

APPENDIX A: DETAILED SOLUTIONS OF THE SCENARIOS AND THE CASE RUNS

Table A. 1. The optimal schedule of the reference case for the base scenario in terms of unit commitment and power generation.

UC (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1									1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2																								
3																								
4																								
5										1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7	1	1	1						1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
11	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
12	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
13	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
14	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
15	1					1			1	1	1	1	1	1	1	1	1		1	1	1			
P (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1									126,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	126,00	126,00	196,30	210,00	210,00	168,80
2																								
3																								
4																								
5										555,30	750,30	978,30	684,30	879,30	988,30	889,30	788,30	592,80	206,00	206,00	206,00	511,80	422,80	206,00
6	120,20	120,20	120,20	120,20	108,00	60,10	60,10	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20
7	93,00	93,00	93,00						486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00
8	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00
9	1432,00	1155,80	901,80	816,80	720,00	720,00	720,00	991,80	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00
10	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70
11	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00
12	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00
13	540,00	540,00	540,00	540,00	540,00	388,90	402,90	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00
14	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30
15	112,80								49,80	142,50	142,50	142,50	142,50	142,50	142,50	142,50	142,50		106,80	24,80	142,50			

Table A. 2. The optimal schedule of the reference case for the base scenario in terms of unit commitment and power generation (continued).

UC (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1	1								1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2																								
3																								
4																								
5										1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7	1								1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
11	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
12	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
13	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
14	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
15									1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
P (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1	126,00								126,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	126,00	126,00	196,30	210,00	210,00	126,00
2																								
3																								
4																								
5										555,30	750,30	978,30	684,30	879,30	988,30	889,30	788,30	450,30	206,00	206,00	206,00	369,30	280,30	206,00
6	120,20	120,20	120,20	120,20	108,00	60,10	60,10	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20
7	93,00								437,49	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	474,38	486,00	486,00	486,00	486,00	486,00
8	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00
9	1418,80	1248,80	994,80	816,80	720,00	720,00	720,00	991,80	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00
10	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70
11	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00
12	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00
13	540,00	540,00	540,00	540,00	540,00	388,90	402,90	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00
14	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30
15									98,31	142,50	142,50	142,50	142,50	142,50	142,50	142,50	142,50	142,50	118,42	24,80	142,50	142,50	142,50	42,80

Table A. 3. The optimal schedule of the reference case for the base scenario in terms of up and down time durations.

[illegible]

Table A. 4. The optimal schedule of the reference case for the base scenario in terms of up and down time durations (continued).

[illegible]

Table A. 5. The optimal schedule of case 1 for the base scenario in terms of unit commitment and power generation.

UC (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1	1	1						1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2																								
3												1	1	1	1	1								
4																								
5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
11			1						1	1	1	1		1	1	1	1						1	
12	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
13																								
14			1	1	1	1					1	1				1				1	1	1	1	
15		1		1		1	1	1	1			1			1	1	1	1	1	1	1	1		
P (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	159,10	126,00	126,00						210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00
2																								
3												245,10	194,00	194,00	255,10	194,00								
4																								
5	206,00	206,00	206,00	206,00	206,00	206,00	206,00	206,00	530,10	1262,10	1440,00	1440,00	1278,10	1392,10	1440,00	1440,00	1440,00	1238,10	874,10	792,10	980,10	1157,10	987,10	810,10
6	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20
7	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00
8	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00
9	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00
10	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70
11			42,00						81,00	81,00	81,00	81,00		81,00	81,00	43,10	81,00						81,00	
12	2405,00	2049,10	1753,10	1743,10	1634,10	1435,10	1449,10	1918,10	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00
13											17,10													
14																								
15																	55,10							

Table A. 6. The optimal schedule of case 1 for the base scenario in terms of unit commitment and power generation (continued).

[illegible]

Table A. 7. The optimal schedule of case 1 for the base scenario in terms of up and down time durations.

Xup (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1	2	3						1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
2																								
3												1	2	3	4	5								
4																								
5	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
6	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
7	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
8	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
9	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
10	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
11			1						1	2	3	4		1	2	3	4						1	
12	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
13																								
14			1	2	3	4					1	2				1				1	2	3	4	
15		1		1		1	2	3	4			1			1	2	3	4	5	6	7	8		
Xdown (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1																								
2	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
3	1	2	3	4	5	6	7	8	9	10	11						1	2	3	4	5	6	7	8
4	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
5																								
6																								
7																								
8																								
9																								
10																								
11	1	2		1	2	3	4	5					1					1	2	3	4	5		1
12																								
13	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
14	1	2					1	2	3	4			1	2	3		1	2	3					1
15	1		1		1					1	2		1	2									1	2

Table A. 8. The optimal schedule of case 1 for the base scenario in terms of up and down time durations (continued).

Xup (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1	1								1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
2																								
3											1	2	3	4	5	6	7	8	9	10	11	12	13	14
4																								
5	1								1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
6	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
7	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
8	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
9	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
10	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
11									1	2	3	4		1	2	3	4	5	6	7	8		1	2
12	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
13																								
14	1	2		1	2	3	4	5	6		1	2	3	4	5	6	7	8		1	2	3	4	5
15		1	2	3	4	5	6		1			1			1	2			1		1		1	
Xdown (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1		1	2	3	4	5	6	7																
2	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
3	9	10	11	12	13	14	15	16	17	18														
4	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
5		1	2	3	4	5	6	7																
6																								
7																								
8																								
9																								
10																								
11	2	3	4	5	6	7	8	9					1									1		
12																								
13	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
14										1									1					
15	3							1		1	2		1	2			1	2		1		1		1

Table A. 9. The optimal schedule of case 2 for the base scenario in terms of unit commitment and power generation.

UC (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2																								
3											1	1	1	1	1	1								
4																								
5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
11											1	1		1	1	1	1							
12	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
13																								
14			1	1	1	1			1	1	1	1				1		1	1	1	1	1	1	
15				1		1	1	1	1	1		1	1		1	1	1	1	1	1	1	1	1	1
P (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00
2																								
3											194,00	245,10	194,00	194,00	255,10	194,00								
4																								
5	1440,00	1440,00	1315,84	1137,84	1028,84	829,84	843,84	1312,84	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00
6	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20
7	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00
8	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00
9	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00
10	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70
11											42,00	81,00		42,00	81,00	43,10	81,00							
12	1120,10	731,10	601,26	601,26	601,26	601,26	601,26	601,26	1576,10	2308,10	2267,10	2405,00	2243,10	2396,10	2405,00	2405,00	2405,00	2203,10	1839,10	1757,10	1945,10	2122,10	2033,10	1775,10
13																								
14																								
15																	55,10							

Table A. 10. The optimal schedule of case 2 for the base scenario in terms of unit commitment and power generation (continued).

UC (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2																								
3								1	1	1	1	1	1	1	1	1					1	1	1	1
4																								
5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
11					1						1	1		1	1	1	1							
12	1	1	1	1				1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
13																								
14	1	1		1	1	1	1	1	1		1	1	1	1	1	1	1	1		1	1	1	1	
15	1	1	1	1	1	1	1		1	1	1	1			1	1	1		1		1	1	1	1
P (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00
2																								
3								194,00	194,00	194,00	194,00	245,10	194,00	194,00	255,10	194,00					194,00	194,00	194,00	194,00
4																								
5	1440,00	1440,00	1315,84	1137,84	1440,00	1431,10	1440,00	1118,84	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00
6	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20
7	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00
8	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00
9	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00
10	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70
11					81,00						42,00	81,00		42,00	81,00	43,10	81,00							
12	1120,10	731,10	601,26	601,26				601,26	1382,10	2114,10	2267,10	2405,00	2243,10	2396,10	2405,00	2405,00	2405,00	2203,10	1839,10	1757,10	1751,10	1928,10	1839,10	1581,10
13																								
14					24,30		5,10										24,30							
15					84,80												30,80							

Table A. 11. The optimal schedule of case 2 for the base scenario in terms of up and down time durations.

Xup (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
2																								
3											1	2	3	4	5	6								
4																								
5	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
6	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
7	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
8	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
9	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
10	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
11											1	2		1	2	3	4							
12	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
13																								
14			1	2	3	4			1	2	3	4				1		1	2	3	4	5	6	
15				1		1	2	3	4	5		1	2		1	2	3	4	5	6	7	8	9	10
Xdown (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1																								
2	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
3	1	2	3	4	5	6	7	8	9	10							17	18	19	20	21	22	23	24
4	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
5																								
6																								
7																								
8																								
9																								
10																								
11	1	2	3	4	5	6	7	8	9	10			1					1	2	3	4	5	6	7
12																								
13	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
14	1	2					1	2					1	2	3		1							
15	1	2	3		1						1			1										

Table A. 12. The optimal schedule of case 2 for the base scenario in terms of up and down time durations (continued).

Xup (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
2																								
3								1	2	3	4	5	6	7	8	9					1	2	3	4
4																								
5	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
6	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
7	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
8	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
9	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
10	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
11					1						1	2		1	2	3	4							
12	25	26	27	28				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
13																								
14	1	2		1	2	3	4	5	6		1	2	3	4	5	6	7	8		1	2	3	4	
15	11	12	13	14	15	16	17		1	2	3	4			1	2	3		1		1	2	3	4
Xdown (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1																								
2	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
3	25	26	27	28	29	30	31										41	42	43	44				
4	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
5																								
6																								
7																								
8																								
9																								
10																								
11	8	9	10	11		1	2	3	4	5			1					1	2	3	4	5	6	7
12					1	2	3																	
13	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
14			1							1									1					1
15								1					1	2				1		1				

Table A. 13. The optimal schedule of case 3 for the base scenario in terms of unit commitment and power generation.

[illegible]

Table A. 14. The optimal schedule of case 3 for the base scenario in terms of unit commitment and power generation (continued).

UC (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2																								
3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1				1	1	1	1	1
4																								
5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
11											1	1		1	1	1	1							
12	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
13																								
14	1	1		1	1	1	1	1	1		1	1	1	1	1	1	1		1			1	1	
15	1	1	1	1	1	1	1		1	1	1	1			1									
P (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00
2																								
3	194,00	194,00	194,00	194,00	194,00	194,00	194,00	194,00	194,00	194,00	194,00	245,10	194,00	194,00	255,10	194,00				194,00	194,00	194,00	194,00	194,00
4																								
5	1440,00	1375,84	1121,84	943,84	834,84	635,84	649,84	1118,84	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00
6	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20
7	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00
8	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00
9	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00
10	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70
11											42,00	81,00		42,00	81,00	43,10	81,00							
12	926,10	601,26	601,26	601,26	601,26	601,26	601,26	601,26	1382,10	2114,10	2267,10	2405,00	2243,10	2396,10	2405,00	2405,00	2405,00	2203,10	1839,10	1563,10	1751,10	1928,10	1839,10	1581,10
13																								
14																	24,30							
15																	30,80							

Table A. 15. The optimal schedule of case 3 for the base scenario in terms of up and down time durations.

Xup (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
2																								
3											1	2	3	4	5	6	7	8	9	10	11	12	13	14
4																								
5	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
6	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
7	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
8	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
9	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
10	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
11											1	2		1	2	3	4							
12	1	2	3	4	5		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
13																								
14			1	2	3	4			1	2	3	4		1		1		1	2	3	4	5	6	
15	1	2		1					1	2		1	2		1	2	3	4	5	6	7	8	9	10
Xdown (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1																								
2	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
3	1	2	3	4	5	6	7	8	9	10														
4	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
5																								
6																								
7																								
8																								
9																								
10																								
11	1	2	3	4	5	6	7	8	9	10			1					1	2	3	4	5	6	7
12						1																		
13	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
14	1	2					1	2					1		1		1							1
15			1		1	2	3	4			1			1										

Table A. 16. The optimal schedule of case 3 for the base scenario in terms of up and down time durations (continued).

Xup (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
2																								
3	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30				1	2	3	4	5
4																								
5	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
6	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
7	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
8	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
9	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
10	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
11											1	2		1	2	3	4							
12	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42
13																								
14	1	2		1	2	3	4	5	6		1	2	3	4	5	6	7		1			1	2	
15	11	12	13	14	15	16	17		1	2	3	4			1									
Xdown (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1																								
2	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
3																	1	2	3					
4	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
5																								
6																								
7																								
8																								
9																								
10																								
11	8	9	10	11	12	13	14	15	16	17			1					1	2	3	4	5	6	7
12																								
13	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
14			1							1								1		1	2			1
15								1					1	2		1	2	3	4	5	6	7	8	9

Table A. 17. The optimal schedule of case 1 for demand scenario 1 in terms of unit commitment and power generation.

UC (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1	1	1	1	1			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2											1	1	1	1	1	1	1							
3																								
4										1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
11	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
12	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
13		1	1	1	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
14	1	1	1	1	1			1	1	1	1	1	1	1	1								1	1
15			1	1		1	1		1	1	1	1	1	1	1	1	1	1	1					
P (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	210,00	210,00	210,00	148,46	126,00			210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00
2											252,00	496,30	252,00	377,30	508,30	414,60	293,60							
3										589,30	571,30	600,00	571,28	600,00	600,00	600,00	600,00	487,60	194,00	194,00	321,10	533,10	401,80	194,00
4																								
5	1285,80	278,80	206,00	206,00	206,00	206,00	206,00	206,00	1292,80	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1341,10	1440,00	1440,00	1440,00	1337,80
6	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20
7	486,00	486,00	486,00	486,00	377,46	446,10	281,46	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00
8	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00
9	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00
10	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70
11	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00
12	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00
13		540,00	308,80	180,64	180,64		180,64	305,80	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00
14	24,30	24,30	24,30					24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30							24,30	24,30
15										142,50	142,50	142,50	63,52	142,50	142,50	142,50	142,50	142,50	0,10					

Table A. 18. The optimal schedule of case 1 for demand scenario 1 in terms of unit commitment and power generation (continued).

UC (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2											1	1	1	1	1	1	1							
3										1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4																								
5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
11	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
12	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
13				1					1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
14	1	1	1	1	1	1		1	1	1	1	1	1	1	1	1	1	1	1	1				1
15						1	1	1	1	1	1	1		1	1	1	1	1						
P (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1	210,00	210,00	210,00	148,46	198,10	126,00	126,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00
2											252,00	496,30	286,80	377,30	508,30	390,30	269,30							
3										600,00	600,00	600,00	600,00	600,00	600,00	600,00	600,00	463,30	194,00	194,00	321,10	533,10	426,10	194,00
4																								
5	1285,80	818,80	514,80	206,00	206,00	206,00	206,00	511,80	1292,80	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1415,80	1316,80	1440,00	1440,00	1440,00	1337,80
6	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20
7	486,00	486,00	486,00	486,00	486,00	320,10	336,10	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00
8	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00
9	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00
10	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70
11	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00
12	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00
13				180,64					540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00
14	24,30	24,30	24,30					24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30				24,30
15										131,80	113,80	142,50		142,50	142,50	142,50	142,50	142,50						

Table A. 19. The optimal schedule of case 1 for demand scenario 1 in terms of up and down time durations.

