RIDING THE SOLAR CURVE

Optimizing Solar Production with Ultra-High-Voltage 2nd-Use Battery Systems

TECHNOLOGY SUMMARY

Using repurposed "second-life" electric vehicle batteries matched with the company's proprietary DC-to-DC 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, meeting the needs of an American-Made solar power future. Smartville will be collaborating with leading equipment manufacturers and project developers to create and demonstrate the 1500VDC ultra-high-voltage energy storage system.

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

Proposed design for ultra-high-voltage energy storage system (above)

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