

RIDING THE SOLAR CURVE

Low-cost high-performance solar plus storage powered by second-life EV batteries

TECHNOLOGY SUMMARY

Using repurposed second-life electric vehicle batteries matched with the company’s proprietary power conversion systems and state-of-the-art battery controls, Smartville’s modular energy storage system is purpose-built to reuse low-cost and domestically-sourced batteries for solar+storage deployments, meeting the needs of an American-Made solar power future. With the American-Made Solar Prize support, Smartville will be collaborating with leading equipment manufacturer EPC Power and project developer Wellhead Electric to create a mega-watt level solar+storage pilot demonstration.

Competition matrix for solar+storage systems (below)

Comparable Attribute	Smartville Solar+Storage Second-life battery with direct high-voltage integration with solar PV	Traditional Solar+Storage AC or low 400VDC coupled solar+storage product	Solar Only
ESS Cost (\$/kWh)	\$50 - \$150	\$150 - \$300	N/A
GHG Emissions (metric ton per MWh)	33.0 CO2e (80% greater GHG reduction compared to new lithium batteries)	166 CO2e	5 CO2e
Power Coupling Efficiency	97%	90-96%	90%-96%
ILR Curtailment	0%-10%	5-30%	5-30%
Storage System Lifespan (years)	>20 years (as result of inter-changeable second-life battery packs)	5-15 years (limited by battery degradation and warranty)	>20 years

Solar Prize Progress



Target Solar+Storage Integration Cost: **\$25/kVA**
 Formfactor: Battery Packs
 Level of integration: Power conversion, Balancing, Pre-charge, BMS, Power supply, CAN Comm., HVIL, Ground Fault, Common Mode Current Protection
(All vertically integrated)