Xup (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1	2	3	4	5			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
2											1	2	3	4	5	6	7							
3																								
4										1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
5	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
6	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
7	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
8	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
9	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
10	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
11	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
12	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
13		1	2	3	4		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
14	1	2	3	4	5			1	2	3	4	5	6	7	8								1	2
15			1	2		1	1		1	2	3	4	5	6	7	8	9	10	11					
Xdown (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1						1	2																	
2	1	2	3	4	5	6	7	8	9	10								1	2	3	4	5	6	7
3	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
4	1	2	3	4	5	6	7	8	9															
5																								
6																								
7																								
8																								
9																								
10																								
11																								
12																								
13	1					1																		
14						1	2									1	2	3	4	5	6	7		
15	1	2			1			1												1	2	3	4	5

Table A. 20. The optimal schedule of case 1 for demand scenario 1 in terms of up and down time durations (continued).

Xup (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
2											1	2	3	4	5	6	7							
3										1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
4																								
5	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
6	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
7	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
8	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
9	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
10	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
11	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
12	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
13				1					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
14	3	4	5	6	7	8		1	2	3	4	5	6	7	8	9	10	11	12	13				1
15						1	2	3	4	5	6	7		1	2	3	4	5						
Xdown (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1																								
2	8	9	10	11	12	13	14	15	16	17								1	2	3	4	5	6	7
3	25	26	27	28	29	30	31	32	33															
4	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
5																								
6																								
7																								
8																								
9																								
10																								
11																								
12																								
13	1	2	3		1	2	3	4																
14							1														1	2	3	
15	6	7	8	9	10								1						1	2	3	4	5	6

Table A. 21. The optimal schedule of case 2 for demand scenario 1 in terms of unit commitment and power generation.

[illegible]

Table A. 23. The optimal schedule of case 2 for demand scenario 1 in terms of up and down time durations.

Xup (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
2										1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
3								1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
4																								
5	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
6	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
7	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
8	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
9	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
10	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
11									1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
12	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
13										1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
14		1	2	3	4	5	6	7	8		1	2	3	4	5	6			1	2			1	
15			1	2			1	2	3			1	2		1		1	2	3		1	2	3	4
Xdown (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1																								
2	1	2	3	4	5	6	7	8	9															
3	1	2	3	4	5	6	7																	
4	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
5																								
6																								
7																								
8																								
9																								
10																								
11	1	2	3	4	5	6	7	8																
12																								
13	1	2	3	4	5	6	7	8	9															
14	1									1							1	2			1	2		1
15	1	2			1	2				1	2			1		1				2				

Table A. 24. The optimal schedule of case 2 for demand scenario 1 in terms of up and down time durations (continued).

Xup (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
2										1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
3									1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
4																								
5	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
6	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
7	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
8	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
9	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
10	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
11									1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
12	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
13										1	2	3	4	5	6	7	8	9						
14		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18		1	2	3	4
15		1	2	3								1	2											
Xdown (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1																								
2	1	2	3	4	5	6	7	8	9															
3	1	2	3	4	5	6	7	8																
4	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
5																								
6																								
7																								
8																								
9																								
10																								
11	1	2	3	4	5	6	7	8																
12																								
13	1	2	3	4	5	6	7	8	9										1	2	3	4	5	6
14	2																			1				
15	1				1	2	3	4	5	6	7			1	2	3	4	5	6	7	8	9	10	11

Table A. 25. The optimal schedule of case 3 for demand scenario 1 in terms of unit commitment and power generation.

[illegible]

Table A. 27. The optimal schedule of case 3 for demand scenario 1 in terms of up and down time durations.

Xup (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
2									1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
3									1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
4																								
5	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
6	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
7	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
8	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
9	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
10	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
11										1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
12	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
13										1	2	3	4	5	6	7	8							
14	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21			
15			1									1	2	3	4	5	6	7	8	9			1	2
Xdown (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1																								
2	1	2	3	4	5	6	7	8																
3	1	2	3	4	5	6	7	8																
4	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
5																								
6																								
7																								
8																								
9																								
10																								
11	1	2	3	4	5	6	7	8	9															
12																								
13	1	2	3	4	5	6	7	8	9									1	2	3	4	5	6	7
14																						1	2	3
15	1	2		1	2	3	4	5	6	7	8										1	2		

Table A. 29. The optimal schedule of case 4 for demand scenario 1 in terms of unit commitment and power generation.

[illegible]

Table A. 31. The optimal schedule of case 4 for demand scenario 1 in terms of up and down time durations.

Xup (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
2										1	2	3			6	7	8	9	10	11	12	13	14	15
3									1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
4							1	2			1	2	3	4	5	6								
5	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
6	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
7	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
8	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
9	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
10	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
11									1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
12	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
13												1	2	3	4	5	6							
14		1				1	2			1	2	3	4	5	6	7	8		1		1	2	3	4
15	1			1			1	2	3	4	5	6	7	8	9	10		1	2			1	2	3
Xdown (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1																								
2	1	2	3	4	5	6	7	8	9				1	2										
3	1	2	3	4	5	6	7	8										1	2					
4	1	2	3	4	5	6			1	2							1	2	3	4	5	6	7	8
5																								
6																								
7																								
8																								
9																								
10																								
11	1	2	3	4	5	6	7	8																
12																								
13	1	2	3	4	5	6	7	8	9	10	11							1	2	3	4	5	6	7
14	1		1	2	3			1	2									1		1				
15		1	2		1	2											1				1			

Table A. 32. The optimal schedule of case 4 for demand scenario 1 in terms of up and down time durations (continued).

Xup (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
2	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30							1	2	3
3					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
4											1	2	3	4	5	6	7	8	9	10				
5	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
6	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	
7	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
8	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
9	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
10	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
11										1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
12	25	26	27	28	29	30			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
13								1	2											1	2		1	
14							1	2						1	2	3		1	2	3	4	5		1
15		1	2	3		1	2	3	4	5	6				1	2	3	4	5	6			1	
Xdown (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1																								
2																1	2	3	4	5	6			
3	1	2	3	4																				
4	9	10	11	12	13	14	15	16	17	18											1	2	3	4
5																								
6																								1
7																								
8																								
9																								
10																								
11	1	2	3	4	5	6	7	8	9															
12							1	2																
13	8	9	10	11	12	13	14			1	2	3	4	5	6	7	8	9	10			1		1
14	1	2	3	4	5	6			1	2	3	4	5				1						1	
15	1				1							1	2	3							1	2		1

Table A. 33. The optimal schedule of case 1 for demand scenario 2 in terms of unit commitment and power generation.

UC (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2									1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3									1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4										1	1	1	1	1	1	1	1							
5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
11	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
12	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
13	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
14	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
15	1		1	1	1		1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
P (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	210,00	210,00	210,00	210,00	158,80	126,00	126,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00
2									252,00	284,30	538,30	630,00	452,30	630,00	630,00	630,00	587,30	590,30	252,00	252,00	254,30	484,30	368,30	252,00
3									194,00	600,00	600,00	600,00	600,00	600,00	600,00	600,00	600,00	600,00	465,30	358,30	600,00	600,00	600,00	381,30
4										442,00	442,00	645,30	442,00	517,30	658,30	530,30	442,00							
5	1.363,80	857,80	386,30	234,57	206,00	206,00	206,00	524,80	1.440,00	1.440,00	1.440,00	1.440,00	1.440,00	1.440,00	1.440,00	1.440,00	1.440,00	1.440,00	1.440,00	1.440,00	1.440,00	1.440,00	1.440,00	1.440,00
6	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20
7	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00
8	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00
9	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00
10	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70
11	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00
12	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00
13	540,00	540,00	540,00	540,00	540,00	314,80	331,80	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00
14	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30
15			142,50	62,23					70,80	142,50	142,50	142,50	142,50	142,50	142,50	142,50	142,50	142,50	142,50	142,50	142,50	142,50	142,50	142,50

Table A. 35. The optimal schedule of case 1 for demand scenario 2 in terms of up and down time durations.

[illegible]

Table A. 36. The optimal schedule of case 1 for demand scenario 2 in terms of up and down time durations (continued).

[illegible]

Table A. 37. The optimal schedule of case 2 for demand scenario 2 in terms of unit commitment and power generation.

UC (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2										1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3									1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4										1	1	1	1	1	1	1	1							
5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
11	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
12	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
13	1	1	1	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
14	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
15	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
P (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00
2										284,30	538,30	630,00	452,30	630,00	630,00	630,00	587,30	590,30	252,00	252,00	254,30	484,30	368,30	252,00
3									516,80	600,00	600,00	600,00	600,00	600,00	600,00	600,00	600,00	600,00	600,00	500,80	600,00	600,00	600,00	523,80
4										442,00	442,00	645,30	442,00	517,30	658,30	530,30	442,00							
5	1363,80	857,80	696,08	656,16	694,80	256,16	206,00	524,80	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00
6	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20
7	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00
8	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00
9	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00
10	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70
11	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00
12	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00
13	540,00	540,00	372,72	180,64		180,64	247,80	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00
14	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30
15										142,50	142,50	142,50	142,50	142,50	142,50	142,50	142,50	142,50	7,80		142,50	142,50	142,50	

Table A. 38. The optimal schedule of case 2 for demand scenario 2 in terms of unit commitment and power generation (continued).

UC (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2										1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3									1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4										1	1	1	1	1	1	1	1							
5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
11	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
12	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
13	1	1	1	1					1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
14	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
15		1	1							1	1	1	1	1	1	1	1	1	1	1	1	1	1	
P (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00
2										284,30	538,30	630,00	452,30	630,00	630,00	630,00	587,30	590,30	252,00	252,00	254,30	484,30	368,30	252,00
3									516,80	600,00	600,00	600,00	600,00	600,00	600,00	600,00	600,00	600,00	600,00	500,80	600,00	600,00	600,00	523,80
4										442,00	442,00	645,30	442,00	517,30	658,30	530,30	442,00							
5	1363,80	857,80	528,80	296,80	694,80	436,80	453,80	1064,80	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00
6	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20
7	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00
8	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00
9	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00
10	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70
11	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00
12	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00
13	540,00	540,00	540,00	540,00					540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00
14	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30
15										142,50	142,50	142,50	142,50	142,50	142,50	142,50	142,50	142,50	7,80		142,50	142,50	142,50	

Table A. 39. The optimal schedule of case 2 for demand scenario 2 in terms of up and down time durations.

[illegible]

Table A. 40. The optimal schedule of case 2 for demand scenario 2 in terms of up and down time durations (continued).

[illegible]

Table A. 41. The optimal schedule of case 3 for demand scenario 2 in terms of unit commitment and power generation.

UC (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2									1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3	1	1	1						1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4										1	1	1	1	1	1	1	1							
5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
11	1								1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
12	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
13										1	1	1	1	1	1	1	1	1	1		1	1	1	1
14	1		1	1	1	1	1	1		1	1	1	1	1	1	1	1				1	1	1	1
15	1		1	1		1	1		1	1	1	1		1	1	1	1	1		1		1		1
P (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00
2									481,10	630,00	630,00	630,00	630,00	630,00	630,00	630,00	630,00	630,00	630,00	630,00	630,00	630,00	630,00	559,46
3	488,10	194,00	194,00						600,00	600,00	600,00	600,00	600,00	600,00	600,00	600,00	600,00	600,00	600,00	600,00	600,00	600,00	600,00	600,00
4										442,00	492,80	787,80	442,00	659,80	800,80	672,80	541,80							
5	1440,00	1309,10	980,10	1118,39	1440,00	1440,00	1440,00	1170,10	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00
6	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20
7	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00
8	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00
9	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00
10	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70
11	81,00								81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00
12	2405,00	2405,00	2405,00	2228,71	1760,12	1507,10	1524,10	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00
13										336,80	540,00	540,00	504,80	540,00	540,00	540,00	540,00	540,00	194,10		306,80	536,80	420,80	180,64
14										24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30				24,30	24,30	24,30	
15																		127,10		87,10				

Table A. 42. The optimal schedule of case 3 for demand scenario 2 in terms of unit commitment and power generation (continued).

UC (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2								1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3	1								1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4										1	1	1	1	1	1	1	1	1						
5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
11	1	1							1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
12	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
13										1	1	1	1	1	1	1	1	1	1	1	1	1	1	
14	1		1	1	1	1		1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
15	1	1	1		1	1	1		1	1		1	1				1	1	1	1	1	1		1
P (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00
2									481,10	630,00	630,00	630,00	630,00	630,00	630,00	630,00	630,00	630,00	630,00	536,46	630,00	630,00	630,00	630,00
3	488,10								600,00	600,00	600,00	600,00	600,00	600,00	600,00	600,00	600,00	600,00	600,00	600,00	600,00	600,00	600,00	600,00
4										442,00	492,80	787,80	442,00	659,80	800,80	672,80	551,80							
5	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00
6	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20
7	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00
8	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00
9	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00
10	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70					
11	81,00	63,10							81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00
12	2405,00	2405,00	2139,10	1907,10	1760,12	1507,10	1524,10	2135,10	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00
13										336,80	540,00	540,00	504,80	540,00	540,00	540,00	540,00	540,00	180,64	180,60	330,50	540,00	444,50	
14										24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	13,46		24,30	24,30	24,30	24,30
15																		102,80				20,50		109,50

Table A. 43. The optimal schedule of case 3 for demand scenario 2 in terms of up and down time durations.

Xup (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
2									1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
3	1	2	3						1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
4										1	2	3	4	5	6	7	8							
5	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
6	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
7	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
8	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
9	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
10	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
11	1								1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
12	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
13										1	2	3	4	5	6	7	8	9	10		1	2	3	4
14	1		1	2	3	4	5	6		1	2	3	4	5	6	7	8				1	2	3	4
15	1		1	2		1	2		1	2	3	4		1	2	3	4	5		1		1		1
Xdown (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1																								
2	1	2	3	4	5	6	7	8																
3				1	2	3	4	5																
4	1	2	3	4	5	6	7	8	9									1	2	3	4	5	6	7
5																								
6																								
7																								
8																								
9																								
10																								
11		1	2	3	4	5	6	7																
12																								
13	1	2	3	4	5	6	7	8	9											1				
14		1							1									1	2	3				
15		1			1			1					1						1		1		1	

Table A. 44. The optimal schedule of case 3 for demand scenario 2 in terms of up and down time durations (continued).

