

Fife Shopping & Support Services Community Electric Van

Introduction

Fife Shopping & Support Services (FS&SS) are a non-profit company, limited by guarantee. They provide pension and shopping collection services to local people all over Fife who are frail or disabled and cannot leave their homes. They also assist with social care, ensuring their customers are safe and well when they visit. Due to public sector cuts in 2010, their core funding was recently withdrawn, but after a consultation of their existing clients, they decided to carry-on providing their service; charging a small fee to cover their staffing and mileage costs. However, to keep these costs to a minimum and to ensure a sustainable future for the service, they were keen to procure an electric van for local deliveries.



Methil is the home to the Hydrogen Office, recently opened by the First Minister (Alex Salmond). It has a 750kW wind turbine on site to generate the electricity needed to heat the office and generate hydrogen. The Hydrogen Office is also a non-profit organisation, and they are very keen to promote the development of green transport in the area. They offered use of the site and of renewable electricity from the turbine for overnight charging of the electric van. When the van is not required by FS&SS, it will be made available to the Hydrogen Office for educational purposes, which the Hydrogen Office currently provide. Although CARES had not previously been used for supporting electric vehicles, this is a very exciting and groundbreaking project, which would help safeguard a very valuable and vital community service as well as being a visible carbon saving tool. Because it will be a very prominent, noticeable and mobile low carbon utility vehicle with a high educational resource value, the Scottish Government decided that it could be part-funded through the CARES scheme.

Equipment: Megavan electric vehicle

Fife Shopping & Support Services Ltd approached their local Community Energy Scotland Development Officer, and after investigating the vehicle options on the market and being put in touch with the Hydrogen Office staff, the group were able to access guidance and advice about a variety of system options.

The following selection process for the van was carried out:

- 3 vehicle suppliers were asked to submit estimates for suitable vehicles using new eco friendly technologies
- A major factor in the selection was the ability to build in effective temperature control systems for the safe transportation of chilled and frozen produce
- The cheapest quote was from the UK Megavan distributor

Cost and Grant Funding

Total Project cost	£17,330.30	The remaining funding was obtained through: BRAG Enterprises £600 Fife Council (via Hydrogen Office) £3,466.06 In-kind charging point installation by the PURE Energy Centre Donation of charging point equipment by Zero Carbon World
CARES grant	£13,864.24	
CARES grant Percentage	80%	

Fuel Bill Savings

The vehicle is significantly cheaper than the hydrogen equivalent and given the losses involved in hydrogen production and reconversion in a fuel cell, in this situation an electric vehicle was thought to be more practical and economical to run in the limited range required. The electric van consumes 100Wh/km and will be used for 30km/day, which equals 3000Wh or 3kWh; this will cost around 15p/day, or 1.5p/km, equating to 2.4/mile. Over 1 year (260 weekdays) it will therefore cost around £39 to fuel (no road tax for electric vehicles). By comparison to the present private car use for FS&SS, assuming the average car in town does 30mpg (10km/litre), it will use 3 litres/day. For a petrol car, this will emit 6.9kg CO₂/day, or over 260 weekdays a year 1794kg. At 18miles/day at 40p/mile, this costs FS&SS £7.20/day, or £1872 a year in mileage costs.

Emission Savings

The annual energy saving is 780 litres of petrol/year, consuming 780kWh of renewable electricity/year.

Estimated kWh use p.a.	780
Annual Co ₂ savings (kg)	1794
Lifetime Co ₂ savings (kg)	17,940

Project Monitoring

The socket fitted at the Hydrogen Office to charge the van is fitted with a kWh meter to record usage; this can be compared to the mileage recorded by the van to calculate an ongoing record of efficiency in terms of km/kWh, as well as pence/km.

Lessons Learned Managing Director of FS&SS Lynne Ogilvie said:

The van is an important step forward for the service, and for the Hydrogen Office. It will be a mobile demonstrator of green technologies. It will help us reduce the costs to our service users and allow us to invest in publicising the facility. If the new technology can be demonstrated as logistically viable, it may be a choice for urban areas in the future.

It is worth thinking very carefully about what your daily mileage will be, and what type of electric vehicle would meet these requirements. Plan ahead about where your charging point will be installed – it was a lengthy process to find the best location at the Hydrogen Office, to ensure the van would be out of the way, but could easily access the socket. Make sure the socket is well protected from the elements and is secured from tampering too.

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