

## MODULAR ELECTRIC POWER SYSTEM (MEPS)

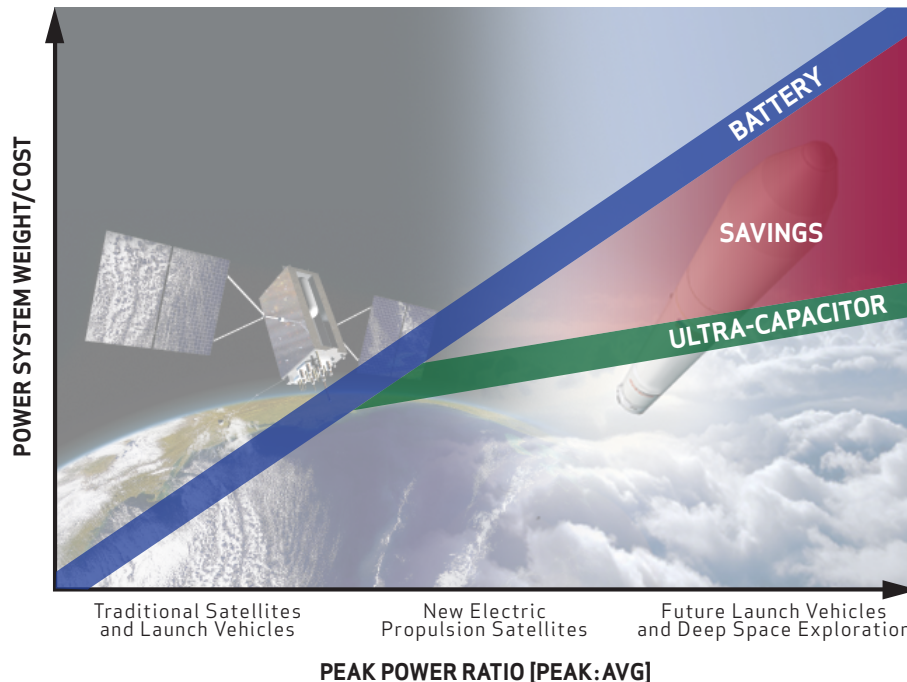


The MEPS is a hybridization of batteries and ultra-capacitors. The power system architecture optimizes the benefits of the individual technologies while still fulfilling system requirements and maintaining a small form factor. The unique benefits of the MEPS include:

### KEY FEATURES

- Weight Savings
- Increased Power Output
- Boosted Regen Capability
- Decreased Battery Capacity Fade
- Lessened Thermal Impact

### POWER SYSTEM ADVANTAGES

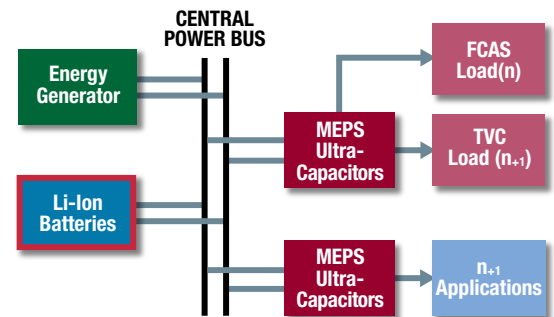
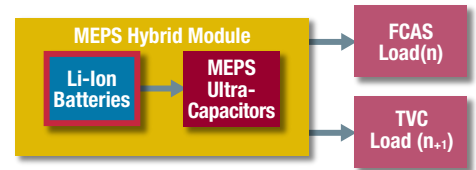
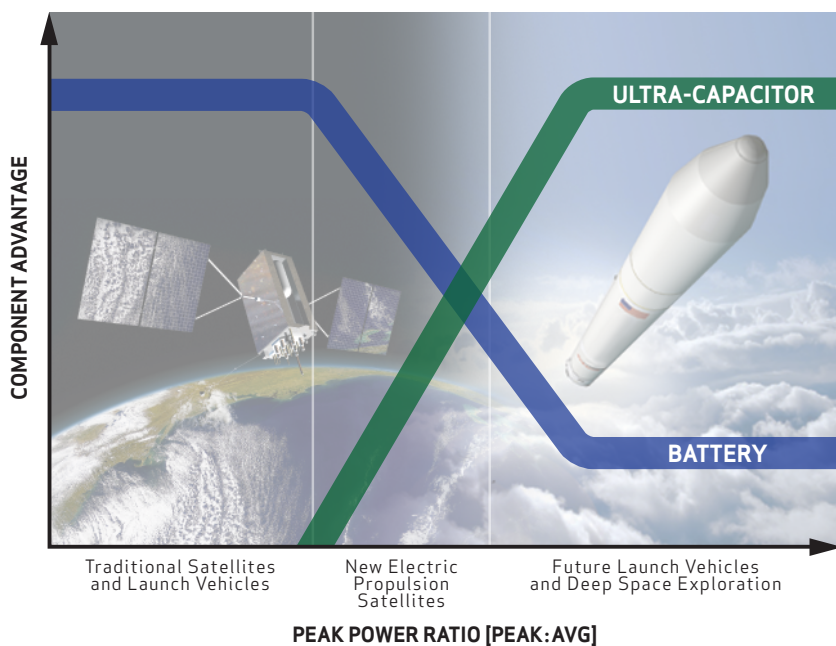


# MODULAR ELECTRIC POWER SYSTEM (MEPS)

The MEPS is designed to increase the power density of an energy storage system. The system supplements the use of batteries with ultra-capacitors in a passively managed hybridization of the two energy storage technologies. The ultra-capacitors bring low impedance high current discharge capability which drastically increases the power density of the full system. This density boost is beneficial to low steady state current demand application that have very high peak current demands interspersed (i.e. launch vehicle stages).

When compared to a conventional battery the MEPS system will inherently be lower cost and lower weight. Conventional battery systems are often oversized in terms of energy because of the need to account for the peak power demands throughout the duty cycle. The MEPS can significantly increase the regen capture capability of a system by eliminating the previously required “burn-off” resistor while still protecting the capabilities of the battery. Capturing regenerative energy results in a lower total energy demand and a more aggressively sized power system. Such a power system architecture would be advantageous to numerous applications where weight and costs are key figures of merit. Possibilities of several power system architectures are shown below.

## POWER SYSTEM ARCHITECTURE



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