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 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 systems, 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 install and operate a megawatt-scale solar+storage pilot demonstration to deliver firm, reliable, and clean electricity to the California energy market.

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-voltage 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**)

Smartville's progress under the American Made Solar Prize (above)

Smartville, Inc | info@smartville.io