

Interview: GRT Group CEO Luca Dal Fabbro on their innovative hydrogen storage solution

📅 22nd March 2018 👤 Thomas Barrett

It's the most abundant source of energy in the universe, and for centuries scientists have tried to harness its full potential.

Using hydrogen to produce heat or electricity produces no carbon or particle emissions, but storing it can be problematic. In 2017, the GRT Group created the world's first formic-acid based fuel cell, which produces hydrogen from formic acid. They believe it could be a gamechanger and offer an energy storage solution that is reliable, safe and environmentally sustainable.

There are currently limited means to store hydrogen energy, and the typical process involves compressing 700 bars of hydrogen which is then refrigerated. When it is ready to be used the hydrogen is expanded and then burned.



Environment Journal spoke with GRT Group's CEO, Luca Dal Fabbro, who explained how his company's technology is different: 'We found a different way to store a large quantity of hydrogen in a small volume without compressing it,' he says.

We discovered a method to divaricate formic acid, which contains a lot of hydrogen, in such a way that means we don't need to compress it or refrigerate it.

The process we have invented produces hydrogen that is then used as energy and this has economic as well as safety benefits.'

The formic acid used is produced from renewables, which can then be stored, so when needed the energy can be turned into hydrogen. One issue surrounding energy storage is space and where do you put it, which Mr Dal Fabbro says is solved due to it being stored as a liquid.

'We use a very limited amount of space compared to how you would normally store hydrogen, which is in a big tank,' he says.

'We need 1/10th of the space. A lot less space is required so economically it's a big advantage.'

GRT believe the process has various practical uses, particularly for the automotive industry. With Honda and Toyota investing heavily in hydrogen, many are touting hydrogen-powered vehicles as a possible rival to battery power. Mr Dal Fabbro believes this technology could make hydrogen-powered cars safer, and therefore a more attractive proposition to the public.

'A hydrogen gas station for cars stores compressed hydrogen at 700 bars which could be dangerous,' he says.

'Instead, if it's stored as formic acid, it is not flammable and it's safer. People don't want to live next to a place with 700 bars of hydrogen close to their house.'

In a crowded market for companies promoting renewable solutions, Mr Dal Fabbro has been impressed with the reception in the UK. The Swiss-based GRT Group has recently opened a subsidiary in the country.

'The UK is one of the best places in Europe to run a business because you have great resources, a legal framework that is very simple, precise and fair,' he says.

But how sustainable is the process? and can it change the way we think about using hydrogen as an energy source?

'It's very sustainable and it's a step further in energy transition,' he says.

'Hydrogen is a small molecule but it has a lot of energy inside. This allows us to use hydrogen when at the moment it's difficult.

It's an important discovery for renewables.'



GRT's supply unit