Parameters of gas transmission network

Gas well	Node	Capacity(kcf/h)
1	4	1200
2	6	1000

No	Node	Load(kcf)
1	1	75.89
2	3	40.01

Pipeline	From node	To node	Gasflow constant	Maximum capacity(kcf)
1	2	1	10.12	300
2	4	2	10.02	300
3	5	2	7.5	100
4	5	3	8.7	300
5	6	5	9.06	300

Node	Gas pressure	
	min	max
1	26.25	30
2	29	33.75
3	28.25	34
4	31.75	36.75
5	31	35.75
6	35	39.75

Parameters of electric transmission network

Generator	Node	Capacity(MW)
1	1	40
2	2	40
3	6	40
4	5	40

Line	From node	To node	Maximum capacity(MW)
1	1	2	10
2	1	4	20
3	2	3	20

4	2	4	10
5	3	6	20
6	4	5	20
7	5	6	20

No	Node	Load(MW)
1	3	20.82
2	4	19.81
3	5	16.77

Parameters of gas distribution network 1

No	Node	Load(kcf)
1	1	3.62
2	2	3.71
3	3	4.1
4	4	1.81
5	6	2.93
6	7	5.2
7	8	3.62
8	10	4.22
9	11	2.72
10	12	2.42
11	13	3.28
12	14	2.2
13	15	2.5
14	16	5.58
15	17	3.15
16	19	2.46
17	20	2.74

Pipeline	From node	To node	Gasflow constant	Maximum capacity(kcf)
1	1	2	5.74	50
2	2	3	3.83	50
3	3	4	1.81	50
4	4	5	1.09	50
5	5	6	1.78	50
6	6	7	1.3	50
7	8	9	6.56	50
8	9	10	2.35	50

9	10	11	2.35	50
10	11	12	2.12	50
11	12	13	2.77	50
12	13	14	5.4	50
13	14	15	2.7	50
14	15	16	1.88	50
15	11	17	1.86	50
16	18	19	1.68	50
17	19	20	1.56	50

Compressor	From node	To node	Fuel factor
1	9	5	0.03
2	17	18	0.03

Node	Gas pressure	
	min	max
1	15	30
2	15	30
3	10	25
4	10	25
5	10	20
6	10	20
7	10	20
8	15	30
9	15	30
10	15	25
11	10	20
12	10	15
13	10	15
14	10	15
15	10	15
16	10	15
17	10	20
18	10	20
19	10	20
20	10	20

Parameters of electric distribution network 1

Line	From	To	r(ohms)	x(ohms)
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	1.7114	1.2351
8	8	9	1.03	0.74
9	9	10	1.044	0.74
10	10	11	0.1966	0.065
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
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	25	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

Base_voltage = 12.66kV

MVA_base = 1MW

EH	Power bus	Gas node	Real power exchange (MW)		Gas exchange (kcf/h)	
			max	min	max	min
1	13	7	2	-0.9	2	0
2	17	9	2	-1.1	3	0
3	30	20	2	-0.95	3	0

Substation	bus	Real power (MW)	
		max	Min
1	1	12.5	0

Parameters of EHs in electric distribution network 1

Device		CHP	EB
EH1	Min (MW)	0	0
	Max (MW)	1.2	1
	Efficiency	0.29(E)	0.75
		0.38(H)	
EH2	Min (MW)	0	0
	Max (MW)	1.5	1
	Efficiency	0.32(E)	0.75
		0.41(H)	
EH3	Min (MW)	0	0
	Max (MW)	2	1
	Efficiency	0.35(E)	0.75
		0.44(H)	