Data of "Robust Operation of Distribution System with Uncertain Renewable Generation via Energy Sharing"

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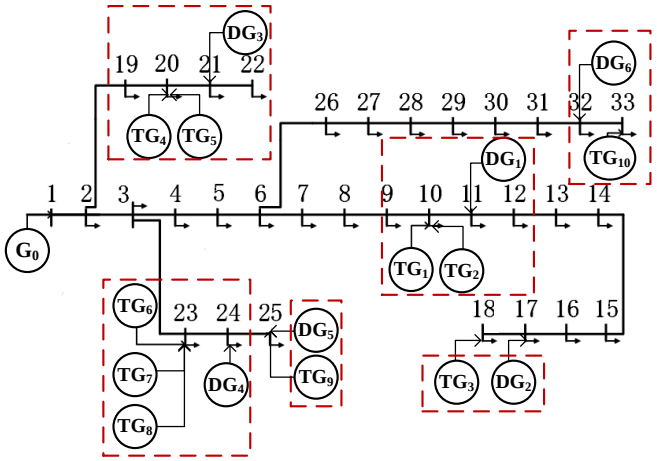

Figure 1: Topology of the test system.

Table 1: Parameters of Gas-fired Traditional Generator

Unit	$\overline{P}_i(MW)$	$\underline{P}_i(MW)$	$c_i(\$/MW^2)$	$d_i(\$/MW)$	$s_i(\$/MW)$	$l_i(10^3\$/MW^2)$
TG_1	35	10	1.69	195	164	0.73
TG_2	35	10	1.80	157	164	1.31
TG_3	20	0	1.98	184	164	0.78
TG_4	34	20	1.53	127	164	1.29
TG_5	14	10	2.29	162	164	1.39
TG_6	10	0	2.48	158	164	1.13
TG_7	20	5	1.65	196	164	0.80
TG_8	10	0	1.73	108	164	0.86
TG_9	60	10	2.20	150	194	0.65
TG_10	80	10	1.87	152	194	1.48

Table 2: Parameters of Distributed Generator

Unit	$\overline{W}_j(MW)$	$\underline{W}_i(MW)$	$w_j^0(MW)$
DG_1	2.9	1.1	2
DG_2	1.45	0.55	1
DG_3	2.175	0.825	1.5
DG_4	2.9	1.1	2
DG_5	4.35	1.65	3
DG_6	2.9	1.1	2

Table 3: Parameters of Lines

Branch	From Bus	To Bus	$r(p.u.)$	$x(p.u.)$
1	1	2	0.0058	0.0029
2	2	3	0.0308	0.0157
3	3	4	0.0228	0.0116
4	4	5	0.0238	0.0121
5	5	6	0.0511	0.0441
6	6	7	0.0117	0.0386
7	7	8	0.1068	0.0071
8	8	9	0.0643	0.0462
9	9	10	0.0651	0.0462
10	10	11	0.0123	0.0041
11	11	12	0.0234	0.0077
12	12	13	0.0916	0.0721
13	13	14	0.0338	0.0445
14	14	15	0.0369	0.0328
15	15	16	0.0466	0.0340
16	16	17	0.0804	0.1074
17	17	18	0.0457	0.0358
18	2	19	0.0102	0.0098
19	19	20	0.0939	0.0846
20	20	21	0.0255	0.0298
21	21	22	0.0442	0.0585
22	3	23	0.0282	0.0192
23	23	24	0.0560	0.0442
24	24	25	0.0559	0.0437
25	6	26	0.0127	0.0065
26	26	27	0.0177	0.0090
27	27	28	0.0661	0.0583
28	28	29	0.0502	0.0437
29	29	30	0.0317	0.0161
30	30	31	0.0608	0.0601
31	31	32	0.0192	0.0226
32	32	33	0.0213	0.0331

Table 4: Parameters of Power Demand

Node	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Active power demand (MW)	6	4	8	3	2	10	10	2	2	3	3.5	3.5	8	1	2	2
Reactive power demand (MVar)	10	9	12	6	6	20	20	6	6	4.5	6	6	12	6	6	6
Node	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
Active power demand (MW)	4	4	4	4	4	5	20	17	5.5	5.5	2	7	60	7	10	4
Reactive power demand (MVar)	9	9	9	9	9	9	42	42	6	6	6	12	20	15	21	6