Appendix A

B-matrix coefficients and EGAT daily load demand for 10 generating unit system

The B-matrix coefficients are used to calculated the power loss in the transmission line. For 10 generating unit system, the B-matrix coefficients are shown in Figure A. These coefficients are randomly generated to limit the power loss in the range of 1- 2.1% of the power demand. In addition, the scaled power demand obtained from EGAT daily load demand tested on the 10 generating unit system are given in Table A.

B_{00} = 0.16536

$$B_{i0}^{T} = \begin{bmatrix} -0.001296 & 0.000575 & -0.0000558 & -0.002156 & -0.001835 & 0.00321 & -0.001934 & -0.002184 & -0.002367 & -0.000932 \end{bmatrix}$$

$$[B_{ij}] = \begin{bmatrix} 0.003366 & -0.000145 & 0.000082 & -0.000169 & -0.000221 & -0.000044 & 0.000232 & 0.000115 & 0.000334 & 0.000088 \\ -0.000145 & 0.001615 & 0.000499 & -0.000235 & 0.000257 & 0.000216 & 0.000070 & -0.000242 & 0.000468 & -0.000166 \\ 0.000082 & 0.000499 & 0.001925 & 0.000273 & 0.000201 & -0.000190 & 0.000370 & 0.000284 & 0.000077 & -0.000225 \\ -0.000169 & -0.000235 & 0.000273 & 0.002992 & 0.000021 & 0.000091 & -0.000035 & 0.000232 & -0.000022 & -0.000035 \\ -0.000221 & 0.000257 & 0.000201 & 0.000021 & 0.002171 & 0.000022 & 0.000462 & 0.000396 & 0.000223 & -0.000084 \\ -0.000044 & 0.000216 & -0.000190 & 0.000091 & 0.000022 & 0.003238 & -0.000045 & 0.000446 & -0.000283 & 0.000191 \\ 0.000232 & 0.000070 & 0.000370 & -0.000035 & 0.000462 & -0.000045 & 0.003412 & 0.000141 & -0.000029 & 0.000229 \\ 0.000115 & -0.000242 & 0.000284 & 0.000232 & 0.000396 & 0.000446 & 0.000141 & 0.002558 & 0.000329 & 0.000230 \\ 0.000334 & 0.000468 & 0.000077 & -0.000022 & 0.000223 & -0.000283 & -0.000029 & 0.000329 & 0.001296 & 0.000486 \\ 0.000088 & -0.000166 & -0.000225 & -0.000035 & -0.000084 & 0.000191 & 0.000229 & 0.000230 & 0.000486 & 0.001487 \end{bmatrix}$$

Figure A The B-matrix coefficients for 10 generating unit system

Table A EGAT daily load demand for the 10 generating unit system

t	P_D (MW)
1	2800
2	2780
3	2750
4	2730
5	2700
6	2660
7	2620
8	2580
9	2540
10	2520
11	2490
12	2460
13	2440
14	2450
15	2460
16	2480
17	2490
18	2560
19	2620
20	2690
21	2750
22	2710
23	2670
24	2630

t	P_D (MW)
25	2590
26	2710
27	2830
28	2950
29	3070
30	3250
31	3430
32	3620
33	3800
34	3840
35	3880
36	3920
37	3960
38	3990
39	4010
40	4040
41	4060
42	3990
43	3910
44	3830
45	3750
46	3780
47	3800
48	3830

t	P_D (MW)
49	3850
50	3930
51	4010
52	4090
53	4170
54	4140
55	4120
56	4140
57	4170
58	4140
59	4120
60	4090
61	4060
62	3970
63	3880
64	3790
65	3700
66	3630
67	3570
68	3500
69	3430
70	3600
71	3780
72	3950

t	P_D (MW)
73	4120
74	4050
75	3990
76	3920
77	3850
78	3800
79	3750
80	3700
81	3640
82	3620
83	3590
84	3570
85	3540
86	3450
87	3360
88	3260
89	3170
90	3090
91	3010
92	2940
93	2860
94	2840
95	2830
96	2820