

This file includes some data, which include parameters for IEEE 37-bus system and some descriptions for wind speed and photovoltaic generation, to support the findings of the manuscript 4790942. The details are as following:

(1) Parameters for IEEE 37-bus system are listed in table1

Table 1 system and load data for IEEE 37-bus system

Branch	Primary node	Secondary node	Resistance (p.u.)	Reactance (p.u.)	Branch Capacity (MVA)	Active power (p.u.)	Reactive Power (p.u.)
1	0	1	0.000574	0.000293	4.6	0.1	0.06
2	1	2	0.00307	0.001564	4.1	0.09	0.04
3	2	3	0.002279	0.001161	2.9	0.12	0.08
4	3	4	0.002373	0.001209	2.9	0.06	0.03
5	4	5	0.0051	0.004402	2.9	0.06	0.02
6	5	6	0.001166	0.003853	1.5	0.2	0.1
7	6	7	0.00443	0.001464	1.05	0.2	0.1
8	7	8	0.006413	0.004608	1.05	0.06	0.02
9	8	9	0.006501	0.004608	1.05	0.06	0.02
10	9	10	0.001224	0.000405	1.05	0.045	0.03
11	10	11	0.002331	0.000771	1.05	0.06	0.035
12	11	12	0.009141	0.007192	0.5	0.06	0.035
13	12	13	0.003372	0.004439	0.45	0.12	0.08
14	13	14	0.00368	0.003275	0.3	0.06	0.01
15	14	15	0.004647	0.003394	0.25	0.06	0.02
16	15	16	0.008026	0.010716	0.25	0.06	0.02
17	16	17	0.004558	0.003574	0.1	0.09	0.04
18	17	18	0.003113	0.003113	0.5	0	0
19	11	19	0.012453	0.012453	0.5	0	0
20	8	20	0.012453	0.012453	0.5	0	0
21	7	21	0.012453	0.012453	0.5	0	0
22	5	22	0.001264	0.000644	1.5	0.06	0.025
23	22	23	0.00177	0.000901	1.5	0.06	0.025
24	23	24	0.006594	0.005814	1.5	0.06	0.02
25	24	25	0.005007	0.004362	1.5	0.12	0.07
26	25	26	0.00316	0.00161	1.5	0.2	0.6
27	26	27	0.006067	0.005996	0.5	0.15	0.07
28	27	28	0.001933	0.002253	0.5	0.21	0.1
29	28	29	0.002123	0.003301	0.1	0.06	0.04
30	2	30	0.002809	0.00192	1.05	0.09	0.05
31	30	31	0.005592	0.004415	1.05	0.42	0.2
32	31	32	0.005579	0.004366	0.5	0.42	0.2
33	32	33	0.003113	0.003113	0.1	0	0
34	1	34	0.001021	0.000974	0.5	0.09	0.04
35	34	35	0.009366	0.00844	0.5	0.09	0.04
36	35	36	0.00255	0.002979	0.21	0.09	0.04
37	36	37	0.004414	0.005836	0.11	0.09	0.04

(2)Data for wind speed

8760 wind Data, which is shown in Fig.1, is used in this manuscript. As requested by the supplier, partial data are listed in table 2.

