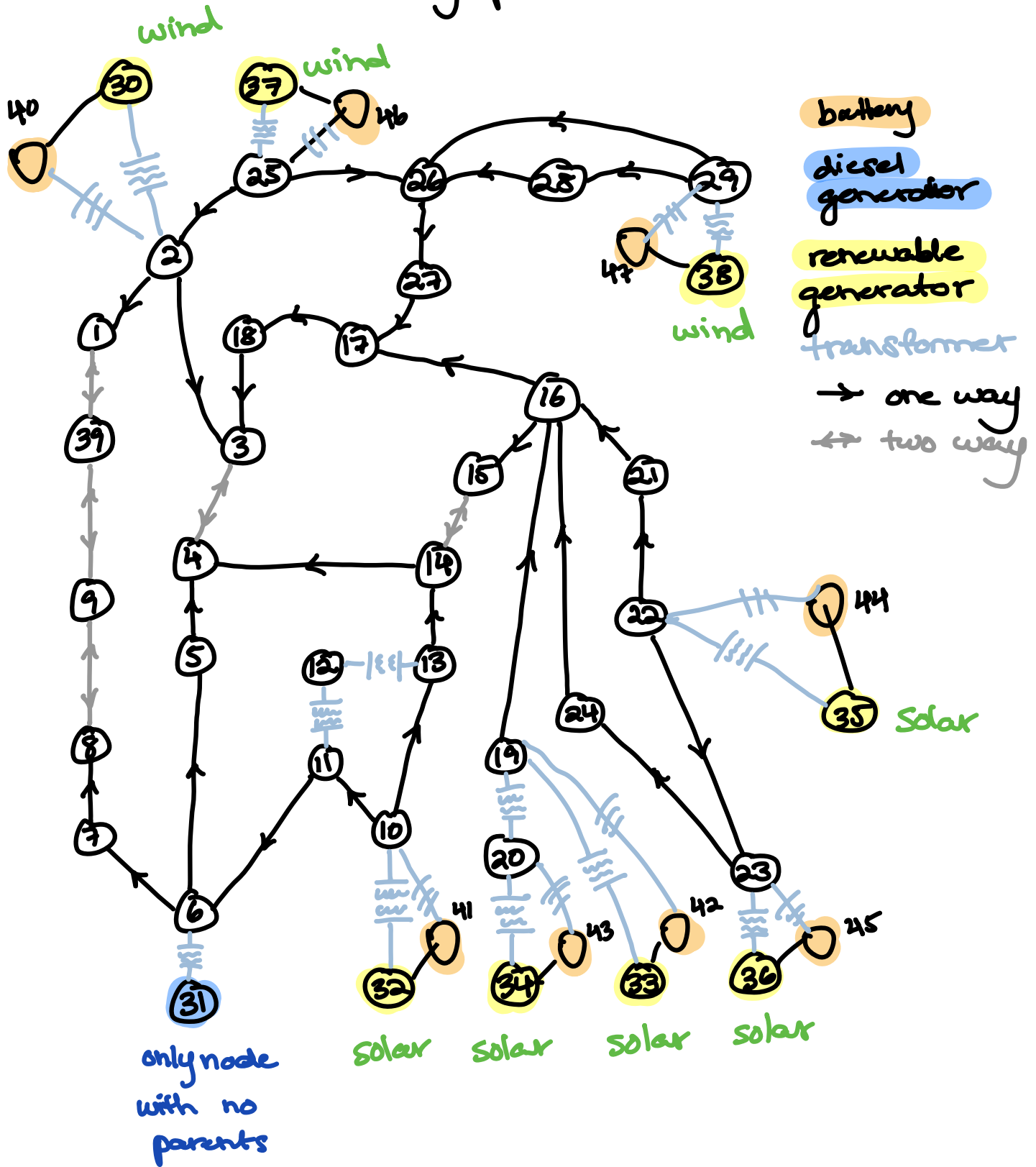


## IEEE 39-bus Test System

Only allows 1-way power flow.

We will allow 2-way power flow.



Node	Children	Parents	Generator ?
1	2, 39	2, 39	no
2	3	25, 30	no
3	4, 18	2	no
4	3	5, 14	no
5	4, 8	6	no
6	5, 7	11, 31	no
7	8	6	no
8	9	5, 7	no
9	8, 39	8, 39	no
10	11, 13	32	no
11	12, 31	10, 12	no
12	11, 13	11, 13	no
13	12, 14	10	no
14	4, 15	13	no
15	14	16	no
16	15, 17, 24	19, 21	no
17	18, 27	16	no
18	3	17	no
19	16, 20	23	no
20	19, 34	19, 34	no
21	16	22	no
22	21, 23	35	no

Node	Children	Parents	Generator ?
23	24	22, 36	no
24	16	23	no
25	2, 26	37	no
26	27	25, 28, 29	no
27	17	26	no
28	26	29	no
29	28, 26	38	no
30	—	2	yes
31	—	6	yes
32	—	10	yes
33	—	19	yes
34	—	20	yes
35	—	22	yes
36	—	23	yes
37	—	25	yes
38	—	29	yes
39	—	1, 9	yes

# Radial 39-bus test system

diesel nodes

solar nodes

wind nodes

battery nodes

$r/x$  p.u.

—	0.003 / 0.025
—	0.007 / 0.0625
—	0.006 / 0.060
—	0.005 / 0.050
—	0.004 / 0.042
—	0.002 / 0.038
—	0.0001 / 0.01