Xup (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
2								1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
3	17								1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
4										1	2	3	4	5	6	7	8	9						
5	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
6	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
7	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
8	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
9	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
10	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44				
11	17	18							1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
12	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
13										1	2	3	4	5	6	7	8	9	10	11	12	13	14	
14	5		1	2	3	4		1		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
15	2	3	4		1	2	3		1	2		1	2				1	2	3	4	5	6		1
Xdown (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1																								
2	1	2	3	4	5	6	7																	
3		1	2	3	4	5	6	7																
4	8	9	10	11	12	13	14	15	16										1	2	3	4	5	6
5																								
6																								
7																								
8																								
9																								
10																								
11			1	2	3	4	5	6																
12																								
13	1	2	3	4	5	6	7	8	9															1
14		1					1		1															
15				1				1			1			1	2	3							1	

Table A. 47. The optimal schedule of case 1 for cost scenario in terms of up and down time durations.

[illegible]

Table A. 48. The optimal schedule of case 1 for cost scenario in terms of up and down time durations (continued).

[illegible]

Table A. 50. The optimal schedule of case 2 for cost scenario in terms of unit commitment and power generation (continued).

UC (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2																								
3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4																								
5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6									1	1	1	1	1	1	1	1	1							
7																								
8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
11	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
12	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
13									1	1	1	1	1	1	1	1	1	1				1	1	
14	1	1		1	1	1	1	1		1	1	1	1	1	1	1	1	1			1	1	1	
15	1	1	1	1	1	1			1	1	1				1	1	1		1		1	1	1	
P (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00
2																								
3	194,00	194,00	194,00	194,00	194,00	194,00	194,00	194,00	194,00	194,00	194,00	194,00	194,00	194,00	194,00	194,00	194,00	194,00	194,00	194,00	194,00	194,00	194,00	194,00
4																								
5	462,00	206,00	206,00	206,00	206,00	206,00	206,00	206,00	701,56	1409,26	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1364,36	1205,30	1123,30	1287,00	1283,36	868,28	1141,30
6									60,10	60,10	60,10	93,00	60,10	60,10	103,00	60,10	60,10							
7																								
8	1350,00	1217,00	987,30	785,00	676,00	477,00	491,00	960,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00
9	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00
10	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70
11	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00
12	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00
13									180,64	180,64	344,90	540,00	278,90	473,90	540,00	483,90	382,90	180,64				180,64	506,72	
14	24,30	24,30		24,30	24,30	24,30	24,30	24,30		24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30			24,30	24,30	24,30	
15																								

Table A. 51. The optimal schedule of case 2 for cost scenario in terms of up and down time durations.

Xup (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
2																								
3									1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
4																								
5	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
6									1	2	3	4	5	6	7	8	9							
7																								
8	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
9	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
10	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
11	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
12	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
13										1	2	3	4	5	6	7	8	9			1	2	3	4
14	1	2		1	2	3	4			1	2	3	4	5	6	7	8	9	10		1	2	3	
15				1		1	2	3	4	5			1		1	2	3	4	5	6	7	8	9	10
Xdown (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1																								
2	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
3	1	2	3	4	5	6	7	8																
4	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
5																								
6	1	2	3	4	5	6	7	8										1	2	3	4	5	6	7
7	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
8																								
9																								
10																								
11																								
12																								
13	1	2	3	4	5	6	7	8	9										1	2				
14			1					1	2											1				1
15	1	2	3		1						1	2		1										

Table A. 52. The optimal schedule case 2 for cost scenario in terms of up and down time durations (continued).

Xup (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
2																								
3	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
4																								
5	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
6									1	2	3	4	5	6	7	8	9							
7																								
8	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
9	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
10	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
11	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
12	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
13									1	2	3	4	5	6	7	8	9	10				1	2	
14	1	2		1	2	3	4	5		1	2	3	4	5	6	7	8	9			1	2	3	
15	11	12	13	14	15	16			1	2	3				1	2	3		1		1	2	3	
Xdown (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1																								
2	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
3																								
4	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
5																								
6	8	9	10	11	12	13	14	15										1	2	3	4	5	6	7
7	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
8																								
9																								
10																								
11																								
12																								
13	1	2	3	4	5	6	7	8											1	2	3			1
14			1						1										1	2				1
15							1	2				1	2	3				1		1				1

Table A. 53. The optimal schedule of case 3 for cost scenario in terms of unit commitment and power generation.

UC (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2																								
3									1	1	1	1	1	1	1	1								
4																								
5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6										1	1	1	1	1	1	1	1	1			1	1	1	
7																								
8	1	1	1	1					1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
11	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
12	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
13										1		1		1	1	1	1	1						
14			1	1		1	1			1	1	1	1	1	1	1	1	1	1		1	1	1	
15				1				1	1	1		1	1		1	1	1	1	1	1	1	1	1	1
P (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00
2																								
3									194,00	194,00	478,80	194,00	412,80	194,00	194,00	194,00								
4																								
5	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00
6										60,10	120,20	120,20	120,20	120,20	120,20	120,20	120,20	118,36			60,10	120,20	120,20	
7																								
8	590,30	201,30	200,00	200,00					852,30	1343,56	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1309,30	1227,30	1350,00	1350,00	1350,00	1245,30
9	1432,00	1432,00	1179,30	1001,30	1092,30	893,30	907,30	1376,30	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00
10	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70
11	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00
12	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00
13										180,64		512,80		413,80	522,80	423,80	516,80	180,64						
14											24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30			5,20	24,30	24,30	
15																						97,80	8,80	

Table A. 54. The optimal schedule of case 3 for cost scenario in terms of unit commitment and power generation (continued).

UC (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2																								
3					1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4																								
5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6										1	1	1	1	1	1	1	1	1			1	1	1	
7																								
8	1	1	1					1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
11	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
12	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
13									1	1	1	1		1	1	1	1	1	1				1	
14	1	1		1	1	1	1	1		1	1	1	1	1	1	1	1	1			1	1		
15	1	1	1	1	1	1	1		1	1	1	1			1	1	1		1		1	1	1	1
P (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00
2																								
3					194,00	194,00	194,00	194,00	194,00	194,00	194,00	194,00	412,80	194,00	194,00	194,00	194,00	194,00	194,00	194,00	194,00	194,00	194,00	194,00
4																								
5	1440,00	1440,00	1440,00	1440,00	1440,00	1419,30	1433,30	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00
6										60,10	120,20	120,20	120,20	120,20	120,20	120,20	120,20	60,10			60,10	60,10	60,10	
7																								
8	590,30	201,30	200,00					200,00	671,66	1343,56	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1238,56	934,66	1033,30	1161,20	1338,20	1068,56	1051,30
9	1432,00	1432,00	1179,30	1201,30	898,30	720,00	720,00	982,30	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00
10	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70
11	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00
12	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00
13									180,64	180,64	284,80	512,80		413,80	522,80	423,80	322,80	180,64	180,64				180,64	
14											24,30	24,30	24,30	24,30	24,30	24,30	24,30							
15																								

Table A. 55. The optimal schedule of case 3 for cost scenario in terms of up and down time durations.

Xup (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
2																								
3									1	2	3	4	5	6	7	8								
4																								
5	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
6										1	2	3	4	5	6	7	8	9			1	2	3	
7																								
8	1	2	3	4					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
9	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
10	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
11	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
12	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
13										1		1		1	2	3	4	5						
14			1	2		1	2			1	2	3	4	5	6	7	8	9	10		1	2	3	
15				1				1	2	3		1	2		1	2	3	4	5	6	7	8	9	10
Xdown (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1																								
2	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
3	1	2	3	4	5	6	7	8									1	2	3	4	5	6	7	8
4	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
5																								
6	1	2	3	4	5	6	7	8	9										1	2				1
7	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
8					1	2	3	4																
9																								
10																								
11																								
12																								
13	1	2	3	4	5	6	7	8	9		1		1						1	2	3	4	5	6
14	1	2			1			1	2											1				1
15	1	2	3		1	2	3				1			1										

Table A. 56. The optimal schedule of case 3 for cost scenario in terms of up and down time durations (continued).

Xup (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
2																								
3					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
4																								
5	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
6										1	2	3	4	5	6	7	8	9			1	2	3	
7																								
8	17	18	19					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
9	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
10	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
11	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
12	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
13									1	2	3	4		1	2	3	4	5	6				1	
14	1	2		1	2	3	4	5		1	2	3	4	5	6	7	8	9			1	2		
15	11	12	13	14	15	16	17		1	2	3	4			1	2	3		1		1	2	3	4
Xdown (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1																								
2	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
3	9	10	11	12																				
4	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
5																								
6	2	3	4	5	6	7	8	9	10										1	2				1
7	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
8				1	2	3	4																	
9																								
10																								
11																								
12																								
13	7	8	9	10	11	12	13	14					1							1	2	3		1
14			1						1										1	2			1	2
15								1					1	2				1		1				

Table A. 58. The optimal schedule of case 4 for cost scenario in terms of unit commitment and power generation (continued).

UC (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2																								
3												1	1	1	1	1								
4																								
5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6										1	1	1	1	1	1	1	1	1						
7																								
8	1	1	1					1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
11	1	1	1	1	1	1				1	1	1	1	1	1	1	1					1		
12	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
13									1	1	1	1	1	1	1	1	1	1	1			1	1	
14	1	1		1	1	1	1	1		1	1	1	1	1	1	1	1	1			1	1		
15	1	1	1	1	1	1	1		1	1	1	1			1	1	1		1		1	1	1	1
P (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00
2																								
3												194,00	194,00	194,00	194,00	194,00								
4																								
5	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00
6										120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20						
7																								
8	590,30	201,30	200,00					200,00	946,66	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1209,66	1308,30	1350,00	1350,00	1350,00	1326,30
9	1432,00	1432,00	1179,30	1201,30	1092,30	893,30	988,30	1257,30	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00
10	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70
11	81,00	81,00	81,00	81,00	81,00	81,00				81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00					81,00		
12	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00
13									180,64	283,80	478,80	512,80	218,80	413,80	522,80	423,80	516,80	259,80	180,64			218,00	234,30	
14										24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30			24,30	24,30		
15																					122,00			

Table A. 59. The optimal schedule of case 4 for cost scenario in terms of up and down time durations.

Xup (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
2																								
3											1	2	3	4	5	6								
4																								
5	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
6												1	2	3	4	5	6	7	8					
7																								
8	1	2	3	4					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
9	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
10	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
11	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
12	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
13										1	2	3	4	5	6	7	8	9	10		1	2	3	
14			1	2		1	2			1	2	3	4	5	6	7	8	9	10		1	2		
15	1			1		1	2	3	4	5		1	2				1	2	3	4	5	6	7	8
Xdown (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1																								
2	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
3	1	2	3	4	5	6	7	8	9	10							1	2	3	4	5	6	7	8
4	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
5																								
6	1	2	3	4	5	6	7	8	9	10	11									1	2	3	4	5
7	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
8					1	2	3	4																
9																								
10																								
11																								
12																								
13	1	2	3	4	5	6	7	8	9											1				1
14	1	2			1			1	2											1			1	2
15		1	2		1						1			1	2	3								

Table A. 60. The optimal schedule of case 4 for cost scenario in terms of up and down time durations (continued).

Xup (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
2																								
3												1	2	3	4	5								
4																								
5	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
6										1	2	3	4	5	6	7	8	9						
7																								
8	17	18	19					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
9	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
10	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
11	25	26	27	28	29	30				1	2	3	4	5	6	7	8					1		
12	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
13									1	2	3	4	5	6	7	8	9	10	11			1	2	
14	1	2		1	2	3	4	5		1	2	3	4	5	6	7	8	9			1	2		
15	9	10	11	12	13	14	15		1	2	3	4			1	2	3		1		1	2	3	4
Xdown (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1																								
2	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
3	9	10	11	12	13	14	15	16	17	18	19						1	2	3	4	5	6	7	8
4	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
5																								
6	6	7	8	9	10	11	12	13	14										1	2	3	4	5	6
7	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
8				1	2	3	4																	
9																								
10																								
11							1	2	3									1	2	3	4		1	2
12																								
13	2	3	4	5	6	7	8	9												1	2			1
14			1						1										1	2			1	2
15								1					1	2				1		1				

Table A. 61. The optimal schedule of case 1 for time scenario 1 in terms of unit commitment and power generation.

UC (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1									1	1	1	1	1	1	1	1	1	1	1			1	1	
2																								
3																								
4																								
5										1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7	1	1							1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
11	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
12	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
13	1	1	1	1	1	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
14	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
15	1	1	1		1		1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
P (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1									126,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	126,00			210,00	210,00	
2																								
3																								
4																								
5										555,30	750,30	978,30	684,30	879,30	988,30	889,30	788,30	450,30	206,00	214,30	402,30	369,30	280,30	772,30
6	120,20	120,20	120,20	120,20	108,00	60,10	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20
7	93,00	93,00							393,30	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	450,30	486,00	486,00	486,00	486,00	486,00
8	1350,00	1350,00	1350,00	1350,00	1350,00	1198,90	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00
9	1408,39	1155,80	994,80	816,80	720,00	720,00	1062,80	991,80	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00
10	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70
11	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00
12	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00
13	540,00	540,00	540,00	540,00	540,00	540,00		540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	
14	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30
15	136,41								142,50	142,50	142,50	142,50	142,50	142,50	142,50	142,50	142,50	142,50	142,50	142,50	142,50	142,50	142,50	142,50

Table A. 63. The optimal schedule of case 1 for time scenario in terms of up and down time durations.

[illegible]

Table A. 64. The optimal schedule of case 1 for time scenario 1 in terms of up and down time durations (continued).

[illegible]

Table A. 65. The optimal schedule of case 2 for time scenario 1 in terms of unit commitment and power generation.

[illegible]

Table A. 66. The optimal schedule of case 2 for time scenario 1 in terms of unit commitment and power generation (continued).

UC (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1	1								1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2																								
3	1	1			1	1					1	1		1	1	1								
4																								
5									1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
11	1								1		1		1	1	1	1	1						1	1
12	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
13																								
14	1	1	1	1	1	1	1	1	1	1	1		1	1	1	1	1	1	1		1		1	1
15	1	1		1	1	1	1		1	1			1			1	1	1	1				1	
P (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1	129,10								210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00
2																								
3	194,00	194,00			194,00	194,00					194,00	326,10		194,00	255,10	194,00								
4																								
5									530,10	1343,10	1263,10	1440,00	1415,93	1431,10	1440,00	1440,00	1440,00	1238,10	874,10	792,10	980,10	1157,10	1049,80	791,80
6	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20
7	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00
8	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00
9	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00
10	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70		
11	42,00								81,00		81,00		56,17	42,00	81,00	43,10	81,00						42,00	42,00
12	2405,00	2187,10	2127,10	1949,10	1646,10	1447,10	1655,10	2124,10	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00
13																								
14																	24,30							
15																	30,80							

Table A. 67. The optimal schedule of case 2 for time scenario 1 in terms of up and down time durations.

