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# APPENDIX

Source Voltage (rms) – 415 V L-L

Frequency – 50 Hz

Line Parameters – R = 0.05 Ω, L = 1 mH

Voltage Source Converter: DC link capacitor $C_{dc}$ = 1500 µF

$V_{dc}$ ref = 800 V

AC inductor = 2.2 mH

Linear Load – 20 kW, 10 kVAR

Non-Linear Load – Universal Diode Bridge with connected load of R = 500 Ω, L= 300 mH, C = 200 µF

Unbalance Load - Phase R: R= 70 Ω, L= 200 mH

Phase Y: R= 100 Ω, L= 225 mH

Phase B: R = 50 Ω, L= 175 mH

PI Constants for DC controller Kp = 0.3, Ki = 8

PI Constants for AC controller Kp= 0.01, Ki = 0.1

Parameters of BESS – $V_{dc}$ = 800 V, $R_1$ = 0.01 Ω, $R_2$ = 10000 Ω, $C_1$ = 1500 µF, $C_2$ = 300000 F, L = 2.2 mH