

List of Figures

2.1	Wind probability distribution function	26
2.2	Weibull probability distribution function with shape parameter k =1,2,3,(c-constant, say=8)	30
2.3	Weibull probability distribution function for the period of four Quarters, slotwise	35
2.4	Probable power production for the period of four Quarters, slotwise	36
3.1	Model circuit of solar cell	42
3.2	Beta probability distribution at discrete value of parameters	45
3.3	Hourly Beta probability distribution	47
3.4	Probable Solar Power Generation of each Quarter	53
4.1	Microgrid Structure	59
4.2	Single line diagram of radial distribution system.	62
4.3	Power flow in radial distribution system.	63
4.4	DG placement at bus i.	63
4.5	Single line diagram of IEEE-13 node system with renumbering	67
4.6	Block representation of problem formation strategy for optimal summation of Natural Power Distributed Generators	71
4.7	G_{best} with wind unit placement in Spring season	78
4.8	G_{best} with wind and solar unit placement in Spring season	79
4.9	G_{best} with solar unit placement in Spring season	80
4.10	Reverse current flow in case 6	81
5.1	Block diagram of proposed optimal operation of Microgrid	95

5.2	Flow chart represents proposed algorithm for optimal operation of Micro-grid with Levy PSO	96
5.3	Actual wind and solar power generation by randomization	99
5.4	g_{best} at 25 % of peak load and peak load with various scenario	101
5.5	voltage at 25 % load with various scenario	102