

ROW ENERGY

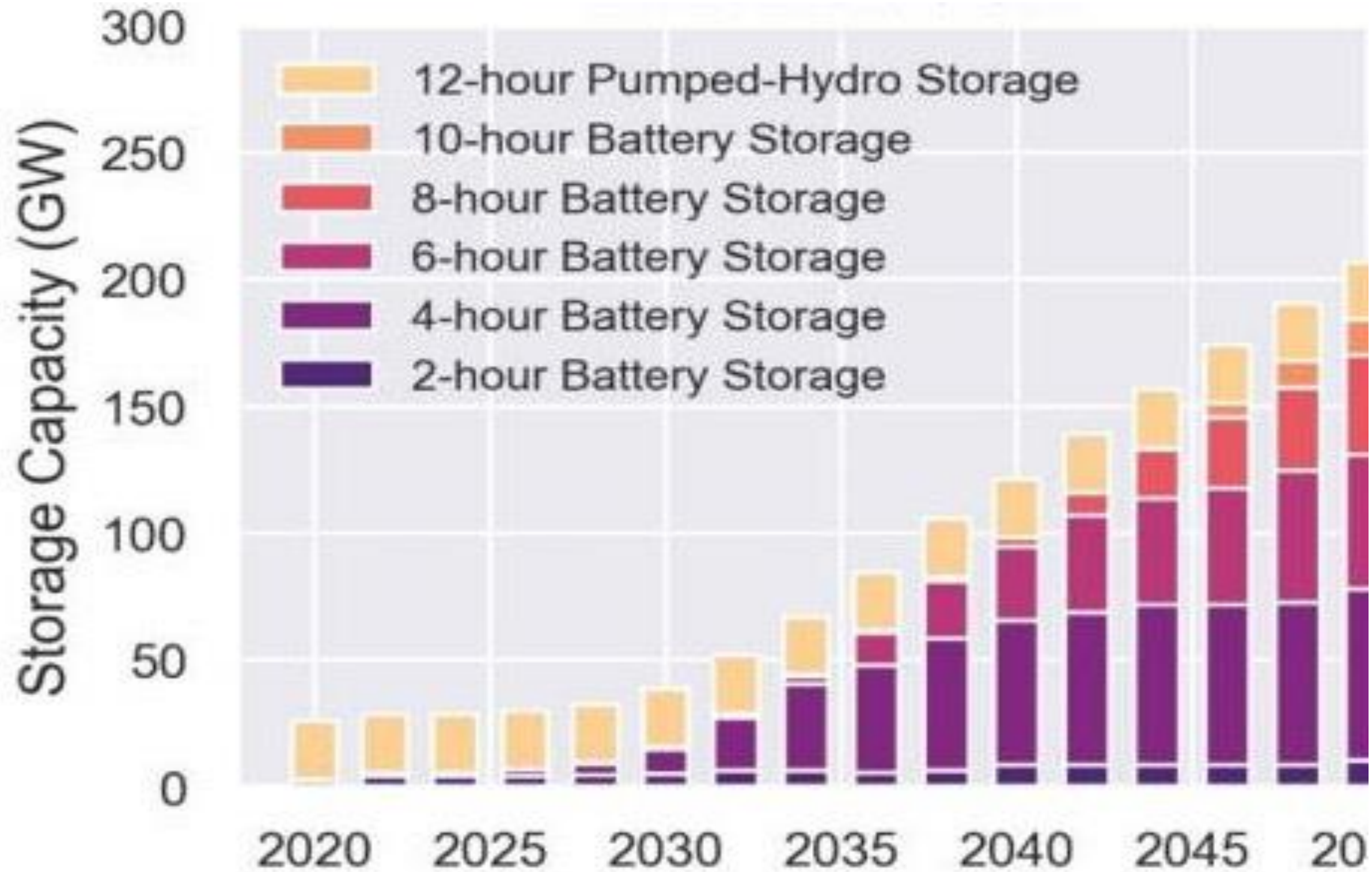


Changing The Power Landscape For Good



U.S. Battery Market Analysis

Projected Deployment of U.S. Energy Storage