Xup (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1								1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
2																								
3												1	2	3	4	5	6	7						
4																								
5	1	2	3	4	5				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
6	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
7	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
8	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
9	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
10	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
11											1	2		1	2	3	4					1		1
12	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
13																								
14		1				1	2	3	4		1	2		1	2		1	2	3	4		1	2	3
15	1	2	3		1		1			1	2	3	4		1		1	2	3				1	2
Xdown (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1		1	2	3	4	5	6	7																
2	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
3	1	2	3	4	5	6	7	8	9	10	11								1	2	3	4	5	6
4	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
5						1	2	3																
6																								
7																								
8																								
9																								
10																								
11	1	2	3	4	5	6	7	8	9	10			1					1	2	3	4		1	
12																								
13	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
14	1		1	2	3					1			1			1					1			
15				1		1		1	2					1		1				1	2	3		

Table A. 68. The optimal schedule of case 2 for time scenario 1 in terms of up and down time durations (continued).

Xup (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1	17								1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
2																								
3	1	2			1	2					1	2		1	2	3								
4																								
5									1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
6	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
7	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
8	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
9	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
10	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46		
11	2								1		1		1	2	3	4	5						1	2
12	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
13																								
14	4	5	6	7	8	9	10	11	12	13	14		1	2	3	4	5	6	7		1		1	2
15	3	4		1	2	3	4		1	2			1			1	2	3	4				1	
Xdown (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1		1	2	3	4	5	6	7																
2	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
3			1	2			1	2	3	4			1				1	2	3	4	5	6	7	8
4	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
5	1	2	3	4	5	6	7	8																
6																								
7																								
8																								
9																								
10																							1	2
11		1	2	3	4	5	6	7		1		1						1	2	3	4	5		
12																								
13	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
14												1								1		1		
15			1					1			1	2		1	2					1	2	3		1

Table A. 69. The optimal schedule of case 3 for time scenario 1 in terms of unit commitment and power generation.

[illegible]

Table A. 71. The optimal schedule of case 3 for time scenario 1 in terms of up and down time durations.

Xup (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
2																								
3									1	2	3	4	5	6	7	8	9	10						
4																								
5	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
6	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
7	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
8	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
9	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
10	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
11											1	2		1	2	3	4							
12	1	2	3	4	5			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
13																								
14						1	2	3	4		1	2	3	4	5		1	2	3	4	5	6	7	8
15	1	2			1		1			1	2	3	4		1				1		1	2	3	4
Xdown (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1																								
2	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
3	1	2	3	4	5	6	7	8											1	2	3	4	5	6
4	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
5																								
6																								
7																								
8																								
9																								
10																								
11	1	2	3	4	5	6	7	8	9	10			1					1	2	3	4	5	6	7
12						1	2																	
13	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
14	1	2	3	4	5					1						1								
15			1	2		1		1	2					1		1	2	3		1				

Table A. 72. The optimal schedule of case 3 for time scenario 1 in terms of up and down time durations (continued).

Xup (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
2																								
3																								
4											1	2	3	4	5	6	7	8						
5	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
6	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
7	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
8	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
9	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
10	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46		
11											1	2		1	2	3	4							
12	18	19	20	21	22			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
13																								
14	9	10	11	12	13	14	15	16	17	18	19		1	2	3	4	5	6	7		1	2	3	4
15	5	6		1	2	3	4			1	2	3	4	5		1	2	3	4	5	6		1	2
Xdown (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1																								
2	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
3	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
4	25	26	27	28	29	30	31	32	33	34									1	2	3	4	5	6
5																								
6																								
7																								
8																								
9																								
10																							1	2
11	8	9	10	11	12	13	14	15	16	17			1					1	2	3	4	5	6	7
12						1	2																	
13	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
14												1								1				
15			1					1	2						1							1		

Table A. 73. The optimal schedule of case 4 for time scenario 1 in terms of unit commitment and power generation.

[illegible]

Table A. 74. The optimal schedule of case 4 for time scenario 1 in terms of unit commitment and power generation (continued).

UC (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2																								
3											1	1	1	1	1		1	1						
4																								
5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
11												1		1	1	1			1	1	1	1	1	1
12	1	1	1	1	1		1	1	1	1	1	1	1	1	1	1	1	1						
13																								
14	1	1	1	1	1	1	1	1	1	1	1		1	1	1	1	1	1	1		1	1	1	1
15	1	1		1	1	1	1			1	1	1	1	1		1	1	1	1	1	1		1	1
P (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00
2																								
3											194,00	245,10	194,00	194,00	255,10		194,00	194,00						
4																								
5	1440,00	1440,00	1315,84	1137,84	1028,84	1431,10	843,84	1312,84	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00
6	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	
7	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00
8	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00
9	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00
10	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70
11												81,00		42,00	81,00	81,00			1839,10	1757,10	1945,10	2122,10	2033,10	1895,30
12	1120,10	731,10	601,26	601,26	601,26		601,26	601,26	1576,10	2308,10	2309,10	2405,00	2243,10	2396,10	2405,00	2405,00	2347,10	2009,10						
13																								
14																24,30								
15																131,80								

Table A. 75. The optimal schedule of case 4 for time scenario 1 in terms of up and down time durations.

Xup (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
2																								
3										1	2	3	4	5	6	7	8	9						
4																								
5	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
6	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
7	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
8	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
9	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
10	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
11												1		1	2	3								
12	1	2	3	4	5		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
13																								
14	1		1		1	2	3	4	5		1	2	3	4	5		1	2	3	4	5	6	7	8
15	1	2	3	4	5		1			1	2	3	4		1		1	2	3		1	2	3	4
Xdown (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1																								
2	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
3	1	2	3	4	5	6	7	8	9										1	2	3	4	5	6
4	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
5																								
6																								
7																								
8																								
9																								
10																								
11	1	2	3	4	5	6	7	8	9	10	11		1				1	2	3	4	5	6	7	8
12						1																		
13	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
14		1		1						1						1								
15						1		1	2					1		1				1				

Table A. 76. The optimal schedule of case 4 for time scenario 1 in terms of up and down time durations (continued).

[illegible]

Table A. 77. The optimal schedule of case 1 for time scenario 2 in terms of unit commitment and power generation.

UC (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1									1		1	1	1	1	1	1	1	1	1	1	1	1		1
2																								
3																								
4																								
5										1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7	1								1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
11	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
12	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
13	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
14	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
15		1				1		1	1	1	1	1	1	1	1	1	1	1			1		1	1
P (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1									126,00		210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	150,80	196,30	210,00		126,00
2																								
3																								
4																								
5										765,30	750,30	978,30	684,30	879,30	988,30	889,30	788,30	450,30	228,80	206,00	206,00	511,80	490,30	206,00
6	120,20	120,20	120,20	120,20	108,00	60,10	60,10	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20
7	205,80								393,30	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	386,30
8	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00
9	1432,00	1248,80	994,80	816,80	720,00	720,00	720,00	991,80	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00
10	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70
11	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00
12	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00
13	540,00	540,00	540,00	540,00	540,00	388,90	402,90	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00
14	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30
15									142,50	142,50	142,50	142,50	142,50	142,50	142,50	142,50	142,50	142,50			142,50		142,50	142,50

Table A. 78. The optimal schedule of case 1 for time scenario 2 in terms of up and down time durations.

UC (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1								1	1		1	1	1	1	1	1	1			1		1	1	
2																								
3																								
4																								
5										1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7	1								1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
11	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
12	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
13	1	1	1	1	1	1	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
14	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
15	1	1	1	1	1		1		1	1	1	1	1	1	1	1	1	1		1	1	1	1	1
P (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1							126,00	126,00		210,00	210,00	210,00	210,00	210,00	210,00	210,00			126,00		210,00	210,00		
2																								
3																								
4																								
5										765,30	750,30	978,30	684,30	879,30	988,30	889,30	788,30	660,30	438,80	206,00	402,30	369,30	280,30	232,30
6	120,20	120,20	120,20	120,20	108,00	60,10	60,10	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20
7	93,00								478,99	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00
8	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00
9	1432,00	1248,80	994,80	816,80	720,00	720,00	720,00	1405,80	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00
10	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70
11	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00
12	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00
13	540,00	540,00	540,00	540,00	540,00	388,90	402,90		540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00
14	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30
15	112,80								56,81	142,50	142,50	142,50	142,50	142,50	142,50	142,50	142,50	142,50		24,80	142,50	142,50	142,50	142,50

Table A. 79. The optimal schedule of case 1 for time scenario 2 in terms of unit commitment and power generation (continued).

Xup (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1									1		1	2	3	4	5	6	7	8	9	10	11	12		1
2																								
3																								
4																								
5										1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
6	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
7	1								1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
8	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
9	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
10	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
11	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
12	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
13	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
14	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
15		1				1		1	2	3	4	5	6	7	8	9	10	11			1		1	2
Xdown (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1	2	3	4	5	6	7	8		1													1	
2	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
3	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
4	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
5	1	2	3	4	5	6	7	8	9															
6																								
7		1	2	3	4	5	6	7																
8																								
9																								
10																								
11																								
12																								
13																								
14																								
15	1		1	2	3		1												1	2		1		

Table A. 80. The optimal schedule of case 1 for time scenario 2 in terms of up and down time durations (continued).

Xup (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1								1	2		1	2	3	4	5	6	7			1		1	2	
2																								
3																								
4																								
5										1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
6	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
7	17								1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
8	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
9	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
10	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
11	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
12	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
13	25	26	27	28	29	30	31		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
14	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
15	3	4	5	6	7		1		1	2	3	4	5	6	7	8	9	10		1	2	3	4	5
Xdown (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1	1	2	3	4	5	6	7			1								1	2		1			1
2	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
3	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
4	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
5	1	2	3	4	5	6	7	8	9															
6																								
7		1	2	3	4	5	6	7																
8																								
9																								
10																								
11																								
12																								
13								1																
14																								
15						1		1											1					

Table A. 81. The optimal schedule of case 2 for time scenario 2 in terms of unit commitment and power generation.

[illegible]

Table A. 82. The optimal schedule of case 2 for time scenario 2 in terms of unit commitment and power generation (continued).

UC (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1	1		1	1				1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2																								
3												1		1	1	1								
4																								
5	1	1	1	1	1	1			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
11											1	1		1	1	1	1							
12	1			1	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
13																								
14			1	1	1						1	1				1	1		1	1			1	
15							1	1	1			1	1				1		1	1		1		
P (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1	210		210	210				210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210
2																								
3												245,1		194	255,1	194								
4																								
5	206								611,1	1343,1	1440	1440	1440	1431,1	1440	1440	1440	1238,1	874,1	792,1	980,1	1157,1	1068,1	810,1
6	120,2	120,2	120,2	120,2	120,2	120,2	120,2	120,2	120,2	120,2	120,2	120,2	120,2	120,2	120,2	120,2	120,2	120,2	120,2	120,2	120,2	120,2	120,2	120,2
7	486	486	486	486	486	486	486	486	486	486	486	486	486	486	486	486	486	486	486	486	486	486	486	486
8	1350	1350	1350	1350	1350	1350	1350	1350	1350	1350	1350	1350	1350	1350	1350	1350	1350	1350	1350	1350	1350	1350	1350	1350
9	1432	1432	1432	1432	1432	1432	1432	1432	1432	1432	1432	1432	1432	1432	1432	1432	1432	1432	1432	1432	1432	1432	1432	1432
10	23,7	23,7	23,7	23,7	23,7	23,7	23,7	23,7	23,7	23,7	23,7	23,7	23,7	23,7	23,7	23,7	23,7	23,7	23,7	23,7	23,7	23,7	23,7	23,7
11											81	81		42	81	43,1	81							
12	2354,1	2381,1	1917,1	1739,1	1840,1	1641,1	1655,1	1914,1	2405	2405	2405	2405	2405	2405	2405	2405	2405	2405	2405	2405	2405	2405	2405	2405
13																								
14											17,10						24,3							
15													32,1				30,8							

Table A. 83. The optimal schedule of case 2 for time scenario 2 in terms of up and down time durations.

Xup (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1		1		1		1		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
2																								
3												1		1	2	3	4							
4																								
5	1								1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
6	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
7	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
8	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
9	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
10	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
11											1	2		1	2	3	4							
12	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
13																								
14			1	2	3	4			1	2	3	4	5	6	7			1		1		1		
15			1			1	2	3		1		1	2	3	4									
Xdown (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1		1		1		1		1																
2	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
3	1	2	3	4	5	6	7	8	9	10	11		1					1	2	3	4	5	6	7
4	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
5		1	2	3	4	5	6	7																
6																								
7																								
8																								
9																								
10																								
11	1	2	3	4	5	6	7	8	9	10			1					1	2	3	4	5	6	7
12																								
13	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
14	1	2					1	2								1	2		1		1		1	2
15	1	2		1	2				1		1					1	2	3	4	5	6	7	8	9

Table A. 84. The optimal schedule of case 2 for time scenario 2 in terms of up and down time durations (continued).

[illegible]

Table A. 85. The optimal schedule of case 3 for time scenario 2 in terms of unit commitment and power generation.

[illegible]

Table A. 86. The optimal schedule of case 3 for time scenario 2 in terms of unit commitment and power generation (continued).

UC (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2																								
3												1	1	1	1	1		1						
4																								
5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
11											1	1		1	1	1	1							
12	1	1	1	1	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
13																								
14	1	1	1	1	1		1	1	1	1	1	1				1	1		1	1			1	
15			1	1	1		1	1			1	1	1	1			1		1	1		1		
P (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00
2																								
3												245,10	194,00	194,00	255,10	194,00		194,00						
4																								
5	1440,00	1440,00	1315,84	1137,84	1028,84	1431,10	843,84	1312,84	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00
6	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20
7	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00
8	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00
9	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00
10	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70
11											81,00	81,00		42,00	81,00	43,10	81,00							
12	1120,10	731,10	601,26	601,26	601,26		601,26	601,26	1576,10	2308,10	2405,00	2405,00	2243,10	2396,10	2405,00	2405,00	2405,00	2009,10	1839,10	1757,10	1945,10	2122,10	2033,10	1775,10
13																								
14											17,10						24,30							
15																	30,80							

Table A. 87. The optimal schedule of case 3 for time scenario 2 in terms of up and down time durations.

