Appendix A

Parameters

A.1 The PSO, MBGWO algorithm parameters and PVSI droop parameters

PSO	c_1,c_2 as 2, $w_{initial}$ & w_{final} are 0.9 and 0.1
MBGWO	k_1,k_2 as 0.5, $w_{initial}$ & w_{final} are 0.9 and 0.1
Droop parameters	$V_1^{A_1} = 0.94, V_2^{A_2} = 0.95,$ $V_3^{A_3} = 1.05, V_4^{A_4} = 1.06$

A.2 PVSI droop parameters and battery energy storage parameters

Volt/VAR droop parameters of PV smart inverter	V1=0.92, V2=0.98, V3=1.0, V4=1.04
BES parameters	$P_{BES}^{rated} = 150kW, E_{BES}^{rated} = 500kWh$ $SOC_{BES}^{\min} = 0.2, SOC_{BES}^{\max} = 1$