Use of Hydrogen as a low Carbon Energy Vector

By Mark Crowther

Operating as a consultant in the use of hydrogen as a low carbon source of energy, Mark Crowther was literally in his element in describing the advantages of hydrogen as a clean source of energy for both domestic and commercial use.

The talk covered the range of sources from which hydrogen can be obtained for practical use ranging from extraction from biogas to electrolysis using wind as the primary power source. The talk covered the various aspects of hydrogen usage in terms of the safety aspects, the perceived explosive dangers and a review of the various comparative costings regarding storage, transport and distribution.

As part of the speaker's work on testing the advantages of Hydrogen as an energy source he described an experiment that had been initiated on a trial hydrogen house in a remote part of Scotland. The aim of this was to compare the safety of hydrogen use to natural gas in a domestic setting. According to Mark Crowther the behaviour of this gas was little different to that of natural gas even at applied pressures some 3 times higher than would be normal for domestic gas supplies.

The talk also touched on the problems of hydrogen "leakage" in commercial and domestic applications given that hydrogen is the lightest element in the periodic table.

Turning to the question of costs Mr Crowther cited the relatively low cost of conserving wind power through the production of hydrogen gas by means of electrolysis powered ultimately from wind powered generators. He also claimed that transport, storage and distribution costs were competitive with those for natural gas and that the costs of converting domestic heating systems from natural gas to hydrogen were not unduly expensive.

The lecture was an interesting and broadly based introduction to the benefits of hydrogen as an energy vector, albeit from a speaker whose role is that of encouraging the increasing use of hydrogen in this context.