



F1 non-electric energy storage system





Overview

Formula 1 teams use advanced energy recovery systems (ERS) to boost performance and align with evolving regulations. These systems focus on recovering energy during braking and exhaust heat, storing it in batteries for later use. The addition of on-site energy storage is emerging as a leading technology in this back-up power system for data centers in addition to a UPS (uninterruptible power supply) and extended run generators. It all sounds very complicated but it really isn't; the basic physics of KERS. This funding—made possible by President Biden's Bipartisan Infrastructure Law—will focus on non-lithium technologies, long-duration (10+ hour discharge) systems, and stationary storage applications. In F1 regulations, this is referred to as the Energy Store (ES), which covers the full system of battery cells and peripheral devices such as the inverter. The weight is limited and the discharge per lap.



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How F1 Teams Meet Energy Recovery Standards

Explore how F1 teams are adapting their energy recovery systems to meet new regulations and enhance performance with sustainable fuels.

[How Formula 1 is Powering Mercedes' Solid-State Battery Innovation](#)

One of F1's most influential innovations in battery development is the Energy Recovery System (ERS). This system allows race cars to harvest kinetic and thermal energy, converting it into ...

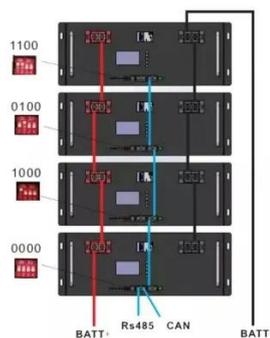


F1 Essentials: How KERS Works

Williams has approached the energy storage problem in a totally different way. Rather than fitting batteries or capacitors, it uses a large flywheel. For more information about the flywheel ...

[OCED Announces \\$100 Million for Non-Lithium Long-Duration Energy](#)

The funding opportunity announced today is part of the Long-Duration Energy Storage Pilot Program, which aims to advance the maturity of a variety of non-lithium LDES technologies ...



F1 Energy store density for 2026 and hot swap batteries

In any case, it isn't likely that the energy recovery would be significantly more, since a proposed recovery system with front and rear MGUs had, more or less, the same power as the 2026 ...

2026 F1 power unit regulations explained: More electrical power, more

From 2026, it'll feature a far more powerful battery component that will allow it to generate three times the electrical power produced by the current hybrid components, rising from 120kW to 350kW.



Formula 1 ESS and battery technology - Bold Technology

Bold has been involved in a number of projects for the design of battery packs and supply of components for Formula 1 ESS Batteries. We have designed F1 battery packs from concept ...

F1 Essentials: How KERS Works



Williams has approached the energy storage problem in a totally ...



Evolution of the ESS Battery Unit and Control Technologies - 2015 to

In F1 regulations, this is referred to as the Energy Store (ES), which covers the full system of battery cells and peripheral devices such as the inverter. Regulations specify a maximum voltage of 1,000 V ...

From Formula 1 to Formula E: how batteries in each category differ

In F1 or WEC, where internal combustion engines still play a major role and take up significant space alongside the fuel tank, the focus is on making battery packs as compact and ...



Battery Storage is as Essential for Data Centers as it is for F1 Cars

Considered the highest class of internal racing for open-wheel, single seater formula racing cars, Formula One uses a battery as part of an energy recovery system from brake usage and ...

Battery Storage is as Essential for Data



Centers as it is ...

Considered the highest class of internal racing for open-wheel, ...





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