

# Driving down pollution at Harper Adams



Centre for Rural Innovation  
at Harper Adams University College



## PROJECT SUMMARY

Harper Adams University College has launched an innovative solution to collecting materials for recycling at its Shropshire based campus. Electricity produced from the College's photovoltaic array is used to charge a versatile and agile electric utility vehicle: the ATX200e.

Recycling bins for glass and plastic bottles, and aluminium cans are located at all major building entrances at Harper Adams. The College Recycling Policy aims to provide paper recycling bins in every office. Using the ATX200e (charged with renewable electricity produced by the College's photovoltaic array) to collect materials for recycling provides a sustainable closed loop approach to waste management at the College.

Recycling minimises the use of natural resources, but also saves energy. For example, recycling:

- 1 aluminium tin would save enough energy to power a TV for 3 hours.
- 1 glass bottle would save enough energy to power a computer for 25 minutes.
- 1 plastic bottle would save enough energy to power a 60W light bulb for 3 hours.

Electricity produced by the College's photovoltaic array is converted to chemical energy and stored in the ATX200e's rechargeable battery. When the ATX200e is in use, chemical energy is converted back into electricity to drive the vehicle's electric motor. The vehicle can travel 70km on one charge.

Electric motors are advantageous over internal combustion engines because they deliver power more efficiently and are mechanically very simple. Electric vehicles do not need gears to match power curves, removing the need for gearboxes and power converters. The ATX200e includes regenerative braking, whereby the electric motor is able to convert movement energy back into electricity. This minimises wear on the braking system and reduces the total energy requirement for trips.

The ATX200e is environmentally friendly. It minimises noise pollution and carbon dioxide emissions are reduced through charging the vehicle with renewable electricity produced on-site.

The slim width of the vehicle (1.27m) enables it to move easily between bollards. The ATX200e also has a very small turning radius (3.5m) allowing movement in tight spaces.

Further technical specifications include:

- Top speed 30 km/h.
- Negotiable slope: 35%.
- Weight when empty: 830kg.
- Capacity: 520kg.
- Battery recharging time: 8h.
- Power: 6kW/ 48V.

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For more information on the ATX200e and other utility vehicles in the alke range log on to [www.alke.it](http://www.alke.it)



### KEY FACTS:

Lead Group: Sustainable Technologies Network

Key Theme: Sustainable Technology and Rural Economy

Contract Value: £12,000

Project Leader: Paul Moran

Project Duration: 6 months

Sponsor/Client: N/A



## Centre for Rural Innovation

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### Accessing the research and consultancy work at Harper Adams University College

The main purpose of the Centre is the sharing of knowledge to support innovation in the rural economy by:

- the provision of technical research services and business consultancy
- making our facilities available to support the needs of businesses
- supporting business networking
- the development of new technologies
- providing training programmes and work-based qualifications to businesses and individuals

### [www.cfri.co.uk](http://www.cfri.co.uk)

The website is designed to allow you to interpret the range of research and consultancy work undertaken using seven key Themes:

- Rural Entrepreneurship and Social Enterprise
- Innovation for Sustainable Farming
- Food Chain Safety
- Linking Urban and Rural Economies and Communities
- Sustainable Technology and the Rural Economy
- Rural Advisors and Agencies
- Rural Professional Practice

### General enquiries

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