

List of Tables

2.1	Equivalent Cost Function	44
2.2	Composite Cost Functions	44
2.3	Cost Comparision	45
2.4	Generation Allocation and Cost Evaluation	45
2.5	Generation Allocation and Cost Evaluation	45
2.6	Generation Allocation and Cost Evaluation with No Constraint	46
2.7	Generation Allocation and Cost with Constraint On Second Unit	46
2.8	Generation Allocation and Cost with Constraint On Second Unit	46
2.9	Input Data Three Plant System	47
2.10	Optimum Generation Scheduling in a Multiplant System	47
2.11	Cost Comparison	48
2.12	Economic Generation Scheduling Including Transmission Losses	49
2.13	Transmission Loss Coefficients	49
2.14	Comparisom of Result	50
2.15	Single Area Dispatch Including Transmission Losses	51
2.16	B-Coefficient Matrix	51
2.17	Result of Single Area Dispatch	52
2.18	Multiarea Dispatch - Area 1 Input Data	52
2.19	Multiarea Dispatch - Area 2 Input Data	53
2.20	Result of Multiarea Dispatch	53
2.21	Result of Multiarea Dispatch (Cost)	53
2.22	Result of Multiarea Dispatch (Comparison)	54
2.23	Multi Area Generation Scheduling for Three Area System	54
2.24	Areawise Demand (Three Areas)	54
2.25	Areawise Generation Details	55

2.26 Result of Multiarea Dispatch	55
2.27 Multifuel Dispatch	56
2.28 Multifuel Generation Scheduling	57
2.29 Generation Scheduling for Multitfuel system	59
2.30 Generation Scheduling Cost Comparison	59
3.1 (a) Thermal Subsystem	69
3.2 Hydro Subsystem	69
3.3 B-Coefficients Matrix	70
3.4 Hydro-Thermal Dispatch	70
3.5 Water Available and Used	70
3.6 Input data For Hydro-Thermal Dispatch	71
3.7 Scheduling Result Without Transmission Losses with Hydro as A Peaking Plant	72
3.8 Hydro-Thermal Scheduling using Hydro Plant at all Hours	73
3.9 Loss Coefficients - B	74
3.10 Scheduling Including Losses with Hydro as Peaking Unit	75
3.11 Scheduling Including Losses	76
3.12 Thermal Data	77
3.13 Hydro Data	77
3.14 Loss Coefficients - B	77
3.15 Hydrothermal Scheduling Including Transmission Losses	78
3.16 Thermal Gas Coordination - Input Data	79
3.17 Result at the End of First Iteration	79
3.18 Result at The End of 6 th Iteration	80
3.19 Mix Generation System Scheduling Input Data	80
3.20 Mix Generation System Scheduling	81
3.21 Mix Generation System Scheduling Including Trans Losses	82
4.1 Input Data to Obtain Commitment Order based On(AFLC) Method No 1	96
4.2 Merit Order	96
4.3 Order Of Combination	96
4.4 Input Data for unit Commitment Order Based on Method No 2	97
4.5 Sequence Order	97