Xup (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
2																								
3	1	2		1	2	3	4	5	6	7	8	9		1	2	3	4							
4																								
5	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
6	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
7	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
8	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
9	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
10	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
11											1	2		1	2	3	4			1				
12	1	2	3	4	5			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
13																								
14			1	2	3	4			1	2	3	4	5	6	7			1		1		1	2	3
15			1	2	3	4				1	2	3	4			1	2	3	4	5	6	7	8	9
Xdown (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1																								
2	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
3			1										1					1	2	3	4	5	6	7
4	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
5																								
6																								
7																								
8																								
9																								
10																								
11	1	2	3	4	5	6	7	8	9	10			1					1	2		1	2	3	4
12						1	2																	
13	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
14	1	2					1	2								1	2		1		1			
15	1	2					1	2	3					1	2									

Table A. 88. The optimal schedule of case 3 for time scenario 2 in terms of up and down time durations (continued).

Xup (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
2																								
3												1	2	3	4	5		1						
4																								
5	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
6	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
7	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
8	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
9	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
10	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
11											1	2		1	2	3	4							
12	18	19	20	21	22		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
13																								
14	4	5	6	7	8		1	2	3	4	5	6				1	2		1	2			1	
15			1	2	3		1	2			1	2	3	4			1		1	2		1		
Xdown (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1																								
2	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
3	8	9	10	11	12	13	14	15	16	17	18						1		1	2	3	4	5	6
4	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
5																								
6																								
7																								
8																								
9																								
10																								
11	5	6	7	8	9	10	11	12	13	14			1					1	2	3	4	5	6	7
12						1																		
13	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
14						1							1	2	3			1			1	2		1
15	1	2				1			1	2					1	2		1			1		1	2

Table A. 89. The optimal schedule of case 4 for time scenario 2 in terms of unit commitment and power generation.

[illegible]

Table A. 90. The optimal schedule of case 4 for time scenario 2 in terms of unit commitment and power generation (continued).

UC (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2																								
3	1							1	1	1	1	1	1	1	1	1		1						
4																								
5	1	1	1	1	1	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
11											1	1		1	1	1	1							
12	1	1	1	1	1			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
13																								
14	1	1	1	1	1		1	1	1		1	1			1	1	1		1	1				
15		1	1	1	1		1						1	1	1		1		1	1		1		
P (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00
2																								
3	194,00							194,00	194,00	194,00	194,00	245,10	194,00	194,00	255,10	194,00		194,00						
4																								
5	1440,00	1440,00	1315,84	1137,84	1028,84	1431,10	1440,00	1118,84	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00
6	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20
7	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00
8	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00
9	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00
10	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70
11											42,00	81,00		42,00	81,00	43,10	81,00							
12	926,10	731,10	601,26	601,26	601,26			601,26	1382,10	2114,10	2267,10	2405,00	2243,10	2396,10	2405,00	2405,00	2405,00	2009,10	1839,10	1757,10	1945,10	2122,10	2033,10	1775,10
13																								
14							5,10										24,30							
15																	30,80							

Table A. 91. The optimal schedule of case 4 for time scenario 2 in terms of unit commitment and power generation (continued).

Xup (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
2																								
3											1	2		1	2	3	4			1	2	3	4	5
4																								
5	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
6	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
7	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
8	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
9	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
10	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
11											1	2		1	2	3	4			1				
12	1	2	3	4	5		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
13																								
14		1	2	3	4	5	6	7	8	9	10	11	12	13	14			1		1		1	2	3
15			1	2	3	4	5	6		1		1	2	3		1	2	3	4	5	6	7	8	9
Xdown (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1																								
2	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
3	1	2	3	4	5	6	7	8	9	10			1					1	2					
4	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
5																								
6																								
7																								
8																								
9																								
10																								
11	1	2	3	4	5	6	7	8	9	10			1					1	2		1	2	3	4
12						1																		
13	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
14	1															1	2		1		1			
15	1	2							1		1				1									

Table A. 92. The optimal schedule of case 4 for time scenario 2 in terms of up and down time durations (continued).

Xup (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
2																								
3	6							1	2	3	4	5	6	7	8	9		1						
4																								
5	25	26	27	28	29	30		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
6	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
7	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
8	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
9	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
10	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
11											1	2		1	2	3	4							
12	19	20	21	22	23			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
13																								
14	4	5	6	7	8		1	2	3		1	2			1	2	3		1	2				
15		1	2	3	4		1						1	2	3		1		1	2		1		
Xdown (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1																								
2	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
3		1	2	3	4	5	6										1		1	2	3	4	5	6
4	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
5							1																	
6																								
7																								
8																								
9																								
10																								
11	5	6	7	8	9	10	11	12	13	14			1					1	2	3	4	5	6	7
12						1	2																	
13	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
14						1				1			1	2				1			1	2	3	4
15	1					1		1	2	3	4	5				1		1			1		1	2

Table A. 95. The optimal schedule of the first mixed scenario in terms of up and down time durations.

[illegible]

Table A. 97. The optimal schedule of the second mixed scenario in terms of unit commitment and power generation.

[illegible]

Table A. 98. The optimal schedule of the second mixed scenario in terms of unit commitment and power generation (continued).

UC (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2										1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3										1	1	1	1	1	1	1	1	1	1		1	1	1	
4																								
5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6									1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7									1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
11	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
12	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
13	1	1	1					1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
14	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
15			1	1	1	1	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
P (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00
2										252,00	252,00	496,30	252,00	377,30	508,30	390,30	269,30	252,00	252,00	252,00	252,00	252,00	252,00	252,00
3										337,30	571,30	600,00	492,30	600,00	600,00	600,00	600,00	211,30	194,00		194,00	194,00	194,00	
4																								
5	1352,00	885,00	581,00	907,00	776,00	538,00	554,00	578,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00
6									120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20
7									196,30	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	93,00	162,30	194,30	406,30	299,30	183,30
8	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00
9	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00
10	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70
11	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00
12	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00
13	540,00	540,00	540,00					540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00
14	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30
15									142,50	142,50	142,50	142,50	142,50	142,50	142,50	142,50	142,50	142,50	116,80	142,50	142,50	142,50	142,50	142,50

Table A. 99. The optimal schedule of the second mixed scenario in terms of up and down time durations.

Xup (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1	2			1		1		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
2											1	2	3	4	5	6	7							
3										1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
4																								
5	1	2	3	4				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
6	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
7	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
8	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
9	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
10	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
11	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
12	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
13	1	2			1	2			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
14	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
15	1			1	2		1	2		1	2	3	4	5	6	7	8	9	10			1	2	3
Xdown (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1			1	2		1		1																
2	1	2	3	4	5	6	7	8	9	10								1	2	3	4	5	6	7
3	1	2	3	4	5	6	7	8	9															
4	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
5					1	2	3																	
6																								
7																								
8																								
9																								
10																								
11																								
12																								
13			1	2			1	2																
14																								
15		1	2			1			1											1	2			

Table A. 100. The optimal schedule of the second mixed scenario in terms of up and down time durations (continued).

Xup (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1	17	18	19	20			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
2										1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
3										1	2	3	4	5	6	7	8	9	10	11	12	13	14	
4																								
5	18	19	20		1	2		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
6	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
7	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
8	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
9	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
10	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
11	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
12	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
13	17			1		1		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
14	25	26	27	28	29			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
15	4	5	6	7	8	9	10	11		1		1	2	3	4	5	6	7	8		1			1
Xdown (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1					1	2																		
2	8	9	10	11	12	13	14	15	16															
3	1	2	3	4	5	6	7	8	9															1
4	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
5				1			1																	
6																								
7																								
8																								
9																								
10																								
11																								
12																								
13		1	2		1		1																	
14						1	2																	
15									1		1									1		1	2	

Table A. 101. The optimal schedule of the third mixed scenario in terms of unit commitment and power generation.

UC (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1	1			1		1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2											1	1	1	1	1	1	1							
3										1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4																								
5	1	1	1	1				1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
11	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
12	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
13	1	1			1	1			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
14	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
15	1			1	1		1	1		1	1	1	1	1	1	1	1	1	1			1	1	1
P (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	210,00	210,00			210,00		182,10		210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00
2											252,00	496,30	252,00	377,30	508,30	390,30	269,30							
3										600,00	600,00	600,00	600,00	600,00	600,00	600,00	600,00	600,00	194,00	194,00	296,80	508,80	401,80	194,00
4																								
5	1105,16	638,16	724,80	510,80				721,80	1309,88	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1415,80	1316,80	1440,00	1440,00	1440,00	1337,80
6	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20
7	486,00	486,00	486,00	486,00	486,00	471,46	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00
8	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00
9	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00
10	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70
11	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00
12	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00
13	180,64	180,64			180,64	180,64			522,92	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00
14	24,30	24,30	24,30	24,30	13,46			24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30
15										131,80	113,80	142,50	34,80	142,50	142,50	142,50	142,50	5,80						

Table A. 102. The optimal schedule of the third mixed scenario in terms of unit commitment and power generation (continued).

UC (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1	1	1	1	1			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2										1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3										1	1	1	1	1	1	1	1	1	1	1	1	1	1	
4																								
5	1	1	1		1	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
11	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
12	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
13	1			1		1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
14	1	1	1	1	1			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
15	1	1	1	1	1	1	1	1		1		1	1	1	1	1	1	1	1		1			1
P (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1	210,00	210,00	210,00	210,00			182,10	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00
2										252,00	365,80	496,30	252,00	377,30	508,30	390,30	269,30	252,00	252,00	252,00	252,00	252,00	252,00	252,00
3										479,80	600,00	600,00	600,00	600,00	600,00	600,00	600,00	353,80	194,00	194,00	194,00	256,80	194,00	
4																								
5	745,80	818,80	514,80		379,80	206,00		331,16	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1163,80	1064,80	1290,80	1440,00	1395,80	1279,80
6	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20
7	486,00	486,00	486,00	486,00	486,00	265,46	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00
8	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00
9	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00
10	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70
11	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00
12	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00
13	540,00			300,80		180,64		180,64	392,80	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00
14	24,30	24,30	24,30	24,30	24,30			24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30
15												142,50	34,80	142,50	142,50	142,50	142,50							

Table A. 103. The optimal schedule of the third mixed scenario in terms of up and down time durations.

Xup (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1	2			1		1		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
2											1	2	3	4	5	6	7							
3										1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
4																								
5	1	2	3	4				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
6	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
7	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
8	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
9	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
10	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
11	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
12	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
13	1	2			1	2			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
14	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
15	1			1	2		1	2		1	2	3	4	5	6	7	8	9	10			1	2	3
Xdown (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1			1	2		1		1																
2	1	2	3	4	5	6	7	8	9	10								1	2	3	4	5	6	7
3	1	2	3	4	5	6	7	8	9															
4	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
5					1	2	3																	
6																								
7																								
8																								
9																								
10																								
11																								
12																								
13			1	2			1	2																
14																								
15		1	2			1			1											1	2			

Table A. 104. The optimal schedule of the third mixed scenario in terms of up and down time durations (continued).

Xup (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1	17	18	19	20			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
2										1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
3										1	2	3	4	5	6	7	8	9	10	11	12	13	14	
4																								
5	18	19	20		1	2		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
6	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
7	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
8	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
9	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
10	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
11	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
12	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
13	17			1		1		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
14	25	26	27	28	29			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
15	4	5	6	7	8	9	10	11		1		1	2	3	4	5	6	7	8		1			1
Xdown (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1					1	2																		
2	8	9	10	11	12	13	14	15	16															
3	1	2	3	4	5	6	7	8	9															1
4	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
5				1			1																	
6																								
7																								
8																								
9																								
10																								
11																								
12																								
13		1	2		1		1																	
14						1	2																	
15									1		1									1		1	2	

Table A. 105. The optimal schedule for the demand scenario 3 in terms of unit commitment and power generation.

UC (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1										1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2											1	1	1	1	1	1	1							
3										1	1	1	1	1	1	1	1	1						
4																								
5										1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6									1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7									1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
10	1	1	1	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
11									1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
12	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
13										1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
14	1				1		1	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
15	1									1	1	1	1	1	1	1	1	1		1	1	1	1	1
P (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1										210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00
2											252,00	496,30	252,00	377,30	508,30	390,30	269,30							
3										589,30	571,30	600,00	492,30	600,00	600,00	600,00	600,00	463,30						
4																								
5										1.440,00	1.440,00	1.440,00	1.440,00	1.440,00	1.440,00	1.440,00	1.440,00	1.440,00	919,80	828,80	1.035,80	1.229,80	1.131,80	506,80
6									120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20
7									131,10	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00
8	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00
9	1.058,30	1.432,00	1.348,04	1.241,04	1.199,74	1.057,04	1.065,04	783,03	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00
10	23,70	23,70	23,70	23,70		23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70
11									81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00
12	2.405,00	670,30	601,26	601,26	601,26	601,26	601,26	1.165,27	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00
13										540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00
14										24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30
15										142,50	142,50	142,50	142,50	142,50	142,50	142,50	142,50	142,50						

Table A. 106. The optimal schedule for the demand scenario 3 in terms of unit commitment and power generation (continued).

UC (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1										1			1	1	1	1	1	1	1	1	1	1	1	1
2													1	1	1	1	1							
3										1	1	1	1	1	1	1	1	1			1	1	1	
4																								
5										1			1	1	1	1	1	1	1	1	1	1	1	1
6									1	1			1	1	1	1	1	1	1	1	1	1	1	1
7									1	1			1	1	1	1	1	1	1	1	1	1	1	1
8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9	1	1							1	1			1	1	1	1	1	1	1	1	1	1	1	1
10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
11									1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
12	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
13										1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
14	1	1				1	1	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
15		1	1	1		1	1	1		1		1	1	1	1	1	1	1	1	1	1	1	1	1
P (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1										210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00
2											252,00	496,30	252,00	377,30	508,30	390,30	269,30							
3										589,30	571,30	600,00	492,30	600,00	600,00	600,00	600,00	463,30						
4																								
5										1.440,00	1.440,00	1.440,00	1.440,00	1.440,00	1.440,00	1.440,00	1.440,00	1.440,00	919,80	828,80	1.035,80	1.229,80	1.131,80	506,80
6									120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20
7									131,10	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00
8	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00
9	1.432,00	720,00							1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00
10	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70
11									81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00
12	2.031,30	1.382,30	1.949,30	1.842,30	1.777,30	1.658,30	1.666,30	1.948,30	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00
13										540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00
14										24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30
15										142,50	142,50	142,50	142,50	142,50	142,50	142,50	142,50	142,50						

Table A. 107. The optimal schedule for the demand scenario 3 in terms of up and down time durations.

