

# IEEE 69 BUS TEST SYSTEM DATA

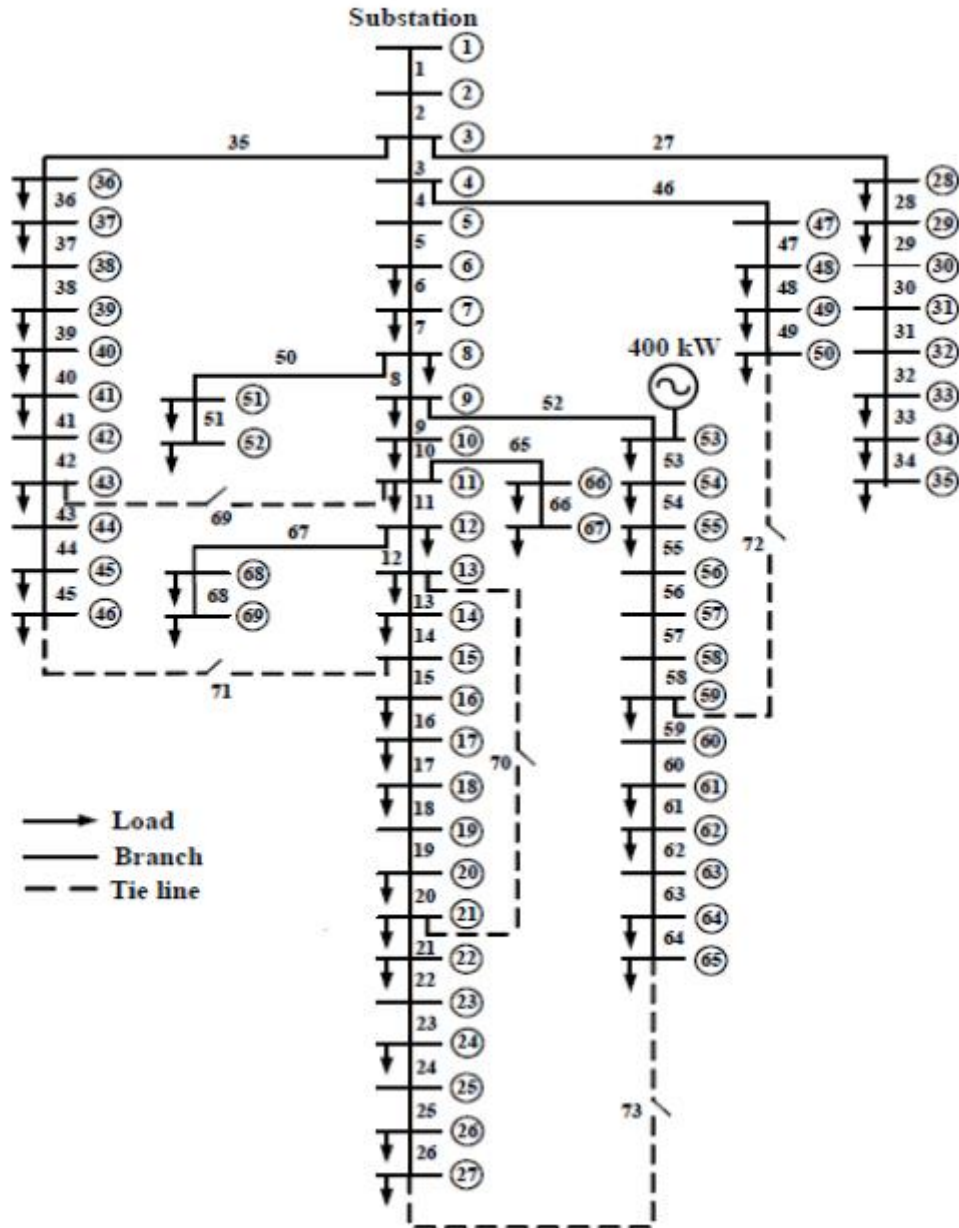


Fig.24. Single line data of 69 bus test system.