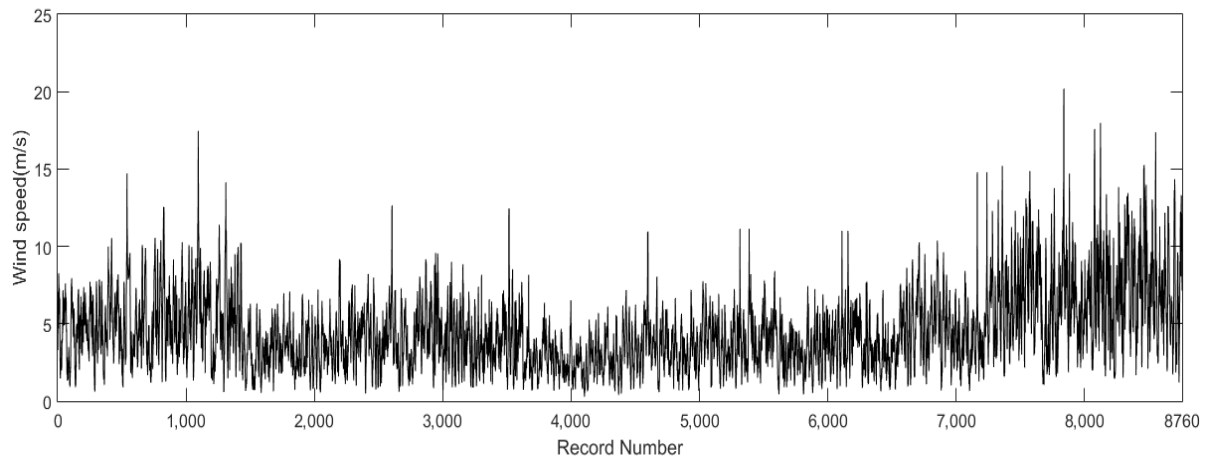


Figure 1 Wind Speed

Table 2 Some data corresponding to figure 1

ID for device	ID for Wind	ID for Wind	Record Time	Wind speed
104	4	1	2011-4-6 7:00	0
104	4	1	2011-4-6 7:00	11
104	4	1	2011-4-6 7:00	12
104	4	1	2011-4-6 7:00	10.6
104	4	1	2011-4-6 7:00	11
104	4	1	2011-4-6 7:00	12
104	4	1	2011-4-6 7:00	13.2
104	4	1	2011-4-6 7:00	13.3
104	4	1	2011-4-6 7:00	13.2
104	4	1	2011-4-6 7:00	12.4
104	4	1	2011-4-6 7:00	11.6
104	4	1	2011-4-6 7:00	12.8
104	4	1	2011-4-6 7:00	13.8
104	4	1	2011-4-6 7:00	12.7
104	4	1	2011-4-6 7:00	13.1
104	4	1	2011-4-6 7:00	12.4
104	4	1	2011-4-6 7:00	13.3
104	4	1	2011-4-6 7:00	11.8
104	4	1	2011-4-6 7:00	12.9
104	4	1	2011-4-6 7:00	11.5
104	4	1	2011-4-6 7:00	12.2
104	4	1	2011-4-6 7:00	12.8
104	4	1	2011-4-6 7:00	12.8
104	4	1	2011-4-6 7:00	12.8
104	4	1	2011-4-6 7:00	13
104	4	1	2011-4-6 7:00	12.2
104	4	1	2011-4-6 7:00	12.8
104	4	1	2011-4-6 7:00	14.2
104	4	1	2011-4-6 7:00	13.6
104	4	1	2011-4-6 7:00	12.7
104	4	1	2011-4-6 7:00	13.7
104	4	1	2011-4-6 7:00	12.9
104	4	1	2011-4-6 7:00	13.2
104	4	1	2011-4-6 7:00	13.4
104	4	1	2011-4-6 7:00	13.7
104	4	1	2011-4-6 7:00	12.5
104	4	1	2011-4-6 7:00	13.3
104	4	1	2011-4-6 7:00	14
104	4	1	2011-4-6 7:00	13.9

104	4	1	2011-4-6 7:00	13.8
104	4	1	2011-4-6 7:00	12.8
104	4	1	2011-4-6 7:00	12.4
104	4	1	2011-4-6 7:00	11.7
104	4	1	2011-4-6 7:00	13.2
104	4	1	2011-4-6 7:00	12.6
104	4	1	2011-4-6 7:00	12
104	4	1	2011-4-6 7:00	13.6
104	4	1	2011-4-6 7:00	13.7
104	4	1	2011-4-6 7:00	14.3
104	4	1	2011-4-6 7:00	13.6
104	4	1	2011-4-6 7:00	12.7
104	4	1	2011-4-6 7:00	12
104	4	1	2011-4-6 7:00	12.7
104	4	1	2011-4-6 7:00	11.8
104	4	1	2011-4-6 7:00	10.7
104	4	1	2011-4-6 7:00	11.4
104	4	1	2011-4-6 7:00	10.9
104	4	1	2011-4-6 7:00	13.9
104	4	1	2011-4-6 7:00	14.1

(2)Data for photovoltaic generation

Data for photovoltaic generation is 70080, which are shown in figure 2. For the sake of security and the requirements of supplier, some data are listed in table 3.