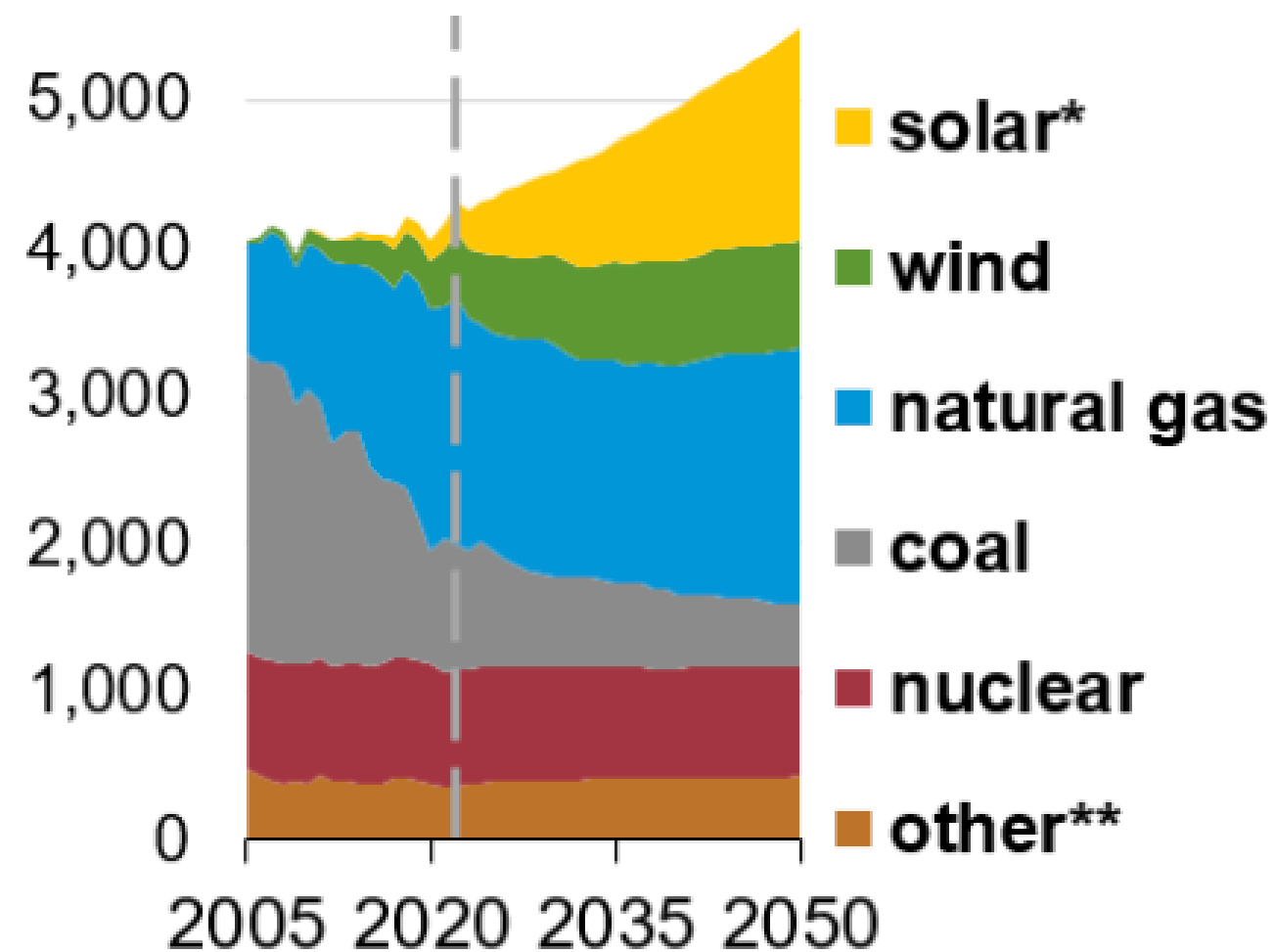


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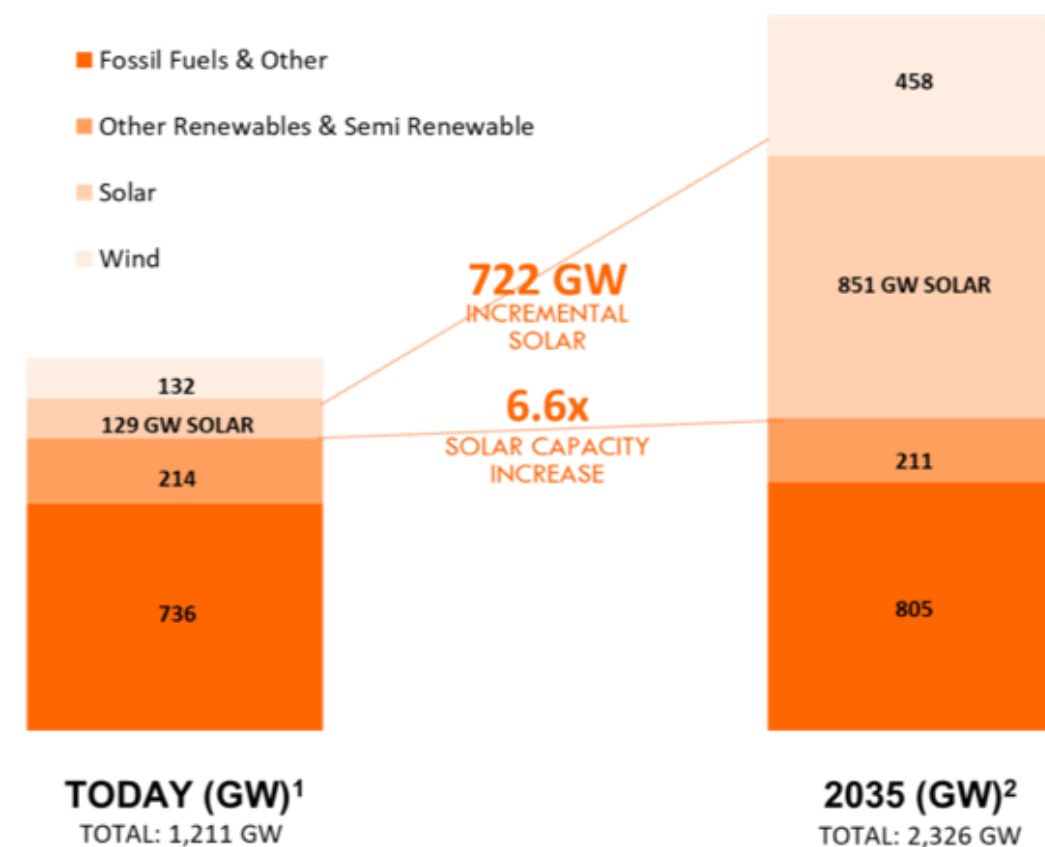
Major US Market Growth Drivers

