A Pool Strategy of Microgrid in Power Distribution Electricity Market – Data Set

Yiwei Wu, Student Member, *IEEE*, Masoud Barati, Member, *IEEE*, and Gino J.Lim Member, *IEEE*

I. Data of Numerical Examples for the 33-node system

Fig. 1 demonstrates the network of modified IEEE 33-node distribution system with three Microgrids and three distributed generators. The branch-feeder data are shown in Table I. The Table II shows the base load point data. The hourly load coefficients can be found in Table III. Table IV provides the distributed generators data in distribution system. Table V demonstrates the Microgrid information in distribution system. Table VI is data of distributed generators information for each Microgrid inside.

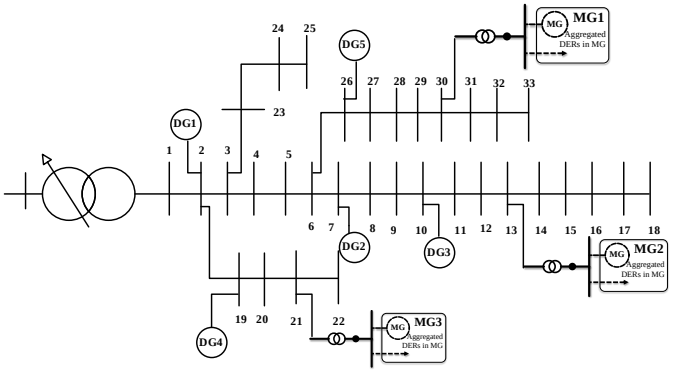

Figure. 1. Modified IEEE 33-node distribution system

TABLE I. Branch-Feeder Data

Line No.	From Node	To Node	r(ohm)	x(ohm)
1	1	2	0.0922	0.047
2	2	3	0.493	0.2511
3	3	4	0.366	0.1864
4	4	5	0.3811	0.1941
5	5	6	0.819	0.707
6	6	7	0.1872	0.6188
7	7	8	0.7114	0.2351
8	8	9	1.03	0.74
9	9	10	1.044	0.74
10	10	11	0.1966	0.066
11	11	12	0.3744	0.1238
12	12	13	1.468	1.155
13	13	14	0.5416	0.7129
14	14	15	0.591	0.526
15	15	16	0.7463	0.545
16	16	17	1.289	1.721
17	17	18	0.732	0.574
18	2	19	0.164	0.1565
19	19	20	1.5042	1.3554
20	20	21	0.4095	0.4784
Line No.	**From Node**	**To Node**	**r(ohm)**	**x(ohm)**
21	21	22	0.7089	0.9373
22	3	23	0.4512	0.3083
23	23	24	0.898	0.7091
24	24	25	0.896	0.7011
25	6	26	0.203	0.1034
26	26	27	0.2842	0.1447
27	27	28	1.059	0.9337
28	28	29	0.8042	0.7006
29	29	30	0.5075	0.2585
30	30	31	0.9744	0.963
31	31	32	0.3105	0.3619
32	32	33	0.341	0.5302

TABLE II. Base Load Data

Node No.	P (kw)	Q (kvar)
2	100	60
3	90	40
4	120	80
5	60	30
6	60	20
7	200	100
8	200	100
9	60	20
10	60	20
11	45	30
12	60	35
13	60	35
14	120	80
15	60	10
16	60	20
17	60	20
18	90	40
19	90	40
20	90	40
21	90	40
22	90	40
23	90	50
24	420	200
25	420	200
26	60	25
27	60	25
28	60	20
29	120	70
30	200	600
31	150	70
32	210	100
33	60	40

TABLE III. Hourly Load Coefficients

Time	Coefficient
1	0.5409
2	0.5291
3	0.5248
4	0.5595
5	0.5446
6	0.5458
7	0.6270
8	0.6772
9	0.6933
10	0.7299
11	0.7485
12	0.7515
13	0.8625
14	0.9461
15	0.9517
16	0.9721
17	0.9994
18	1.0000
19	0.9641
20	0.9610
21	0.8674
22	0.8073
23	0.6084
24	0.5855

TABLE IV. DISTRIBUTED GENERATOR DATA IN DS

DG No.	Location (Node No.)	Max Active Output (p.u.)	Max Reactive Output (p.u.)	Cost Coefficient ($/p.u.)
1	2	0.06	0.04	0.04
2	7	0.06	0.04	0.04
3	10	0.08	0.06	0.03
4	19	0.06	0.04	0.04
5	26	0.04	0.03	0.05

TABLE V. MICROGRID DATA AT PCCS

MG NO.	Location (Node No.)	Max/Min Active Power at PCC (p.u.)	Max/Min Reactive Power at PCC (p.u.)
1	30	±0.04	±0.05
2	13	±0.07	±0.05
3	21	±0.05	±0.05

TABLE VI. DISTRIBUTED GENERATOR DATA IN MGS

MG No.	DG No.	Max Active Output (p.u.)	Max Reactive Output (p.u.)	Cost Coefficient ($/p.u.)	Active Loads (p.u.)	Reactive Loads (p.u.)
1	1	0.06	0.04	0.04	0.12	0.072
	2	0.04	0.03	0.05		
	3	0.04	0.03	0.05		
2	1	0.04	0.03	0.05	0.09	0.06
	2	0.04	0.03	0.05		
	3	0.04	0.03	0.05		
3	1	0.06	0.04	0.03	0.072	0.048
	2	0.04	0.03	0.05		