Research focuses on greener alternative to conventional batteries

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A new battery technology could provide a cleaner and cheaper alternative to the toxic chemicals widely used in energy storage devices.

Dr. Fraser Hughson, who has recently completed his Ph.D. in Chemistry at Te Herenga Waka—Victoria University of Wellington, is part of a team that's developed a water-based electrolyte for use in batteries.

Dr. Hughson's research has focused on finding a greener alternative to conventional batteries.

"As the move to renewable energy picks up speed, we need to find better options to store power for use at times when the sun doesn't shine and the wind doesn't blow," Dr. Hughson said.

"From both an environmental and economic perspective, existing energy storage technologies aren't great. They're pricey and also contain toxic and flammable materials that can cause catastrophic damage when things go wrong."

Lithium-ion batteries, for example, are known to catch fire and explode if they short circuit and overheat.

Dr. Hughson said the development of a water-based electrolyte that was cheap to produce had the potential to provide a much-needed replacement for the battery technology used in electric vehicles, including buses and trains.

It could also come to replace or supplement lithium-ion batteries used in consumer goods and provide an energy storage option for household solar systems.

Further development of the technology for commercial use is underway.

Along with colleagues, Dr. Hughson has set up Allegro Energy and is the company's chief technology officer.

The company's initial focus is on developing the water-based electrolyte for use in supercapacitors.

Provided by Victoria University of Wellington