1. Energy transition to renewable power generation
2. Electrification demands across industries, commercial, auto fleet, homes etc
3. Technology, Data Centers, Artificial Intelligence

US EIA, Energy Outlook 2023



Intermittent Power Generation



22 GW of incremental solar capacity and 326 GW of incremental wind capacity projected through 2035

Lithium-Ion: An Incomplete Solution

Numerous Lithium-Ion Challenges

- Inefficient: “repackaging a giant cellphone battery onto the grid”
 - Thermal runaway: fire risk
 - Inefficient in cold or hot climates
 - Battery depletion: batteries need to be replaced every 6 years on average
 - Inability to hold charge, and depth of charge
 - Limited application use case, best over 1-2 hours with limited daily cycles, some systems can support (4-6 hours)
 - National Security Risk: US grid reliant on Chinese products & tech
- Not Ideal for Solar: for every 1% increase in solar, the grid needs 4 GW of additional storage³
- A non-green component can't be a key component in attaining net-zero objectives



Li-ion Fire, Ft. Hood Recycling (2019)

According to McKinsey & Company:

“All the evidence suggests that this could be a highly attractive market for investors: a sizeable new industry providing 1.5 to 2.5 TW of storage capacity, requiring an investment that could reach \$1 trillion to \$3 trillion by 2040 with potential competitive returns. The prize is within reach, and the time to seize it is now.”

¹ Long-duration energy storage; ² Range is LDES central scenario and LDES progressive scenario; ³ Estimates based on NREL data

Estimated ranges of global LDES¹ total addressable market by selected metrics²

Encapsulated Electrostatic Graphene Encapsulated Solid State Long Duration Energy Storage



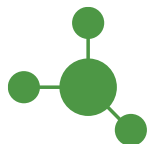
Up to
1000V DC
in Series



100% Depth of
Discharge



Up to 350Wh
Energy Density
at cellular level*



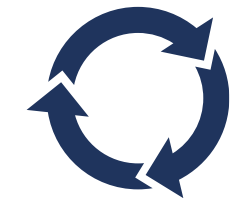
99% round trip
efficiency at -
22°F to 122°F



Lifespan of
>500,000 cycles



Able to cycle
multiple times per
day



**100% Recyclable, 80% biodegradable
Hybrid Graphene Solid State
Supercapacitor-based technology**

The Supercapacitor Upside

The Long Duration Linchpin



Supercapacitors have many advantages, including fast charge & discharge, temperature tolerance, and lifespan.

Until now, supercapacitors have not been utilized as a long duration energy storage solution due to low density and high self-discharge rate.

20-Year Cost Comparison Li-ion vs Supercapacitors

Cost Component	Lithium (112 MWh)	Our Solution (112 MWh)
Initial Cost	\$31,000,000	\$32,000,000
Augmentation (Yrs 6, 12, 18)	\$7,750,000 x 3	None
Air Conditioning/O&M Costs	\$620,000 / year	\$80,000 / year
Total Cost Over 20 Years	\$66,650,000	\$33,520,000

Attribute	Lithium Ion	ENCAP Tech	Benefit
Warranty	Typically, 10 Years with Limited Warranty	20+year performance with No EOL degradation	Maximum Value
DC round trip Efficiency	80-90%	99.1%	Low OPEX
Depth of Discharge	70-80%	100%	Full Capacity
Temp range with max efficiency	0° C to 50° C	-30° C to 60° C	Any Environment
Charge and Discharge	1 hour	10 Minutes	Fast Charging & Long Duration
No. of Cycles	6,000 cycles (max)	> 500,000 cycles	Long Product Life
Safety	High risk of fire	Non-chemical and will not overheat	Safe Operation
Environmentally Friendly	Unclean Production, Recycling Issues	No Rare Earths, 80% recyclable after 25-years	Sustainable
Expected Life	5-6 years	25+ years	Long life
O & M Costs	High O&M Costs	Minimal O&M costs	Low OPEX

Today's problem...

AI

Is the answer

Recent Installation

Guidiville Indian Tribe



Installation Date	2024
Location	Mendocino, CA
Application	Microgrid
Input	Solar (420KW)
Storage	1400kWh
Ambient Temp	9° C to 14° C
Energy Cost Change	.24/KW to .05/KW