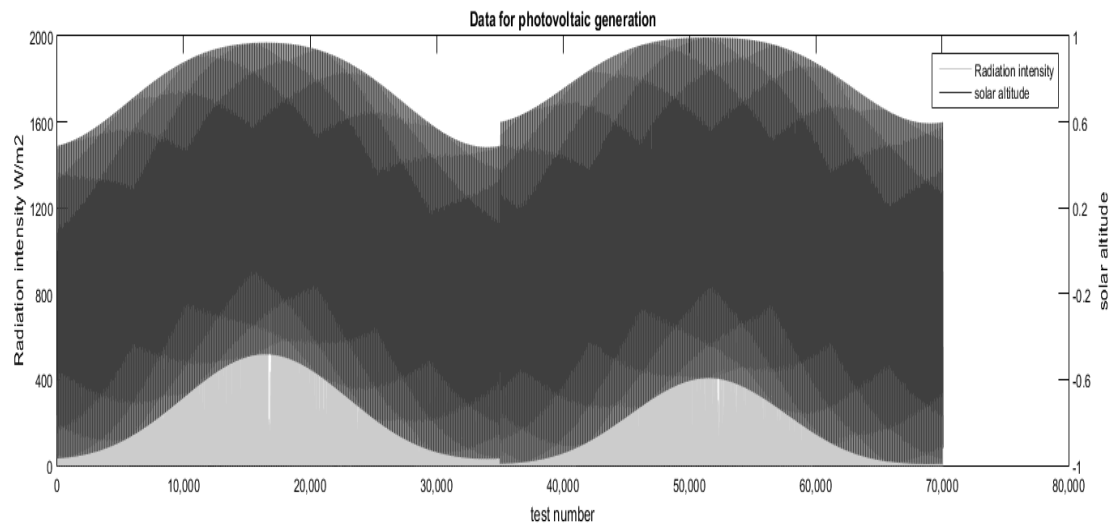


Figure 2 Data for photovoltaic generation

Table 3 Some data corresponding to figure 2

Record Time	Radiation intensity	Solar altitude
2015-1-1 0:00	0	-0.76712
2015-1-1 0:15	0	-0.78799
2015-1-1 0:30	0	-0.82671
2015-1-1 0:45	0	-0.8445
2015-1-1 1:00	0	-0.87675
2015-1-1 1:15	0	-0.89116
2015-1-1 1:30	0	-0.91643
2015-1-1 1:45	0	-0.9368
2015-1-1 2:00	0	-0.9451
2015-1-1 2:15	0	-0.95785
2015-1-1 2:30	0	-0.96229

2015-1-1 2:45	0	-0.96723
2015-1-1 3:00	0	-0.96773
2015-1-1 3:15	0	-0.96477
2015-1-1 3:30	0	-0.96132
2015-1-1 3:45	0	-0.95052
2015-1-1 4:00	0	-0.94318
2015-1-1 4:15	0	-0.9247
2015-1-1 4:30	0	-0.91359
2015-1-1 4:45	0	-0.88773
2015-1-1 5:00	0	-0.85718
2015-1-1 5:15	0	-0.84022
2015-1-1 5:30	0	-0.80306
2015-1-1 5:45	0	-0.78293
2015-1-1 6:00	0	-0.73977
2015-1-1 6:15	0	-0.71681
2015-1-1 6:30	0	-0.66833
2015-1-1 6:45	0	-0.64291
2015-1-1 7:00	0	-0.58992
2015-1-1 7:15	0	-0.56245
2015-1-1 7:30	0	-0.5058
2015-1-1 7:45	0	-0.47672
2015-1-1 8:00	0	0
2015-1-1 8:15	0	-0.37076
2015-1-1 8:30	0	-0.30939
2015-1-1 8:45	0	-0.27848
2015-1-1 9:00	0	-0.21651
2015-1-1 9:15	0	-0.18556
2015-1-1 9:30	0	-0.124
2015-1-1 9:45	0	-0.09351
2015-1-1 10:00	0	-0.03336
2015-1-1 10:15	0	-0.00382
2015-1-1 10:30	17.54213	0.053945
2015-1-1 10:45	43.03933	0.082057
2015-1-1 11:00	103.2481	0.13649
2015-1-1 11:15	134.7203	0.162714
2015-1-1 11:30	197.3536	0.212936
2015-1-1 11:45	257.4411	0.259892
2015-1-1 12:00	286.1375	0.282038
2015-1-1 12:15	340.3367	0.323466
2015-1-1 12:30	365.551	0.342674
2015-1-1 12:45	411.8388	0.377901
2015-1-1 13:00	432.4491	0.393858
2015-1-1 13:15	469.2916	0.422312
2015-1-1 13:30	485.5962	0.434758
2015-1-1 13:45	513.4106	0.455976
2015-1-1 14:00	524.9474	0.464709
2015-1-1 14:15	542.8517	0.478346
2015-1-1 14:30	549.1827	0.483224
2015-1-1 14:45	556.6115	0.489058
2015-1-1 15:00	556.9868	0.489629
2015-1-1 15:15	554.6097	0.487939
2015-1-1 15:30	544.2856	0.480621
2015-1-1 15:45	536.3615	0.475006