Xup (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1										1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
2											1	2	3	4	5	6	7							
3										1	2	3	4	5	6	7	8	9						
4																								
5										1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
6									1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
7									1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
8	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
9	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
10	1	2	3	4		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
11									1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
12	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
13										1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
14	1				1		1	2		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
15	1									1	2	3	4	5	6	7	8	9		1	2	3	4	5
Xdown (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1	2	3	4	5	6	7	8	9															
2	1	2	3	4	5	6	7	8	9	10								1	2	3	4	5	6	7
3	1	2	3	4	5	6	7	8	9										1	2	3	4	5	6
4	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
5	1	2	3	4	5	6	7	8	9															
6	1	2	3	4	5	6	7	8																
7	1	2	3	4	5	6	7	8																
8																								
9																								
10					1																			
11	1	2	3	4	5	6	7	8																
12																								
13	1	2	3	4	5	6	7	8	9															
14		1	2	3		1			1															
15		1	2	3	4	5	6	7	8										1					

Table A. 108. The optimal schedule for the demand scenario 3 in terms of up and down time durations (continued).

[illegible]

Table A. 109. The optimal schedule of case 1 for the demand scenario 3 in terms of unit commitment and power generation.

UC (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1									1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2										1	1	1	1	1	1	1	1	1						
3										1	1	1	1	1	1	1	1	1	1	1	1	1	1	
4										1	1	1	1	1	1	1	1	1						
5										1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6	1	1	1						1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7									1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
11									1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
12	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
13										1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
14	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
15		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		1	1
P (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1									174,80	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00
2										431,30	630,00	630,00	601,30	630,00	630,00	630,00	630,00	293,30						
3										600,00	600,00	600,00	600,00	600,00	600,00	600,00	600,00	600,00	194	194	224,3	580,8	329,3	
4										442,00	501,30	801,30	442,00	671,30	815,30	684,30	551,30	442,00						
5										1.440,00	1.440,00	1.440,00	1.440,00	1.440,00	1.440,00	1.440,00	1.440,00	1.440,00	1.440,00	1.384,80	1.440,00	1.440,00	1.440,00	1.224,80
6	110,30	60,10	60,10						120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,2	120,2	120,2	120,2	120,2	120,2
7									486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00
8	1350	1350	1350	1350	1350	1350	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00
9	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	884,00	1.369,04	720,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00
10	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70
11									81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00
12	2.405,00	957,20	790,20	732,30	660,30	1.077,30	601,26	1.560,30	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00
13										540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00
14									24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30
15										142,50	142,50	142,50	142,50	142,50	142,50	142,50	142,50	142,50	44,80		142,50		142,50	

Table A. 110. The optimal schedule of case 1 for the demand scenario 3 in terms of unit commitment and power generation (cont.).

UC (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1									1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2										1	1	1	1	1	1	1	1	1						
3										1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4										1	1	1	1	1	1	1	1	1						
5										1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6									1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7									1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
11									1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
12	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
13	1									1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
14	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
15	1	1				1			1	1	1	1	1	1	1	1	1	1	1			1	1	
P (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1									174,80	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00
2										431,30	630,00	630,00	601,30	630,00	630,00	630,00	630,00	293,30						
3										600,00	600,00	600,00	600,00	600,00	600,00	600,00	600,00	600,00	194	194	366,8	438,3	329,3	194
4										442,00	501,30	801,30	442,00	671,30	815,30	684,30	551,30	442,00						
5										1.440,00	1.440,00	1.440,00	1.440,00	1.440,00	1.440,00	1.440,00	1.440,00	1.440,00	1.440,00	1.384,80	1.440,00	1.440,00	1.440,00	1.030,80
6									120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,2	120,2	120,2	120,2	120,2
7									486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00
8	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00
9	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.360,04	1.369,04	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00
10	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70
11									81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00
12	2334,66	1017,3	850,3	732,3	660,3	601,26	601,26	848,30	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00
13	180,64									540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00
14									24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30
15										142,50	142,50	142,50	142,50	142,50	142,50	142,50	142,50	142,50	44,80			142,50	142,50	

Table A. 111. The optimal schedule of case 1 for the demand scenario 3 in terms of up and down time durations.

Xup (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1									1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
2										1	2	3	4	5	6	7	8	9						
3										1	2	3	4	5	6	7	8	9	10	11	12	13	14	
4										1	2	3	4	5	6	7	8	9						
5										1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
6	1	2	3						1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
7									1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
8	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
9	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
10	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
11									1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
12	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
13										1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
14	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
15		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		1	2
Xdown (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1	2	3	4	5	6	7	8																
2	1	2	3	4	5	6	7	8	9										1	2	3	4	5	6
3	1	2	3	4	5	6	7	8	9															1
4	1	2	3	4	5	6	7	8	9										1	2	3	4	5	6
5	1	2	3	4	5	6	7	8	9															
6				1	2	3	4	5																
7	1	2	3	4	5	6	7	8																
8																								
9																								
10																								
11	1	2	3	4	5	6	7	8																
12																								
13	1	2	3	4	5	6	7	8	9															
14																								
15	1																					1		

Table A. 112. The optimal schedule of case 1 for the demand scenario 3 in terms of up and down time durations (continued).

Xup (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1									1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
2										1	2	3	4	5	6	7	8	9						
3										1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
4										1	2	3	4	5	6	7	8	9						
5										1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
6									1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
7									1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
8	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
9	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
10	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
11									1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
12	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
13	16									1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
14	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
15	3	4				1			1	2	3	4	5	6	7	8	9	10	11			1	2	
Xdown (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1	1	2	3	4	5	6	7	8																
2	7	8	9	10	11	12	13	14	15										1	2	3	4	5	6
3	2	3	4	5	6	7	8	9	10															
4	7	8	9	10	11	12	13	14	15										1	2	3	4	5	6
5	1	2	3	4	5	6	7	8	9															
6	1	2	3	4	5	6	7	8																
7	1	2	3	4	5	6	7	8																
8																								
9																								
10																								
11	1	2	3	4	5	6	7	8																
12																								
13		1	2	3	4	5	6	7	8															
14																								
15			1	2	3		1	2												1	2			1

Table A. 114. The optimal schedule of case 2 for the demand scenario 3 in terms of unit commitment and power generation (continued).

UC (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2									1	1	1	1	1	1	1	1	1	1			1	1	1	1
3										1	1	1	1	1	1	1	1	1	1	1	1	1	1	
4										1	1	1	1	1	1	1	1	1						
5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
11										1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
12	1								1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
13										1	1	1	1	1	1	1	1		1					
14	1	1	1		1	1	1	1		1	1	1	1	1	1	1	1	1				1		
15	1	1	1	1	1	1		1	1	1			1	1	1		1	1	1	1	1	1	1	1
P (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1	210,00	210,00	210,00	210,00	210,00	126,00	126,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00
2									252,00	630,00	630,00	630,00	630,00	630,00	630,00	630,00	630,00	630,00			331,10	545,10	436,10	372,80
3										600,00	600,00	600,00	600,00	600,00	600,00	600,00	600,00	600,00	600,00	600,00	600,00	600,00	600,00	
4										442,00	643,80	943,80	555,80	813,80	957,80	826,80	693,80	787,80						
5	1097,84	206,00	206,00	206,00	206,00	206,00	206,00	206,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00
6	120,20	120,20	120,20	120,20	120,20	104,30	113,30	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20
7	486,00	481,10	314,10	196,10	124,10	93,00	93,00	312,10	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00
8	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00
9	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00
10	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	
11										81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00
12	601,26								783,10	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00
13										483,80	540,00	540,00	540,00	540,00	540,00	540,00	540,00		203,10					
14										24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30						
15																				103,10				

Table A. 115. The optimal schedule of case 2 for the demand scenario 3 in terms of up and down time durations.

Xup (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
2									1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
3										1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
4										1	2	3	4	5	6	7	8	9						
5	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
6	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
7	1	2	3	4				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
8	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
9	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
10	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
11										1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
12	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
13										1	2	3	4	5	6	7	8	9						
14		1		1		1	2	3		1	2	3	4	5	6	7	8	9		1	2	3	4	
15									1	2	3		1	2	3		1	2	3	4		1		1
Xdown (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1																								
2	1	2	3	4	5	6	7	8																1
3	1	2	3	4	5	6	7	8	9															
4	1	2	3	4	5	6	7	8	9										1	2	3	4	5	6
5																								
6																								
7					1	2	3																	
8																								
9																								
10																								
11	1	2	3	4	5	6	7	8	9															
12																								
13	1	2	3	4	5	6	7	8	9										1	2	3	4	5	6
14	1		1		1				1										1					1
15	1	2	3	4	5	6	7	8				1				1					1		1	

Table A. 116. The optimal schedule of case 2 for the demand scenario 3 in terms of up and down time durations (continued).

Xup (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
2									1	2	3	4	5	6	7	8	9	10			1	2	3	4
3										1	2	3	4	5	6	7	8	9	10	11	12	13	14	
4										1	2	3	4	5	6	7	8	9						
5	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
6	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
7	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
8	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
9	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
10	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	
11										1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
12	25								1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
13										1	2	3	4	5	6	7	8		1					
14	1	2	3		1	2	3	4		1	2	3	4	5	6	7	8	9				1		
15	2	3	4	5	6	7		1	2	3			1	2	3		1	2	3	4	5	6	7	8
Xdown (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1																								
2	2	3	4	5	6	7	8	9											1	2				
3	1	2	3	4	5	6	7	8	9															1
4	7	8	9	10	11	12	13	14	15										1	2	3	4	5	6
5																								
6																								
7																								
8																								
9																								
10																								1
11	1	2	3	4	5	6	7	8	9															
12		1	2	3	4	5	6	7																
13	7	8	9	10	11	12	13	14	15									1		1	2	3	4	5
14				1					1										1	2	3		1	2
15							1				1	2				1								

Table A. 117. The optimal schedule of case 1 for time scenario 1 and demand scenario 3 in terms of unit commitment and power generation.

UC (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1										1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2											1	1	1	1	1	1	1							
3										1	1	1	1	1	1	1	1	1						
4																								
5										1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6								1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7									1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
11									1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
12	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
13										1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
14	1		1	1	1	1		1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
15		1				1	1			1	1	1	1	1	1	1	1	1			1	1		1
P (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1										210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00
2											252,00	496,30	252,00	377,30	508,30	390,30	269,30							
3										589,30	571,30	600,00	492,30	600,00	600,00	600,00	600,00	463,30						
4																								
5										1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	919,80	828,80	1035,80	1229,80	1131,80	506,80
6								60,10	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20
7									131,10	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00
8	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00
9	1058,30	720,00	720,00	720,00	720,00	720,00	720,00	720,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00
10	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70
11									81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00
12	2405,00	1382,30	1229,30	1122,30	1057,30	938,30	946,30	1168,20	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00
13										540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00
14										24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30
15										142,50	142,50	142,50	142,50	142,50	142,50	142,50	142,50	142,50						

Table A. 118. The optimal schedule of case 1 for time scenario 1 and demand scenario 3 in terms of unit commitment and power generation
(continuous).

UC (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1										1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2										1	1	1	1	1	1	1	1							
3										1	1	1	1	1	1	1	1	1						
4																								
5										1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6									1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7									1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
11									1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
12	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
13										1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
14			1	1				1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
15	1	1		1	1	1	1	1		1	1	1	1	1	1	1	1	1			1		1	
P (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1										210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	
2										252,00	252,00	496,30	252,00	377,30	508,30	390,30	269,30							
3										337,30	571,30	600,00	492,30	600,00	600,00	600,00	600,00	463,30						
4																								
5										1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	919,80	828,80	1035,80	1229,80	1131,80	506,80
6									120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20
7									131,10	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00
8	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1272,42	200,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00
9	1058,30	720,00	720,00	720,00	720,00	720,00	720,00	720,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00
10	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70
11									81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00
12	2405,00	1382,30	1229,30	1122,30	1057,30	938,30	1023,88	2378,30	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00
13										540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00
14										24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30
15										142,50	142,50	142,50	142,50	142,50	142,50	142,50	142,50	142,50						

Table A. 119. The optimal schedule of case 1 for time scenario 1 and demand scenario 3 in terms of up and down time durations.

Xup (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1										1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
2											1	2	3	4	5	6	7							
3										1	2	3	4	5	6	7	8	9						
4																								
5										1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
6								1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
7									1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
8	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
9	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
10	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
11									1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
12	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
13										1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
14	1		1	2	3	4		1		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
15		1				1	2			1	2	3	4	5	6	7	8	9			1	2		1
Xdown (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1	2	3	4	5	6	7	8	9															
2	1	2	3	4	5	6	7	8	9	10								1	2	3	4	5	6	7
3	1	2	3	4	5	6	7	8	9										1	2	3	4	5	6
4	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
5	1	2	3	4	5	6	7	8	9															
6	1	2	3	4	5	6	7																	
7	1	2	3	4	5	6	7	8																
8																								
9																								
10																								
11	1	2	3	4	5	6	7	8																
12																								
13	1	2	3	4	5	6	7	8	9															
14		1					1		1															
15	1		1	2	3			1	2										1	2			1	

Table A. 120. The optimal schedule of case 1 for time scenario 1 and demand scenario 3 in terms of up and down time durations (continuous).

Xup (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1										1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
2										1	2	3	4	5	6	7	8							
3										1	2	3	4	5	6	7	8	9						
4																								
5										1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
6									1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
7									1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
8	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
9	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
10	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
11									1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
12	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
13										1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
14			1	2				1		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
15	2	3		1	2	3	4	5		1	2	3	4	5	6	7	8	9			1		1	
Xdown (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1	1	2	3	4	5	6	7	8	9															
2	8	9	10	11	12	13	14	15	16									1	2	3	4	5	6	7
3	7	8	9	10	11	12	13	14	15										1	2	3	4	5	6
4	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
5	1	2	3	4	5	6	7	8	9															
6	1	2	3	4	5	6	7	8																
7	1	2	3	4	5	6	7	8																
8																								
9																								
10																								
11	1	2	3	4	5	6	7	8																
12																								
13	1	2	3	4	5	6	7	8	9															
14	1	2			1	2	3		1															
15			1						1										1	2		1		1

Table A. 121. The optimal schedule of case 2 for time scenario 1 and demand scenario 3 in terms of unit commitment and power generation.

