

## Hurst Building Services Help Accelerate Yorkshires Carbon Neutrality.



Hurst Building Services were selected by Allenbuild Limited – North East as their preferred design and build partner to provide the mechanical and electrical systems at Yorkshire Forwards new Advanced Technology Park (ATP) near Sheffield.

As you would expect from Yorkshire Forward their vision for the building was to provide a true zero carbon development that would meet the aspirations of their future tenants many of which are at the forefront of new technologies.

Hurst Building Services achieved there brief by the use of several cutting edge sustainable systems. The building is heated by a network of pipes embedded into the concrete structure turning the building in essence into its own heating and cooling element. The pipes are supplied with water from ground source heat pumps, the water can be heated to 28 degrees Celsius in the winter months. In the summer the water will remain at its natural 12 degrees Celsius, cooling the building. The heating and cooling system works in harmony with the buildings natural ventilation and automatic solar shading systems to maintain a comfortable environment for the occupants. Hot water is generated by roof mounted high efficiency sun tracking solar collectors and a rainwater harvesting installation is employed to provide grey water for sanitary appliances and landscape irrigation.



Solar Collectors

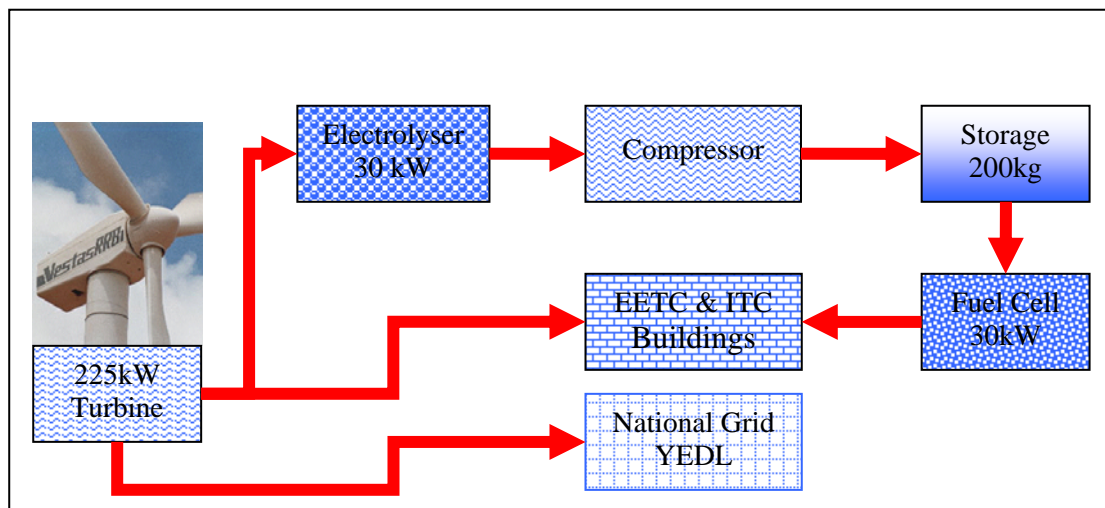


Ground Source Heat Pumps

These systems alone go along way towards helping the building achieve its zero carbon status however what raises this installation head and shoulders above other “green” developments is the Hydrogen Mini Grid unit that sits alongside the ATP building.



Hurst Building Services were awarded the design & build contract by joint partnership companies TNEI Services Ltd and Pure Energy Centre. Both TNEI and Pure are at the forefront of sustainable energy generation and it was the role of Hurst Building Services to provide the infrastructure to knit together the technologies that create a Hydrogen Mini Grid unit. Technologies such as the recycled 225kW wind turbine, using a recycled unit reduced the carbon impact of the initial construction, the Hydrogen generating electrolyser, the Hydrogen fuel cell units and the Hydrogen storage / fuelling system.



Electricity will be generated from a 225kW wind turbine at the edge of the site; this electricity will be used to power the ATP & ITC buildings with any surplus fed into the national grid. Also attached to the turbine is an electrolysis unit which will convert some of the wind energy into hydrogen. The hydrogen will then be stored in composite cylinders (think of them as a big battery) until required.

This stored hydrogen can be fed to a 30kW fuel cell to provide electricity to the building during days experiencing low wind conditions or can be used as a automotive fuel via the on site dispenser. The building is attached to a traditional electricity supply but it is expected that this building will be fully self-sufficient.



Hydrogen Storage & Dispenser

Fuel Cell & Inverters

Commenting on the project, Jason Stoyel, TNEI's technical manager explained: "This development is a real life Tomorrow's World style project which will demonstrate to the wider energy community how hydrogen can be used in a commercial setting. Yorkshire Forward should be congratulated for pioneering this development and using hydrogen power."



[www.tnei.co.uk](http://www.tnei.co.uk)



[www.pure.shetland.co.uk](http://www.pure.shetland.co.uk)

[www.hydrogen-yorkshire.co.uk](http://www.hydrogen-yorkshire.co.uk)

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