4.6	Order of Combination	97
4.7	Generation Scheduling as per Commitment Order	98
4.8	Merit Order Based on Method No 3	98
4.9	Order Of combination	98
4.10	Input data	99
4.11	Optimal Combination Order	100
4.12	Generation Scheduling : All Units Committed	100
4.13	Generation Scheduling as per Order of Combination	100
4.14	Input Data	101
4.15	Unit Combination Order	101
4.16	Unit Commitment Table	102
4.17	Unit Commitment Table Using Backword Dynamic Programming	103
4.18	Unit Commitment Table as per Order of Combination	104
4.19	Three Steps Unit Commitment : Step-1	105
4.20	Three Steps Unit Commitment : Step 2	106
4.21	Three Steps Unit Commitment : Step 3	107
4.22	Multi Fuel Unit Ordering-Input Data	108
4.23	Multi Fuel Unit Order of Combination	109
4.24	Multi Fuel Dispatch with Units Status and Cost	111
5.1	Economic and Environmental Dispatch, Example 1:Input Data No 1	121
5.2	Economic and Environmental Dispatch, Example 1:Input DataNo 2	122
5.3	Economic and Environmental Dispatch for 1100 MW Load	122
5.4	Economic and Environmental Dispatch, Example 2:Input Data No 1	122
5.5	Economic and Environmental Dispatch, Example 2:Input DataNo 2	123
5.6	Economic and Environmental Dispatch for 900.0 MW Load	123
5.7	Economic and Emission Dispatch Multi-Unit System	123
5.8	Economic and Emission Dispatch Multi Unit System	124
5.9	Economic and Emission Dispatch Multi-Unit System	125
5.10	Loss Coefficients	126
5.11	Plantwise NOx Constraints	126
5.12	Economic Dispatch	127
5.13	Economic Disaptnh With NOx Constraint Plants	128
6.1	Thermal Unit Commitment and Dispatch	141

6.2	Data for plant No. 1	141
6.3	Data for plant No. 2	142
6.4	Data for plant No. 3	142
6.5	Data for plant No. 4	142
6.6	Data for plant No. 5	143
6.7	Transmission Loss Coefficients	143
6.8	Order of Combination of Plant No. 1	143
6.9	Order of Combination of Plant No. 2	144
6.10	Order of Combination of Plant No. 3	145
6.11	Order of Combination of Plant No. 4	145
6.12	Order of Combination of Plant No. 5	145
6.13	unit commitment Schedule of Plant No. 1	146
6.14	unit commitment Schedule of Plant No. 2	147
6.15	unit commitment Schedule of Plant No. 3	148
6.16	unit commitment Schedule of Plant No. 4	149
6.17	unit commitment Schedule of Plant No. 5	150
6.18	unit commitment Schedule	151
6.19	unit commitment Schedule	151
6.20	Input Data for Plant 1:Nox Coefficients	152
6.21	Input Data for Plant 2 :Nox Coefficients	152
6.22	Input Data for Plant 3 :Nox Coefficients	152
6.23	Input Data for Plant 4:Nox Coefficients	153
6.24	Input Data for Plant 5:Nox Coefficients	153
6.25	Emission Constrained unit commitment:Specified Nox Level	153
6.26	Emission Constrained Plant wise combination Order:Plant 1	154
6.27	Emission Constrained Plant wise combination Order:Plant 2	155
6.28	Emission Constrained Plant wise combination Order:Plant 3	155
6.29	Emission Constrained Plant wise combination Order:Plant 4	155
6.30	Emission Constrained Plant wise combination Order:Plant 5	156
6.31	unit commitment Schedule of Plant	157
6.32	Unit Commitment Due to Security	158
6.33	Unit Commitment Due to Security and Env Constrained Dispatch	159
6.34	Result Of Unit Commitment Of Mix System.	160

6.35 Unit Commitment Of Mix System. 161

6.36 Env Constrained Unit Commitment Schedule of Mix System: 162

6.37 Env Constrained Unit Commitment Schedule of Mix System: 163

6.38 Env Constrained Unit Commitment Schedule of Mix System: Security . . 164

6.39 Post Security Assessed Unit commitment Schedule of Mix System 165

6.40 Generation of Units at Plant No 1 166

6.41 Generation of Units at Plant No 2 166

6.42 Generation of Units at Plant No 3 166

6.43 Generation of Units at Plant No 4 167

6.44 Generation of Units at Plant No 5 167

6.45 Generation 167

6.46 Cost Comparison of NOx Controlled Plants for Plant No.2 169

6.47 Cost Comparison of NOx Controlled Plants for Plant No.2 169

6.48 Cost Comparison of NOx Controlled Plants for Plant No.3 169

6.49 Cost Comparison of NOx Controlled Plants for Plant No.3 170