UC (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1	1							1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2										1	1	1	1	1	1	1	1	1						
3										1	1	1	1	1	1	1	1	1			1	1	1	
4												1	1	1	1	1	1	1	1					
5	1	1	1	1	1				1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
11										1	1	1	1	1	1	1	1	1		1		1	1	
12	1								1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
13										1	1				1	1								
14	1		1	1	1	1		1			1	1		1	1	1	1		1		1	1	1	1
15		1				1	1		1	1		1		1	1	1		1	1	1	1	1	1	1
P (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	210,00	210,00							210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00
2										515,46	630,00	630,00	409,10	630,00	592,46	474,46	534,10	252,00						
3										600,00	600,00	600,00	600,00	600,00	600,00	600,00	600,00	476,10			241,10	354,10	256,10	
4												548,80	442,00	442,00	442,00	442,00	442,00	442,00	442,00					
5	413,84	206,00	206,00	206,00	206,00				1.319,84	1.440,00	1.440,00	1.440,00	1.440,00	1.440,00	1.440,00	1.440,00	1.440,00	1.440,00	1.123,10	1.440,00	1.440,00	1.440,00	1.440,00	1.152,10
6	120,20	120,20	120,20	111,30	60,10	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20
7	486,00	134,10	191,10	93,00	93,00	106,10	114,10	396,10	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00
8	1.350,00	1.350,00	1.350,00	1.350,00	1.336,20	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00
9	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00
10	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70
11										81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00		42,00		81,00	81,00	
12	801,26								601,26	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.397,10	2.405,00	2.405,00	2.405,00	2.405,00
13										180,64	275,80				180,64	180,64								
14											24,30	24,30		12,10										
15																								

Table A. 122. The optimal schedule of case 2 for time scenario 1 and demand scenario 3 in terms of unit commitment and power generation
(continuous).

UC (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1	1	1	1	1	1				1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2						1	1	1	1	1	1	1	1	1	1	1	1	1						
3										1	1	1	1	1	1	1	1	1	1		1	1	1	
4											1	1	1	1	1									
5	1								1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6				1	1				1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7	1	1	1	1	1			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
11										1	1	1	1	1	1	1	1	1			1	1	1	1
12	1								1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
13										1		1			1	1	1	1						
14	1	1	1					1		1	1	1	1	1	1	1	1	1		1				
15	1	1		1	1	1	1	1	1	1	1	1	1	1		1	1	1	1	1	1		1	
P (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1	210,00	210,00	210,00	197,10	132,10				210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00
2						252,00	252,00	252,00	252,00	515,46	488,10	580,46	409,10	630,00	592,46	630,00	630,00	389,46						
3										600,00	600,00	600,00	600,00	600,00	600,00	600,00	600,00	600,00	194,00		194,00	354,10	256,10	
4											442,00	442,00	442,00	442,00	442,00									
5	206,00								206,00	1.440,00	1.440,00	1.440,00	1.440,00	1.440,00	1.440,00	1.440,00	1.440,00	1.440,00	1.371,10	1.440,00	1.440,00	1.440,00	1.440,00	1.110,10
6				120,20	120,20				120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20
7	486,00	460,30	307,30	93,00	93,00			264,30	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00
8	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.324,30	1.332,30	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00
9	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00
10	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70
11										81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00			47,10	81,00	81,00	42,00
12	1.129,30								1.463,10	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00
13										180,64		180,64			180,64	442,80	321,80	180,64						
14														12,10		24,30	24,30			24,30				
15																				9,80				

Table A. 123. The optimal schedule of case 2 for time scenario 1 and demand scenario 3 in terms of up and down time durations.

Xup (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1	2							1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
2										1	2	3	4	5	6	7	8	9						
3										1	2	3	4	5	6	7	8	9			1	2	3	
4												1	2	3	4	5	6	7	8					
5	1	2	3	4	5				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
6	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
7	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
8	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
9	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
10	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
11										1	2	3	4	5	6	7	8	9		1		1	2	
12	1								1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
13										1	2				1	2								
14	1		1	2	3	4		1			1	2		1	2	3	4		1		1	2	3	4
15		1				1	2		1	2		1		1	2	3		1	2	3	4	5		1
Xdown (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1			1	2	3	4	5	6																
2	1	2	3	4	5	6	7	8	9										1	2	3	4	5	6
3	1	2	3	4	5	6	7	8	9										1	2				1
4	1	2	3	4	5	6	7	8	9	10	11									1	2	3	4	5
5						1	2	3																
6																								
7																								
8																								
9																								
10																								
11	1	2	3	4	5	6	7	8	9										1		1			1
12		1	2	3	4	5	6	7																
13	1	2	3	4	5	6	7	8	9			1	2	3			1	2	3	4	5	6	7	8
14		1					1		1	2			1					1		1				
15	1		1	2	3			1			1		1				1						1	

Table A. 124. The optimal schedule of case 2 for time scenario 1 and demand scenario 3 in terms of up and down time durations (continuous).

Xup (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1	17	18	19	20	21				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
2						1	2	3	4	5	6	7	8	9	10	11	12	13						
3										1	2	3	4	5	6	7	8	9	10		1	2	3	
4											1	2	3	4	5									
5	17								1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
6				1	2				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
7	25	26	27	28	29			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
8	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
9	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
10	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
11										1	2	3	4	5	6	7	8	9			1	2	3	4
12	17								1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
13										1		1			1	2	3	4						
14	5	6	7					1		1	2	3	4	5	6	7	8	9		1				
15	2	3		1	2	3	4	5	6	7	8	9	10	11		1	2	3	4	5	6		1	
Xdown (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1						1	2	3																
2	7	8	9	10	11														1	2	3	4	5	6
3	2	3	4	5	6	7	8	9	10											1				1
4	6	7	8	9	10	11	12	13	14	15						1	2	3	4	5	6	7	8	9
5		1	2	3	4	5	6	7																
6	1	2	3			1	2	3																
7						1	2																	
8																								
9																								
10																								
11	2	3	4	5	6	7	8	9	10										1	2				
12		1	2	3	4	5	6	7																
13	9	10	11	12	13	14	15	16	17		1		1	2					1	2	3	4	5	6
14				1	2	3	4		1										1		1	2	3	4
15			1												1							1		1

Table A. 125. The optimal schedule of case 3 for time scenario 1 and demand scenario 3 in terms of unit commitment and power generation.

[illegible]

Table A. 126. The optimal schedule of case 3 for time scenario 1 and demand scenario 3 in terms of unit commitment and power generation (continuous).

UC (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1	1	1	1	1	1				1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2										1	1	1	1	1	1	1	1	1						
3										1	1	1	1	1	1	1	1	1	1		1	1	1	
4	1	1				1	1	1	1	1	1	1	1	1	1									
5	1								1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6	1	1	1	1	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7	1	1	1	1	1	1			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
11										1	1	1	1	1	1	1	1	1		1		1	1	1
12									1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
13												1			1	1	1	1						
14	1	1	1	1	1		1			1	1	1		1		1	1	1	1	1			1	1
15	1	1	1	1	1	1	1	1	1	1		1	1		1	1	1				1	1	1	1
P (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1	210,00	126,00	210,00	197,10	132,10				210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00
2										254,10	488,10	580,46	409,10	630,00	592,46	630,00	630,00	389,46						
3										600,00	600,00	600,00	600,00	600,00	600,00	600,00	600,00	600,00	194,00		241,10	354,10	256,10	
4	442,00	442,00				442,00	442,00	442,00	442,00	442,00	442,00	442,00	442,00	442,00	442,00									
5	773,10								877,84	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00
6	120,20	60,10	120,20	120,20	120,20		60,10	74,30	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20
7	486,00	93,00	187,10	93,00	93,00	93,00			486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00
8	1350,00	1299,20	1350,00	1350,00	1350,00	1041,30	1082,20	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00
9	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00
10	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70
11										81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00		42,00		81,00	81,00	42,00
12									601,26	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2336,10	2397,10	2405,00	2405,00	2405,00	2075,10
13												180,64			180,64	442,80	321,80	180,64						
14														12,10		24,30	24,30							
15																								

Table A. 127. The optimal schedule of case 3 for time scenario 1 and demand scenario 3 in terms of up and down time durations.

Xup (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
2									1	2	3	4	5	6	7	8	9	10	11					
3										1	2	3	4	5	6	7	8	9	10					
4										1	2	3	4	5	6					1	2	3	4	5
5	1	2	3	4	5				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
6	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
7	1	2						1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
8	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
9	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
10	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
11										1	2	3	4	5	6	7	8	9						
12									1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
13															1	2	3	4						
14	1	2	3		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
15	1	2	3	4	5	6		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Xdown (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1																								
2	1	2	3	4	5	6	7	8												1	2	3	4	5
3	1	2	3	4	5	6	7	8	9											1	2	3	4	5
4	1	2	3	4	5	6	7	8	9							1	2	3	4					
5						1	2	3									1	2	3	4				
6																								
7			1	2	3	4	5																	
8																								
9																								
10																								
11	1	2	3	4	5	6	7	8	9										1	2	3	4	5	6
12	1	2	3	4	5	6	7	8																
13	1	2	3	4	5	6	7	8	9	10	11	12	13	14					1	2	3	4	5	6
14				1																				
15							1																	

Table A. 128. The optimal schedule of case 3 for time scenario 1 and demand scenario 3 in terms of up and down time durations (continuous).

Xup (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1	25	26	27	28	29				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
2										1	2	3	4	5	6	7	8	9						
3										1	2	3	4	5	6	7	8	9	10		1	2	3	
4	6	7				1	2	3	4	5	6	7	8	9	10									
5	17								1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
6	25	26	27	28	29		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
7	18	19	20	21	22	23			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
8	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
9	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
10	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
11										1	2	3	4	5	6	7	8	9		1		1	2	3
12									1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
13												1			1	2	3	4						
14	21	22	23	24	25		1			1	2	3		1		1	2	3	4	5			1	2
15	18	19	20	21	22	23	24	25	26	27		1	2		1	2	3				1	2	3	4
Xdown (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1						1	2	3																
2	6	7	8	9	10	11	12	13	14										1	2	3	4	5	6
3	6	7	8	9	10	11	12	13	14											1				1
4			1	2	3											1	2	3	4	5	6	7	8	9
5		1	2	3	4	5	6	7																
6						1																		
7							1	2																
8																								
9																								
10																								
11	7	8	9	10	11	12	13	14	15										1		1			
12	1	2	3	4	5	6	7	8																
13	7	8	9	10	11	12	13	14	15	16	17		1	2					1	2	3	4	5	6
14						1		1	2				1		1						1	2		
15											1			1				1	2	3				

Table A. 129. The optimal schedule of case 1 for time scenario 2 and demand scenario 3 in terms of unit commitment and power generation.

UC (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1										1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2											1	1	1	1	1	1	1							
3										1	1	1	1	1	1	1	1	1	1					
4																								
5										1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6									1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7									1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9	1			1			1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
11									1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
12	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
13										1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
14		1		1		1	1	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
15	1			1	1	1	1	1		1	1	1	1	1	1	1	1	1		1	1	1	1	1,00
P (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1										210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00
2											252,00	496,30	252,00	377,30	508,30	390,30	269,30							
3										600,00	600,00	600,00	600,00	600,00	600,00	600,00	600,00	600,00	194,00					
4																								
5										1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	744,15	828,80	1035,80	1440,00	1440,00	506,80
6									120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20
7									131,10	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00
8	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00
9	1432,00			1241,04			1065,04		1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00
10	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70
11									81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00
12	2031,30	2102,30	1949,30	601,26	1777,30	1658,30	601,26	1948,30	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00
13										540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	521,65	540,00	540,00	329,80	231,80	540,00
14										24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30
15										131,80	113,80	142,50	34,80	142,50	142,50	142,50	142,50	5,80						

Table A. 130. The optimal schedule of case 1 for time scenario 2 and demand scenario 3 in terms of unit commitment and power generation
(continuous).

UC (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1										1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2											1	1	1	1	1	1	1							
3										1	1	1	1	1	1	1	1	1	1					
4																								
5	1									1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6									1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7									1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9	1		1		1		1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
11									1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
12	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
13										1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
14		1	1		1	1	1	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
15	1	1	1	1	1	1	1	1		1	1	1	1	1	1	1	1	1	1					1
P (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1										210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00
2											252,00	496,30	252,00	377,30	508,30	390,30	269,30							
3										600,00	600,00	600,00	600,00	600,00	600,00	600,00	600,00	600,00	194,00					
4																								
5	206,00									1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	725,80	828,80	1035,80	1229,80	1131,80	506,80
6									120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20
7									131,10	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00
8	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00
9	1432,00		1348,04		1176,04		1065,04		1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00
10	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70
11									81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00
12	1825,30	2102,30	601,26	1842,30	601,26	1658,30	601,26	1948,30	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00
13										540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00
14										24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30
15										131,80	113,80	142,50	34,80	142,50	142,50	142,50	142,50	5,80						

Table A. 131. The optimal schedule of case 1 for time scenario 2 and demand scenario 3 in terms of up and down time durations.

Xup (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1										1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
2											1	2	3	4	5	6	7							
3										1	2	3	4	5	6	7	8	9	10					
4																								
5										1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
6									1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
7									1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
8	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
9	1			1			1		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
10	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
11									1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
12	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
13										1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
14		1		1		1	2	3		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
15	1			1	2	3	4	5		1	2	3	4	5	6	7	8	9		1	2	3	4	5
Xdown (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1	2	3	4	5	6	7	8	9															
2	1	2	3	4	5	6	7	8	9	10								1	2	3	4	5	6	7
3	1	2	3	4	5	6	7	8	9											1	2	3	4	5
4	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
5	1	2	3	4	5	6	7	8	9															
6	1	2	3	4	5	6	7	8																
7	1	2	3	4	5	6	7	8																
8																								
9		1	2		1	2		1																
10																								
11	1	2	3	4	5	6	7	8																
12																								
13	1	2	3	4	5	6	7	8	9															
14	1		1		1				1															
15		1	2						1										1					

Table A. 132. The optimal schedule of case 1 for time scenario 2 and demand scenario 3 in terms of up and down time durations (continuous).

Xup (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1										1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
2											1	2	3	4	5	6	7							
3										1	2	3	4	5	6	7	8	9	10					
4																								
5	16									1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
6									1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
7									1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
8	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
9	17		1		1		1		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
10	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
11									1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
12	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
13										1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
14		1	2		1	2	3	4		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
15	6	7	8	9	10	11	12	13		1	2	3	4	5	6	7	8	9	10					1
Xdown (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1	1	2	3	4	5	6	7	8	9															
2	8	9	10	11	12	13	14	15	16	17								1	2	3	4	5	6	7
3	6	7	8	9	10	11	12	13	14											1	2	3	4	5
4	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
5		1	2	3	4	5	6	7	8															
6	1	2	3	4	5	6	7	8																
7	1	2	3	4	5	6	7	8																
8																								
9		1		1		1		1																
10																								
11	1	2	3	4	5	6	7	8																
12																								
13	1	2	3	4	5	6	7	8	9															
14	1			1					1															
15									1											1	2	3	4	

Table A. 133. The optimal schedule of case 2 for time scenario 2 and demand scenario 3 in terms of unit commitment and power generation.

