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Appendix A

List of Abbreviations

AENS Average Energy Not Supplied

ASAI Average Service Availability Index

ASUI Average Service Unavailability Index

BESD Battery Energy Storage Device

CAIDI Customer Average Interruption Duration Index

CAIFI Customer Average Interruption Frequency Index

CG Conventional Generation

CF-PSO Constriction Factor-based Particle Swarm Optimization

DER Distributed Energy Resources

DFIG Doubly Fed Induction Generator

DG Distributed Generation

DS Distribution System

ECOST Expected Interruption Cost

EDNS Energy Demand Not Supplied

EENS Expected Energy Not Supplied

EIR Energy Index of Reliability

ENS Energy Not Supplied

EPDN Electrical Power Distribution Network

EPLM Electrical Power Loss Minimization

ESS Energy Storage System

EV Electric Vehicle

IEAR Interrupted Energy Assessment Rate

LIV Lightning Impulse Voltage

LI Lightning Impulse

LOEE Loss of Energy Expectation

LOLE Loss of Load Expectation

LOLF Loss of Load Frequency

LOLP Loss of Load Probability

MC Monte-Carlo

PDF Probability Density Function

pf Power Factor

PI Proportional Integral

PSO Particle Swarm Optimization

RES Renewable Energy Source

RPCG Rectangular Pulse Current Generation

RT Repair Time

RTS Reliability Test Systemm

SPR Surface Plasmon Resonance

SPV Solar Photovoltaic

SG Spark Gap

SAIDI System Average Interruption Duration Index

SAIFI System Average Interruption Frequency Index

UPF Unity Power Factor

VSC Voltage Source Converter

WECS Wind Energy Conversion System

WF Wind Farm

WIPS Wind Integrated Power System

WT Wind Turbine

WTG Wind Turbine Generator