**Table A: System data for 69-bus radial distribution network (\*\* denotes a tie-line)**

Branch Number	Sending Bus	Receiving Bus	Resistance $\Omega$	Reactance $\Omega$	Nominal Load at Receiving Bus		Maximum Line Capacity (kVA)
					P (kW)	Q (kVAr)	
1	1	2	0.0005	0.0012	0.0	0.0	10761
2	2	3	0.0005	0.0012	0.0	0.0	10761
3	3	4	0.0015	0.0036	0.0	0.0	10761
4	4	5	0.0251	0.0294	0.0	0.0	5823
5	5	6	0.3660	0.1864	2.60	2.20	1899
6	6	7	0.3811	0.1941	40.40	30.00	1899
7	7	8	0.0922	0.0470	75.00	54.00	1899
8	8	9	0.0493	0.0251	30.00	22.00	1899
9	9	10	0.8190	0.2707	28.00	19.00	1455
10	10	11	0.1872	0.0619	145.00	104.00	1455
11	11	12	0.7114	0.2351	145.00	104.00	1455
12	12	13	1.0300	0.3400	8.00	5.00	1455
13	13	14	1.0440	0.3450	8.00	5.50	1455
14	14	15	1.0580	0.3496	0.0	0.0	1455
15	15	16	0.1966	0.0650	45.50	30.00	1455
16	16	17	0.3744	0.1238	60.00	35.00	1455
17	17	18	0.0047	0.0016	60.00	35.00	2200
18	18	19	0.3276	0.1083	0.0	0.0	1455
19	19	20	0.2106	0.0690	1.00	0.60	1455
20	20	21	0.3416	0.1129	114.00	81.00	1455
21	21	22	0.0140	0.0046	5.00	3.50	1455
22	22	23	0.1591	0.0526	0.0	0.0	1455
23	23	24	0.3463	0.1145	28.00	20.0	1455
24	24	25	0.7488	0.2475	0.0	0.0	1455

25	25	26	0.3089	0.1021	14.0	10.0	1455
26	26	27	0.1732	0.0572	14.0	10.0	1455
27	3	28	0.0044	0.0108	26.0	18.6	10761
28	28	29	0.0640	0.1565	26.0	18.6	10761
29	29	30	0.3978	0.1315	0.0	0.0	1455
30	30	31	0.0702	0.0232	0.0	0.0	1455
31	31	32	0.3510	0.1160	0.0	0.0	1455
32	32	33	0.8390	0.2816	14.0	10.0	2200
33	33	34	1.7080	0.5646	9.50	14.00	1455
34	34	35	1.4740	0.4873	6.00	4.00	1455
35	3	36	0.0044	0.0108	26.0	18.55	10761
36	36	37	0.0640	0.1565	26.0	18.55	10761
37	37	38	0.1053	0.1230	0.0	0.0	5823
38	38	39	0.0304	0.0355	24.0	17.00	5823
39	39	40	0.0018	0.0021	24.0	17.00	5823
40	40	41	0.7283	0.8509	1.20	1.0	5823
41	41	42	0.3100	0.3623	0.0	0.0	5823
42	42	43	0.0410	0.0478	6.0	4.30	5823
43	43	44	0.0092	0.0116	0.0	0.0	5823
44	44	45	0.1089	0.1373	39.22	26.30	5823
45	45	46	0.0009	0.0012	39.22	26.30	6709
46	4	47	0.0034	0.0084	0.00	0.0	10761
47	47	48	0.0851	0.2083	79.00	56.40	10761
48	48	49	0.2898	0.7091	384.70	274.50	10761
49	49	50	0.0822	0.2011	384.70	274.50	10761
50	8	51	0.0928	0.0473	40.50	28.30	1899
51	51	52	0.3319	0.1114	3.60	2.70	2200
52	52	53	0.1740	0.0886	4.35	3.50	1899
53	53	54	0.2030	0.1034	26.40	19.00	1899
54	54	55	0.2842	0.1447	24.00	17.20	1899

55	55	56	0.2813	0.1433	0.0	0.0	1899
56	56	57	1.5900	0.5337	0.0	0.0	2200
57	57	58	0.7837	0.2630	0.0	0.0	2200
58	58	59	0.3042	0.1006	100.0	72.0	1455
59	59	60	0.3861	0.1172	0.0	0.0	1455
60	60	61	0.5075	0.2585	1244.0	888.00	1899
61	61	62	0.0974	0.0496	32.0	23.00	1899
62	62	63	0.1450	0.0738	0.0	0.0	1899
63	63	64	0.7105	0.3619	227.0	162.00	1899
64	64	65	1.0410	0.5302	59.0	42.0	1899
65	11	66	0.2012	0.0611	18.0	13.0	1455
66	66	67	0.0047	0.0014	18.0	13.0	1455
67	12	68	0.7394	0.2444	28.0	20.0	1455
68	68	69	0.0047	0.0016	28.0	20.0	1455
69*	11	43	0.5000	0.5000			566
70*	13	21	0.5	0.5			566
71*	15	46	1.0	1.0			400
72*	50	59	2.0	2.0			283
73*	27	65	1.0	1.0			400