



Press release

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### **OXIS ENERGY KEY COMPONENT OF SAFE ROAD ELECTRIFICATION PROJECT TO LAUNCH IN JANUARY**

The Lithium Sulphur for Safe Road Electrification (LISA) 43 month project starts on the 1st January 2019. It is worth over €7.9m and consists of 13 European partners including OXIS Energy UK Ltd. The overall goal is to design and manufacture a lithium sulfur technology that will enable safe electrification of EV applications.

Electric vehicles (EVs) are a key technology for reducing the environmental impact of road transport and reaching the EU sustainability goals in terms of reducing CO<sub>2</sub> emissions and oil dependency. With stricter environmental regulations, automobile manufacturers are now urged to produce electric or hybrid vehicles, including a commitment to reduce emissions by 40% by 2030. One of the main challenges is to increase market acceptance and deployment of EVs on European and global roads. This requires new battery technologies to overcome the limitations of current EVs, particularly in terms of driving range, charging time, costs and safety.

Due to the fact that Li-ion batteries are still the limiting factor for mass scale adoption of electrified vehicles, there is a need for new batteries that enable EVs with higher driving range, higher safety and faster charging at lower cost. Li-S is a promising alternative to Li-ion - free of critical raw material (CRM) and non-limited in capacity and energy by material of intercalation.

LISA advances the development of high energy and safe Li-S battery cells with hybrid solid state non-flammable electrolytes validated at 20Ah cell level. LISA will solve specific Li-S bottlenecks on metallic lithium protection, power rate and volumetric energy density; together with cost which is the main selection criteria for EV batteries. The sustainability of the technology will be assessed from an environmental and economic perspective.

The technology will be delivered ready for use within the corresponding state of charge estimator facilitating battery pack integration. Today, Li-S is twice as light as Li-ion and has reached only 10% of the sulphur theoretical energy density (2600Wh/kg) at cell prototype level (250-300Wh/kg), with potentially 800Wh/l (600Wh/kg) achievable by improving materials, components and manufacturing. LISA is strongly oriented to the development of lithium metal protection and solid state electrolyte and will incorporate process concepts enabling integration in future manufacturing lines. Moreover, the outcome of the project in terms of new materials, components, cells, and processes will be transferable to other lithium-anode based technologies such as Li-ion and solid state lithium technologies. As such, LISA will have a large impact on existing and next-generation EV batteries, delivering technology with higher energy density beyond the theoretical capacities of chemistries using CRM – i.e. natural graphite and cobalt - or silicon-based chemistries inherently

limited by their manufacturability.

Steve Rowlands, Deputy CTO at OXIS says “The LISA project ties in perfectly with OXIS Energy’s future business strategy in entering into the electric automotive sector including trucks and buses. Continuing our collaborations with LEITAT, Arkema, Cranfield University, IWS Fraunhofer and Renault as well as working with new partners is an exciting prospect in taking OXIS technology to the next level in terms of safe automotive electrification”.

The partners involved in the LISA project are LEITAT (co-ordinators), OXIS Energy Ltd, Cranfield University, Varta Micro Battery GmbH, CIC Energigune, ARKEMA, Fraunhofer Gesellschaft Zur Förderung De Angewandten Forschung, Pulsedeon Oy, ACCUREC Recycling GmbH, Optimat Ltd, Technische Universität Dresden, VDL Enabling Transport Solutions BV and Renault.

This project has received funding from the European Union’s Horizon 2020 research and innovation programme under grant agreement No 814471.

### **Editor’s Notes**

**OXIS Energy Ltd** is involved in the design, development and now the move towards commercial production of lithium sulfur cells for battery systems. With 39 patent families, OXIS has been granted 165 patents with 101 pending.

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