

Pillar of Decarbonization



Beyond Batteries. The Next Frontier in Energy Storage.

What technologies are designed to meet the extreme and diverse demands of the energy market today?

With increasingly unpredictable weather patterns and natural disasters, rolling power outages and outdated transmission and distribution networks—companies and utilities alike are looking for **solutions to bridge the gap between traditional energy generation, renewables and battery-based energy storage systems**. While renewables and battery storage have made great strides in efficiencies and cost reductions over the years, they will always have their limitations.

Looking into the future...

Decarbonization demands more than renewables and battery-based storage.

Amber Kinetics is the **industry-leader in manufacturing grid-scale kinetic energy storage systems (KESS)**. As the only provider of long-duration flywheel energy storage, Amber Kinetics extends the duration and efficiency of flywheels from minutes to hours—resulting in safe, economical and reliable energy storage.



Capacity/Demand Reduction



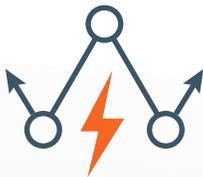
Energy Arbitrage



Ancillary Services

Utility and Commercial Applications

T&D Deferral



Solar + Storage



Energy Firming



Flywheel Technology.

The **Amber Kinetics** flywheel is the first commercialized four-hour discharge, long-duration KESS solution powered by advanced technology that stores 32 kWh of energy in a two-ton steel rotor. When combined together in groups, similar to solar PV panels, the flywheels can be scaled up to tens or even hundreds of megawatts. Amber Kinetics has engineered **a flywheel to meet the energy storage needs** of the modern grid—at **a lower cost and higher efficiency** than gas-peaker plants or pumped hydro.

Advantages over chemical batteries:

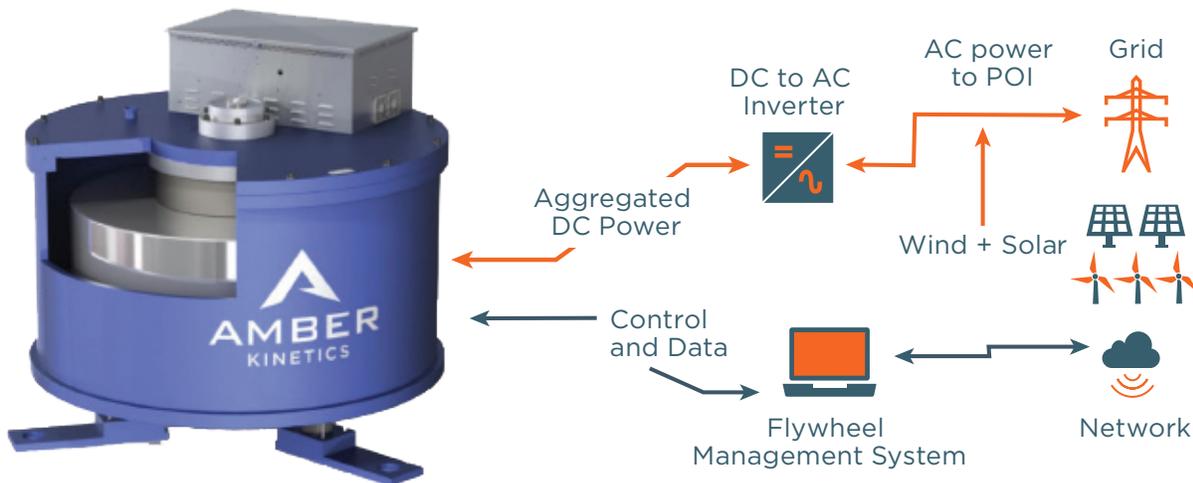
- >86% round trip efficiency (DC)
- No daily cycling limitations
- No degradation over time
- No HVAC required
- Operates in hot and cold environments (-20C to 50C)
- Fast response time (<1 second)
- Recyclable all-steel design
- Lower O&M cost
- 30-year design life
- 10-year manufacturer warranty

Key benefits:

- No degradation allows for **Unlimited Daily Cycling**
- High modularity equates to **High Availability** at site level
- Low O&M cost drives **Excellent Financial Performance**

Future-Proof Your Energy Investment

The only long-duration flywheel energy storage system commercially available





Amber Kinetics Locations

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