

List of Tables

1.1	Details of meta-heuristic, heuristics and hybrid Optimisation Algorithm (OA)	7
1.2	Details of wind speed model	15
1.3	Details of solar irradiation model	17
2.1	Geographical co-ordinates of the Khambhat	31
2.2	Wind statistics of the Quarter January to March	33
2.3	Wind statistics of the Quarter April to June	34
2.4	Wind statistics of the Quarter July to September	34
2.5	Wind statistics of the Quarter October to December	35
2.6	Comparison of probable power potential of all Quarters in kw with slot wise shape index(k)and fixed shape index(k=1.6)	36
2.7	Probable energy generation/day/Quarters in (KWH)	37
2.8	Wind speed state	38
2.9	Wind parameters and energy generated considering wind states	38
3.1	Solar statistics for the quarter Jan to march	48
3.2	Solar statistics for the quarter April to June	49
3.3	Solar statistics for the quarter July to Sept	50
3.4	Solar statistics for the quarter July to Sept	51
3.5	Solar irradiation state	52
3.6	Comparison of hourly Estimated Solar power Generation for all Quarters with mean solar radiation and state wise solar radiation	55
4.1	Selected size of NPDG	66
4.2	Seasonal hourly average load	68
4.3	Combination of NPDG	69

4.4	Optimal placement of DG for Each Combination of NPDG.	75
4.5	Optimal Placement of DG for Case 6 using PSO.	76
4.6	Optimal placement of DG for Case 5 of NPDG using PSO	76
4.7	Optimal placement of DG for case 7 of NPDG using PSO.	77
4.8	Value of Optimised Function.	77
5.1	Renewable DG unit and estimated power generation data.	97
5.2	Cost data of natural power resources and storage devices.	97
5.3	Various Scenario of combination of solar and wind unit as per probable power generation.	98
5.4	Mean of Optimum fitness function, system operating cost, system losses and SBDI at various loading condition.	100
A.1	Bus Data for IEEE 13 node Radial Distribution System	123
A.2	Line Data for IEEE 13 node radial distribution system	124