

Application Notes: Aviation

Case Study: Enabling High Altitude Long Endurance (HALE) UAVs with Lithium Sulfur Batteries

Multiple organisations are developing HALE UAVs for a range of uses such as internet connectivity, weather forecasting and mapping. These aircraft are being designed to operate for months on end without landing to provide continuous coverage to the user. They fly by using solar panels to charge the on-board batteries and power both the motor and the payload during the day; during the night the batteries will power the motor to keep the aircraft in the sky and the payload functioning.

For these aircraft to become a reality, they must be extremely light, have excellent aerodynamic design and be exceptionally efficient to remain flying in the stratosphere above the turbulent weather of the troposphere that would pull them out of the sky. The most important element here is the Li-S battery that can store more energy per unit mass than anything available on the market today.

Because OXIS Li-S cells are so light, they make the whole aircraft lighter. This, in turn, means that less energy is required to power the motors to keep the UAV airborne. This also provides scope to increase the payload for the aircraft, increasing its capability and reducing overall operating costs. In addition to this, the UAVs flight plan matches the day-night cycling, meaning that the power rates are low, further improving the energy density of the cells.

OXIS is working with a number of partners to develop and commercialise this cell technology for use in HALE UAV applications and is able to supply advanced development cells for testing for this purpose.