UC (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1	1	1	1	1			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2										1	1	1	1	1	1	1	1	1						
3										1	1	1	1	1	1	1	1	1	1	1		1	1	
4												1			1									
5	1								1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7	1	1	1					1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
11										1	1	1	1	1	1	1	1	1	1		1	1	1	
12									1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
13											1		1	1		1	1							1
14			1	1		1	1	1		1	1		1	1	1	1	1		1	1	1		1	
15	1			1	1	1	1	1	1	1	1		1	1			1	1		1	1	1	1	1
P (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	210,00	210,00	210,00	210,00	210,00			210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00
2										630,00	630,00	630,00	630,00	630,00	630,00	630,00	630,00	570,10						
3										600,00	600,00	600,00	600,00	600,00	600,00	600,00	600,00	600,00	194,00	194,00		354,10	256,10	
4												573,10			560,80									
5	1215,10								1319,84	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00
6	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20
7	486,00	340,10	187,10					186,10	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00
8	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00
9	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00
10	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70
11										81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	42,00		81,00	81,00	81,00	
12									601,26	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2294,10	2245,10	2405,00	2405,00	2405,00	1936,46
13											275,80		196,80	429,80		442,80	321,80							180,64
14				24,30		24,30	24,30			24,30	24,30		24,30	24,30	24,30	24,30	24,30				24,30			
15				55,80	15,10	81,80	89,80			41,80											135,80			

Table A. 134. The optimal schedule of case 2 for time scenario 2 and demand scenario 3 in terms of unit commitment and power generation (continuous).

UC (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1	1	1	1	1	1			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2										1	1	1	1	1	1	1	1		1					
3										1	1	1	1	1	1	1	1	1					1	1
4															1									
5	1								1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7	1	1	1	1	1			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
11										1	1	1	1	1	1	1	1	1			1	1	1	
12									1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
13	1	1	1	1	1	1	1	1	1		1	1	1	1		1	1	1						
14	1	1	1		1	1	1	1		1	1	1	1	1	1	1	1		1	1	1	1	1	1
15	1	1	1	1	1	1	1	1		1	1	1		1	1	1	1	1	1	1	1	1	1	1
P (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1	210,00	210,00	126,00	126,00	126,00			126,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00
2										630,00	630,00	630,00	630,00	630,00	630,00	630,00	630,00		252,00					
3										600,00	600,00	600,00	600,00	600,00	600,00	600,00	600,00	600,00				354,10	256,10	
4															560,80									
5	1034,46								1139,20	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00
6	120,20	120,20	117,66	60,10	60,10	60,10	60,10	116,66	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20
7	486,00	159,46	93,00	93,00	93,00			93,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00
8	1350,00	1350,00	1350,00	1300,56	1235,56	1335,56	1343,56	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00
9	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00
10	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70
11										81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00			81,00	81,00	81,00	
12									601,26	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2278,10	2405,00	2405,00	2405,00	2405,00	2117,10
13	180,64	180,64	180,64	180,64	180,64	180,64	180,64	180,64	180,64		275,80	540,00	196,80	429,80		442,80	321,80	540,00						
14										24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30			24,30	24,30			
15										41,80		8,80						30,10		9,80	135,80			

Table A. 135. The optimal schedule of case 2 for time scenario 2 and demand scenario 3 in terms of up and down time durations.

Xup (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1	2	3	4	5			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
2										1	2	3	4	5	6	7	8	9						
3										1	2	3	4	5	6	7	8	9	10	11		1	2	
4												1			1									
5	1								1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
6	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
7	1	2	3					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
8	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
9	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
10	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
11										1	2	3	4	5	6	7	8	9	10		1	2	3	
12									1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
13											1		1	2		1	2							1
14			1	2		1	2	3		1	2		1	2	3	4	5		1	2	3		1	
15	1			1	2	3	4	5	6	7	8		1	2			1	2		1	2	3	4	5
Xdown (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1						1	2																	
2	1	2	3	4	5	6	7	8	9										1	2	3	4	5	6
3	1	2	3	4	5	6	7	8	9												1			1
4	1	2	3	4	5	6	7	8	9	10	11		1	2		1	2	3	4	5	6	7	8	9
5		1	2	3	4	5	6	7																
6																								
7				1	2	3	4																	
8																								
9																								
10																								
11	1	2	3	4	5	6	7	8	9											1				1
12	1	2	3	4	5	6	7	8																
13	1	2	3	4	5	6	7	8	9	10		1			1			1	2	3	4	5	6	
14	1	2			1				1			1						1				1		1
15		1	2									1			1	2			1					

Table A. 136. The optimal schedule of case 2 for time scenario 2 and demand scenario 3 in terms of up and down time durations (continuous).

[illegible]

Table A. 137. The optimal schedule of case 3 for time scenario 2 and demand scenario 3 in terms of unit commitment and power generation.

UC (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1	1	1	1	1			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2										1	1	1	1	1	1	1	1	1						
3										1	1	1	1	1	1	1	1	1	1			1	1	
4												1			1									
5	1								1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7	1	1	1	1				1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
11										1	1	1	1	1	1	1	1	1	1		1	1	1	
12									1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
13											1		1	1	1	1	1							
14			1	1		1	1	1		1	1		1	1	1	1	1		1	1	1		1	
15	1			1	1	1	1	1	1	1	1		1	1			1	1		1	1	1	1	1
P (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	210,00	210,00	210,00	197,10	210,00			210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00
2										630,00	630,00	630,00	630,00	630,00	592,46	630,00	630,00	570,10						
3										600,00	600,00	600,00	600,00	600,00	600,00	600,00	600,00	600,00	194,00			354,10	256,10	
4												573,10			442,00									
5	1215,10								1319,84	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00	1440,00
6	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20
7	486,00	340,10	187,10	93,00				186,10	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00
8	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00	1350,00
9	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00	1432,00
10	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70
11										81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	42,00		81,00	81,00	81,00	
12									601,26	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2405,00	2294,10	2405,00	2405,00	2405,00	2405,00	2117,10
13											275,80		196,80	429,80	180,64	442,80	321,80							
14						24,30	24,30			24,30	24,30		24,30	24,30		24,30	24,30			24,30	24,30			
15					15,10	81,80	89,80			41,80										9,80	135,80			

Table A. 138. The optimal schedule of case 3 for time scenario 2 and demand scenario 3 in terms of unit commitment and power generation (continuous).

[illegible]

Table A. 139. The optimal schedule of case 3 for time scenario 2 and demand scenario 3 in terms of up and down time durations.

Xup (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1	2	3	4	5			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
2										1	2	3	4	5	6	7	8	9						
3										1	2	3	4	5	6	7	8	9	10			1	2	
4												1			1									
5	1								1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
6	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
7	1	2	3	4				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
8	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
9	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
10	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
11										1	2	3	4	5	6	7	8	9	10		1	2	3	
12									1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
13											1		1	2	3	4	5							
14			1	2		1	2	3		1	2		1	2	3	4	5		1	2	3		1	
15	1			1	2	3	4	5	6	7	8		1	2			1	2		1	2	3	4	5
Xdown	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1						1	2																	
2	1	2	3	4	5	6	7	8	9										1	2	3	4	5	6
3	1	2	3	4	5	6	7	8	9											1	2			1
4	1	2	3	4	5	6	7	8	9	10	11		1	2		1	2	3	4	5	6	7	8	9
5		1	2	3	4	5	6	7																
6																								
7					1	2	3																	
8																								
9																								
10																								
11	1	2	3	4	5	6	7	8	9											1				1
12	1	2	3	4	5	6	7	8																
13	1	2	3	4	5	6	7	8	9	10		1						1	2	3	4	5	6	7
14	1	2			1				1			1						1				1		1
15		1	2									1			1	2			1					

Table A. 140. The optimal schedule of case 3 for time scenario 2 and demand scenario 3 in terms of up and down time durations (continuous).

[illegible]

Table A. 141. The optimal schedule for time scenario 2 and demand scenario 3 in terms of unit commitment and power generation.

UC (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1									1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2										1	1	1	1	1	1	1	1	1						
3										1	1	1			1		1	1	1		1	1	1	1
4										1	1	1	1	1	1	1	1	1						
5										1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6	1								1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7									1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
11									1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
12	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
13										1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
14			1	1	1	1		1		1	1	1	1	1	1	1	1	1	1	1				
15	1		1	1				1		1	1	1	1	1	1	1	1	1		1		1	1	
P (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1									199,10	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00
2										431,30	630,00	630,00	630,00	630,00	630,00	630,00	630,00	293,30						
3										600,00	600,00	600,00			600,00		600,00	600,00	238,80		391,10	462,60	353,60	194,00
4										442,00	501,30	801,30	1.013,30	1.271,30	815,30	1.284,30	551,30	442,00						
5										1.440,00	1.440,00	1.440,00	1.440,00	1.440,00	1.440,00	1.440,00	1.440,00	1.440,00	1.440,00	1.440,00	1.440,00	1.440,00	1.440,00	1.055,10
6	110,30								120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20
7									486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00
8	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00
9	1.432,00	1.432,00	1.432,00	1.359,81	1.432,00	1.327,58	1.369,04	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00
10	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70
11									81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00
12	2.405,00	1.017,30	850,30	804,49	660,30	633,72	601,26	848,30	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00
13										540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00
14										24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30				
15										142,50	142,50	142,50	142,50	142,50	142,50	142,50	142,50	142,50		138,80		142,50	142,50	

Table A. 142. The optimal schedule for time scenario 2 and demand scenario 3 in terms of unit commitment and power generation (continuous).

UC (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1									1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2										1	1	1	1	1	1	1	1							
3										1	1	1	1	1	1	1	1	1	1		1	1	1	
4										1	1	1	1	1	1	1	1	1						
5										1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6	1								1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7									1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8	1	1	1	1	1	1	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
11									1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
12	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
13										1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
14			1	1	1		1	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
15								1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
P (i,t)	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1									199,10	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00	210,00
2										431,30	630,00	630,00	601,30	630,00	630,00	630,00	630,00							
3										600,00	600,00	600,00	600,00	600,00	600,00	600,00	600,00	600,00	194,00		224,30	438,30	329,30	
4										442,00	501,30	801,30	442,00	671,30	815,30	684,30	551,30	735,30						
5										1.440,00	1.440,00	1.440,00	1.440,00	1.440,00	1.440,00	1.440,00	1.440,00	1.440,00	1.440,00	1.440,00	1.440,00	1.440,00	1.440,00	1.224,80
6	110,30								120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20	120,20
7									486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00	486,00
8	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00		1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00	1.350,00
9	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.360,04	1.369,04	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00	1.432,00
10	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70	23,70
11									81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00	81,00
12	2.405,00	1.017,30	850,30	732,30	660,30	601,26	601,26	2.198,30	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00	2.405,00
13										540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00	540,00
14										24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30	24,30
15										142,50	142,50	142,50	142,50	142,50	142,50	142,50	142,50	142,50	44,80	138,80	142,50	142,50	142,50	

Table A. 143. The optimal schedule for time scenario 2 and demand scenario 3 in terms of up and down time durations.

Xup (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1									1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
2										1	2	3	4	5	6	7	8	9						
3										1	2	3			1		1	2	3		1	2	3	4
4										1	2	3	4	5	6	7	8	9						
5										1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
6	1								1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
7									1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
8	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
9	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
10	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
11									1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
12	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
13										1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
14			1	2	3	4		1		1	2	3	4	5	6	7	8	9	10	11				
15	1		1	2				1		1	2	3	4	5	6	7	8	9		1		1	2	
Xdown (i,t)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1	2	3	4	5	6	7	8																
2	1	2	3	4	5	6	7	8	9										1	2	3	4	5	6
3	1	2	3	4	5	6	7	8	9				1	2		1				1				
4	1	2	3	4	5	6	7	8	9										1	2	3	4	5	6
5	1	2	3	4	5	6	7	8	9															
6		1	2	3	4	5	6	7																
7	1	2	3	4	5	6	7	8																
8																								
9																								
10																								
11	1	2	3	4	5	6	7	8																
12																								
13	1	2	3	4	5	6	7	8	9															
14	1	2					1		1												1	2	3	4
15		1			1	2	3		1										1		1			1

APPENDIX B: GAMS CODE OF THE STGS MODEL

Model POWER

Sets

```
i plant /1*15/,
t time /1*48/ ;
```

Binary variable

```
IS(i,t)                                unit commtmnt state;
```

Positive variables

```
P(i,t)                                power(energy) output
XON(i,t)                               time for which ppt i has been on at time t
XOFF(i,t)                              time for which ppt i has been off at time t
TP                                      total production amount at the end of the period;
```

Variable z objective;

Scalar maxemission /110000/;

Parameters

```
c(i)                                cost of 1 unit energy generated in ppt i/
$include "1cost.txt"
/
d(t)                                total energy demand for hr t/
$include "1demand.txt"
/
pmin(i)                             min energy production level of ppt i per hr/
$include "1minprod.txt"
/
pmax(i)                             max energy production level of ppt i per hr/
$include "1maxprod.txt"
/
e(i)                                emission level for 1 unit energy generated in ppt
i/
$include "1emission.txt"
/
tup(i)                              min up time of ppt i/
```

```

$include "lminup.txt"
/
tdown(i)                min down time of ppt i/
$include "lmindown.txt"
/
;

```

Equations

```

objective, demand, emission, minprod, maxprod, uptime, downtime, minupt,
mindownt, cond1, cond2, TOTP

```

```

;
```

```

objective..                sum((i,t),P(i,t)*c(i)) =e=z;
```

```

demand(t)..                sum(i,P(i,t)*IS(i,t))=g=d(t);
```

```

emission..                sum((i,t),P(i,t)*e(i))=l=maxemission;
```

```

minprod(i,t)..            P(i,t)=g=pmin(i)*IS(i,t);
```

```

maxprod(i,t)..            P(i,t)=l=pmax(i)*IS(i,t);
```

```

uptime(i,t)$(ORD(t) GT 1).. IS(i,t)*(XON(i,t-1)+1)=e=XON(i,t);
```

```

downtime(i,t)$(ORD(t) GT 1).. (1-IS(i,t))*(XOFF(i,t-1)+1)=e=XOFF(i,t);
```

```

minupt(i,t)$(ORD(t) GT 1).. (XON(i,t-1)-tup(i))*(IS(i,t-1)-
IS(i,t))=g=0;
```

```

mindownt(i,t)$(ORD(t) GT 1).. (XOFF(i,t-1)-tdown(i))*(IS(i,t)-IS(i,t-
1))=g=0;
```

```

cond1(i)..                XON(i,'1')=e=IS(i,'1');
```

```

cond2(i)..                XOFF(i,'1')=e=1-IS(i,'1');
```

```

TOTP..                    sum((i,t),P(i,t)*IS(i,t))=E=TP;
```

```

Model POWER /all/;
```

```

Option decimals = 2;
```

option

limrow=100;

option

reslim=5000;

option

optca=0.02;

option

optcr=0.02;

Solve POWER using minlp minimizing z;

Display TP.1, IS.1, P.1, XON.1, XOFF.1, z.1;