	0.2842	0.1447	60	25
27	28	1.0590	0.9337	60	20
28	29	0.8042	0.7006	120	70
29	30	0.5075	0.2585	200	600
30	31	0.9744	0.9630	150	70
31	32	0.3105	0.3619	210	100
32	33	0.3410	0.5302	60	40

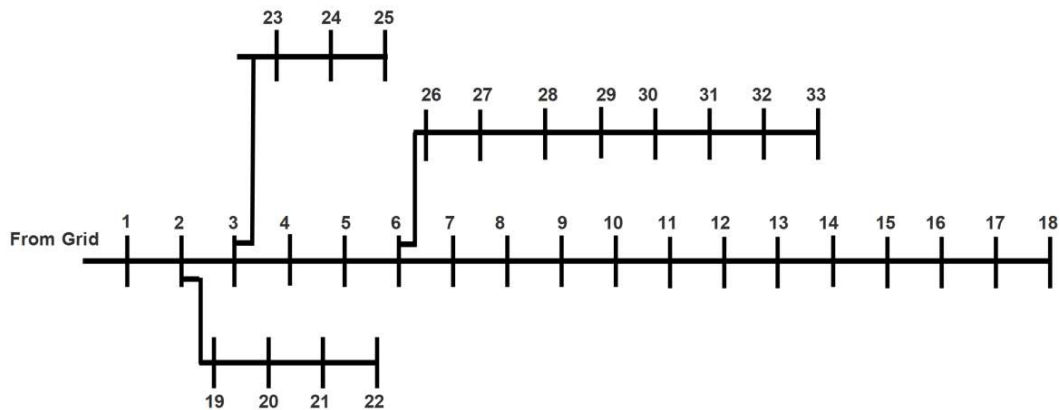


Fig. A.1 Single-line diagram of the IEEE 33-bus radial distribution system.

APPENDIX-B

DATA FOR IEEE 34-NODE TEST FEEDER

The details of IEEE 34-node test feeder are taken from [95]. Line segment data of the system are shown in Table B.1, overhead line configurations are shown in Table B.2, distributed load data and spot load data are shown in Table B.3 and Table B.4, respectively. The single line diagram of the system is shown in Fig. B.1.

Table B.1 Line segment data for IEEE 34-node test feeder.

Node A	Node B	Length(ft.)	Config.
800	802	2580	300
802	806	1730	300
806	808	32230	300
808	810	5804	303
808	812	37500	300
812	814	29730	300
814	850	10	301
816	818	1710	302
816	824	10210	301
818	820	48150	302
820	822	13740	302
824	826	3030	303
824	828	840	301
828	830	20440	301
830	854	520	301

832	858	4900	301
832	888	0	XFM-1
834	860	2020	301
834	842	280	301
836	840	860	301
836	862	280	301
842	844	1350	301
844	846	3640	301
846	848	530	301
850	816	310	301
852	832	10	301
854	856	23330	303
854	852	36830	301
858	864	1620	302
858	834	5830	301
860	836	2680	301
862	838	4860	304
888	890	10560	300

Table B.2 Overhead line configurations (Config.) of IEEE 34-node test feeder.

Config.	Phasing	Phase ACSR	Neutral ACSR	Spacing ID
300	B A C N	1/0	1/0	500
301	B A C N	#2 6/1	#2 6/1	500
302	A N	#4 6/1	#4 6/1	510
303	B N	#4 6/1	#4 6/1	510

304	B N	#2 6/1	#2 6/1	510
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Table B.3 Distributed load data of IEEE 34-node test feeder.

Node A	Node B	Load Model	Ph-1 kW	Ph-1 kVAr	Ph-2 kW	Ph-2 kVAr	Ph-3 kW	Ph-3 kVAr
802	806	Y-PQ	0	0	30	15	25	14
808	810	Y-I	0	0	16	8	0	0
818	820	Y-Z	34	17	0	0	0	0
820	822	Y-PQ	135	70	0	0	0	0
816	824	D-I	0	0	5	2	0	0
824	826	Y-I	0	0	40	20	0	0
824	828	Y-PQ	0	0	0	0	4	2
828	830	Y-PQ	7	3	0	0	0	0
854	856	Y-PQ	0	0	4	2	0	0
832	858	D-Z	7	3	2	1	6	3
858	864	Y-PQ	2	1	0	0	0	0
858	834	D-PQ	4	2	15	8	13	7
834	860	D-Z	16	8	20	10	110	55
860	836	D-PQ	30	15	10	6	42	22
836	840	D-I	18	9	22	11	0	0
862	838	Y-PQ	0	0	28	14	0	0
842	844	Y-PQ	9	5	0	0	0	0
844	846	Y-PQ	0	0	25	12	20	11
846	848	Y-PQ	0	0	23	11	0	0
Total			262	133	240	120	220	114

Table B.4 Spot load data of IEEE 34-node test feeder.

