

# LIST OF SYMBOLS AND ABBREVIATIONS

1.  $\nabla_x J(\mathbf{x})$  = Gradient of  $J(\mathbf{x})$
2.  $\mathbf{H}^T$  = Transpose of matrix  $\mathbf{H}$
3.  $\mathbf{H}^{-1}$  = Inverse of matrix  $\mathbf{H}$
4.  $\Delta \mathbf{x}$  = Small changes in vector  $\mathbf{x}$
5.  $\|\mathbf{x}\|$  = Norm of matrix  $\mathbf{x}$
6.  $|a|$  = Modulus of a scalar  $a$
7.  $|\mathbf{E}|$  = Vector of voltage magnitudes
8.  $\boldsymbol{\theta}$  = Vector of phase angles
9.  $\Delta\|\mathbf{x}\|_\infty$  = Tolerance
10. MW = Megawatt, real power
11. MVAR = Mega Volt Ampere Reactive, reactive power
12. kV = Kilovolt, voltage
13.  $M_{ij}$  = Power flow from bus  $i$  to bus  $j$
14.  $M_{Vi}$  = Voltage measurement at bus  $i$
15.  $M_{Li}$  = Load flow at bus  $i$
16.  $M_{Gi}$  = Generate flow at bus  $i$