Appendix A. USABC Earth Abundant / Low Cost EV Performance Targets

USABC Goals for Earth Abundant Material[1] / Low Cost Electric Vehicles (EVs)

End of Life Characteristics at 30°C	Units	EV Cell Level
Peak Discharge Power Density 30 s Pulse	W/L	1200
Peak Specific Discharge Power, 30 s Pulse	W/kg	600
Peak Specific Regen Power, 10 s Pulse	W/kg	300
Useable Energy (U.E.) Density[2]	Wh/L	500
Useable Specific Energy	Wh/kg	220
Calendar Life	Years	15
DST Cycle Life	Cycles	2000 (100% Fast Charge)
Cost @ 250k Units	$/kWh	50[3]
Fast Charge at 30°C (80% U.E. Target[4])	Minutes	10 min
Fast Charge at -10°C (80% U.E. Target[4])	Minutes	30 min
Unassisted Operating at -20°C	%	>70% Specific Useable Energy
Operating Environment	°C	-30° to +65°
Survival Temperature Range, 24 Hr.	°C	-40° to +75°
Minimum operating Voltage	V	>0.55Vmax
Maximum Self-discharge	%/month	<1

1. Proposals should prioritize the reduction of one or more critical materials such as: lithium, nickel, cobalt, or graphite.
2. The definition of useable energy (U.E.) can be found in the “USABC Battery Test Manual for Electric vehicles” on USABC website.
3. The cost calculation should be based on US production, meeting IRA requirements.
4. The definition of useable energy (U.E.) target can be found in the “USABC Battery Test Manual for Electric vehicles” on USABC website.