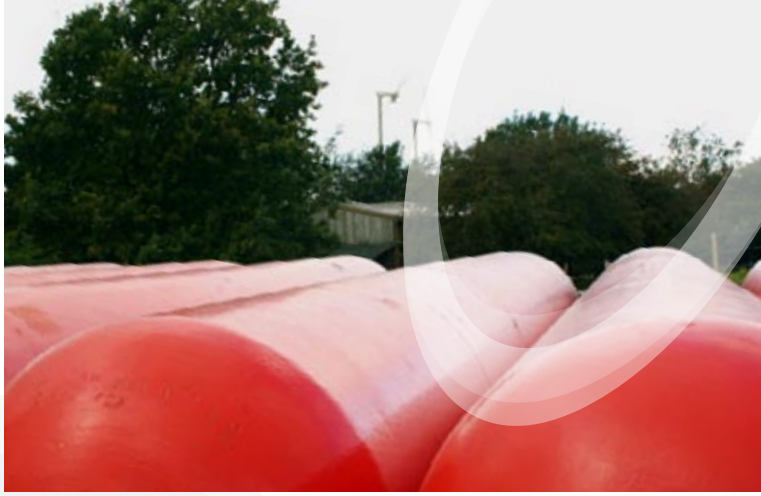
Hydrogen energy storage



Hydrogen energy storage – West Beacon Farm

One of the biggest challenges of running a hydrogen system is to avoid leakage of the gas. Besides helium (which is monatomic, i.e. its molecules are made of single atoms) hydrogen has the smallest molecular size of any element (its atoms are the smallest, but it is a diatomic molecule, i.e. each molecule is made up of two atoms, making it a little bigger than a helium molecule). What this means is that hydrogen's molecules can escape through the tiniest of openings, so where there is a joint in the hydrogen pipework, it is more vulnerable to leakage than would be the case for all other gases (except, of course, helium). It has taken until March 2005, which is over a year since the Hydrogen Energy Storage (HES) system was installed at West Beacon Farm, to finally eliminate all our leaks, so this month marked a bit of a milestone for us!

This does not mean that we expect all HES systems to be so awkward in future – it just means that, like most things we try out at West Beacon Farm, we are on a steep learning curve. Much of the technology that is installed at the farm is novel, pre-commercial or untested in the type of operational environment that sustainable energy systems impose. Such early field-trial situations are full of teething troubles and it is the overcoming of these that informs future technological developments and makes the whole exercise so valuable. In fact, we are learning so much from the Hydrogen and Renewables Integration (HARI) project that the team proposes to develop new electrolyser technology geared specifically for the job of converting renewable energy into hydrogen fuel more efficiently, reliably and cost-effectively.

During March we also continued to see a steady stream of visitors at the site. Most have been from educational establishments, but there are, of course, also a number of visitors who come with a commercial interest in the type of activities being pursued at West Beacon Farm. One group even came for a whole day as part of a team-building activity.

For further details go to our website or ring us on 01509 610 033.