

## List of Abbreviations

<i>Abbreviation</i>	<i>Full Form</i>
<i>a.u.</i>	Arbitrary Units
AEO	Annual Energy Outlook
AER	Annual Energy Review
BET	Brunauer-Emmett-Teller
BTSDA	Battery Testing System Data Analyzer
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Btu	British Thermal Unit
CES	Chemical Energy Storage
Co	Cobalt
Dy	Dysprosium
ECES	Electrochemical Energy Storage
EDX	Energy Dispersive X-ray Spectroscopy
EES	Electrical Energy Storage
EHT	Extra-High Tension
EIA	Environment Impact assessment
EIS	Electrochemical Impedance Spectroscopy
EPRS	Electron Paramagnetic Resonance Spectroscopy
Er	Erbium
Fe	Iron
FESEM	Field Emission Scanning Electron Microscopy
Gd	Gadolinium
HRTEM	High Resolution Transmission Electron Microscopy
ICSD	Inorganic Crystal Structure Database
JCPDS	Joint Commission on Powder Diffraction sheet
La	Lanthanum
LCO	$\text{LiCoO}_2$
LFP	Lithium Iron Phosphate
Li	Lithium
LMNO	$\text{LiMn}_{1.5}\text{Ni}_{0.5}\text{O}_4$
LMNO-Gd02	$\text{LiMn}_{1.48}\text{Ni}_{0.5}\text{Gd}_{0.02}\text{O}_4$
LMNO-Gd04	$\text{LiMn}_{1.46}\text{Ni}_{0.5}\text{Gd}_{0.04}\text{O}_4$
LMNO-Nd04	$\text{LiMn}_{1.46}\text{Ni}_{0.5}\text{Nd}_{0.04}\text{O}_4$
LMO	$\text{LiMn}_2\text{O}_4$
LMO-Dy01	$\text{LiMn}_{1.99}\text{Dy}_{0.01}\text{O}_4$
LMO-Dy02	$\text{LiMn}_{1.98}\text{Dy}_{0.02}\text{O}_4$
LMO-Dy03	$\text{LiMn}_{1.97}\text{Dy}_{0.03}\text{O}_4$
LMO-Dy04	$\text{LiMn}_{1.96}\text{Dy}_{0.04}\text{O}_4$
LMO-Dy05	$\text{LiMn}_{1.95}\text{Dy}_{0.05}\text{O}_4$
LMO-Gd01	$\text{LiMn}_{1.99}\text{Gd}_{0.01}\text{O}_4$
LMO-Gd04	$\text{LiMn}_{1.96}\text{Gd}_{0.04}\text{O}_4$
LMO-Gd05	$\text{LiMn}_{1.95}\text{Gd}_{0.05}\text{O}_4$
LMO-Tb05	$\text{LiMn}_{1.95}\text{Tb}_{0.05}\text{O}_4$
LMO-Yb05	$\text{LiMn}_{1.95}\text{Yb}_{0.05}\text{O}_4$
LNO	$\text{LiNiO}_2$
MgO	Manganese Oxide
Mn	Manganese
Nd	Neodymium
Ni	Nickel
Ni-Cd	Nickel - Cadmium
NiMH	Nickel Metal Hydrate
O	Oxygen
OCP	Open Circuit Potential
P	Phosphate
PPM	Part per Million
RE	Rare-earth

SAED	Selected Area Electron Diffraction
SEI	Solid Electrolyte Interface
SEM	Scanning Electronic Microscopy
Sm	Samarium
SOC	State of Charge
SSR	Solid State Reaction
TEM	Tunneling Electronic Microscopy
TES	Thermal Energy Storage
TGA	Thermo-gravimetric Analysis
XPS	X-ray Photoelectron Spectroscopy
XRD	X-Ray Diffraction
ZnO	Zinc Oxide