Node	Load Model	Ph-1 kW	Ph-1 kVAr	Ph-2 kW	Ph-2 kVAr	Ph-3 kW	Ph-4 kVAr
860	Y-PQ	20	16	20	16	20	16
840	Y-I	9	7	9	7	9	7
844	Y-Z	135	105	135	105	135	105
848	D-PQ	20	16	20	16	20	16
890	D-I	150	75	150	75	150	75
830	D-Z	10	5	10	5	25	10
Total		344	224	344	224	359	229

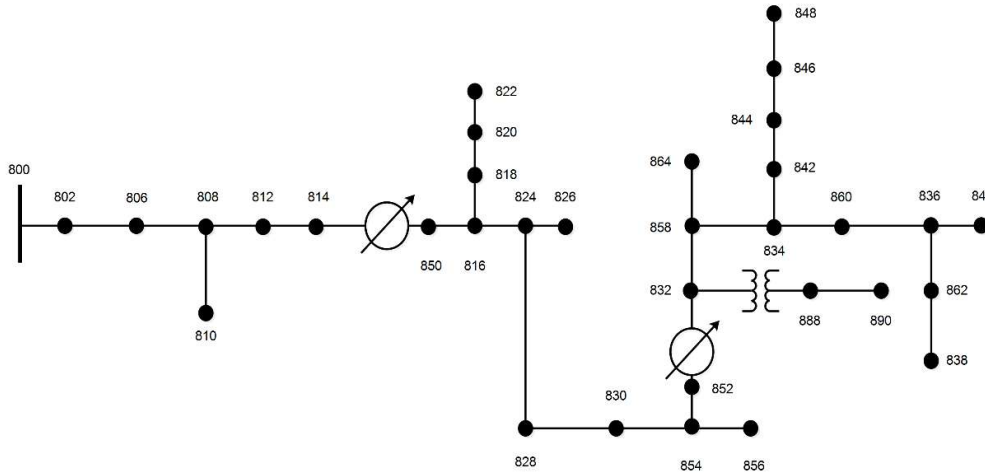


Fig. B.1 Single-line diagram of the IEEE 34-node test feeder.

LIST OF PUBLICATIONS

PUBLICATION IN REFEREED AND PEER-REVIEWED JOURNALS

S. No.	Publication	Impact Factor
1.	Shailendra Singh and M.K. Verma, "Smart Charging Schedule of PEVs for Voltage Support: A Prosumer-Centric Approach". <i>Sustainable Energy, Grids and Networks</i> , Elsevier, Vol. 33, pp. 100972, 2023.	5.405
2.	Shailendra Singh , Akhilesh K. Barnwal and M.K. Verma, "Optimal Charging of Electric Vehicles for Cost Minimization in Re-Configurable Active Distribution Network Considering Conservation Voltage Reduction". <i>Energy Sources, Part A: Recovery, Utilization, and Environmental Effects</i> , Taylor & Francis, Vol. 44, No. 4, pp.10135-10155, 2022.	2.902
3.	Shailendra Singh and M.K. Verma, "Aggregated Effect of Electric Vehicles on Frequency Regulation Using SOC Based V2G Controller", <i>International Journal of Electrical Engineering and Technology</i> , Vol. 12, No. 8, pp. 9-25, 2021.	
4.	Shailendra Singh and M.K. Verma, "Frequency Regulation of Grids with Deeper Renewable Energy Sources Penetration: A Comprehensive Review", <i>Electric Power Components and Systems</i> (Under Review)	
5.	Shailendra Singh , M.K. Verma and S.P. Singh, "An Improved Hybrid Islanding Detection Method Using FROCOF and Modified SFS in EV Charging Station type DG", <i>IEEE Transactions on Smart Grid</i> (Under Preparation)	