

# Highview Power Storage technology in focus in energy storage plant

December 14 2016, by Nancy Owano

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(Tech Xplore)—UK-based Highview Power Storage is a company to watch in the energy storage market—using liquefied air as the energy storage medium. When the liquid air warms up it expands and can drive a turbine to make electricity, said a report about the company from the BBC.

The company is in the business of energy storage solutions for utility and distributed power systems.

Their expertise lies in "cold" energy storage and Editor-at-Large Tim Sandle, *Digital Journal*, explained its significance.

"Cold (or cryogenic) [energy](#) storage promises to be revolutionary, in terms of energy supply, and also aid the environment at the same time through recycling material. A cryogenic energy facility stores power from renewables, or off-peak generation. This is undertaken by chilling air into liquid form, where, at minus 190 degrees Celsius, the air condenses into a pale blue mobile liquid. When the liquid is stored (in a special insulated tank) and later heated up, the air expands and this can power a turbine to generate electricity."

Highview can design LAES plants, which stands for liquid air energy [storage](#).

Yasmin Ali, science reporter, BBC, reported that the company is behind the world's largest cold energy [storage](#) plant being commissioned at a site near Manchester.

Paul Boughton in *Engineer Live* wrote earlier this month that the facility will soon be operational.

"After having built and tested a successful pilot plant (which has now been moved to the University of Birmingham), Highview and project partner Viridor were awarded government funding by the Department of Energy and Climate Change (DECC) to build a pre-commercial scale 5MW LAES technology demonstrator. That LAES plant is now currently undergoing final [commissioning](#) in Bury, Lancashire."

A company video discusses the LAES system and its three components:

charging device; energy store where liquid air is held; and power recovery unit.

No fuel is burned in the process.

The system is scalable and modular.

How it works:

Air is first cleaned and dried. Then refrigerated. The air liquefies. The liquefied air is stored in insulated tanks at low pressure. When power is needed, [liquid air](#) is drawn from the tanks, pumped to high pressure, reheated and expanded. Resulting high pressure gas is used to drive turbine generators.

(On their company site they also discuss how air liquefies: "Air turns to liquid when refrigerated to  $-196^{\circ}\text{C}$ , and can be stored in standard insulated, but unpressurised vessels at very large scale. Exposure to ambient temperatures causes rapid re-gasification and a 700-fold expansion in volume, which is used to drive a turbine and create [electricity](#)." )

They tout benefits including competitive pricing and a system that is locatable anywhere.

BBC's Ali noted that "The intermittent nature of green sources has seen researchers [focus](#) on trying to improve [energy storage](#)."

"Storage is vital if we are to get the level of renewables that are required for a low carbon [future](#)," Stuart Nelmes, engineering director at Highview Power Storage, told CNBC last month.

**More information:** [www.highview-power.com/](http://www.highview-power.com/)

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