

Take back fuels leasing journey

riversimple



Company: Riversimple

REBM type: Fuel cell take back

Sector: Automotive

Company size: SME

Product or service: Optimisation and take back of hydrogen car fuel cells

Key Facts

- Riversimple designs and manufactures hydrogen fuel cell electric vehicles that it aims to provide through an innovative service contract, which includes fuel.
- The company was keen to find a fuel cell supplier able to optimise their product for the Riversimple vehicle and to offer a take back service at end of life.
- REBus supported by bringing valuable financial and proposition knowledge and experience to the project.
- Since the fuel cell makes up 17% of the manufacturing cost of the car, the proposed model will have a significant impact on the overall cost of the car, in addition to reducing the environmental impact.
- A pilot is planned for 2017.

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Introduction

Riversimple design and build hydrogen cars to be provided through service contracts. The company is based in Mid-Wales.

This first car, the Rasa, is a two-seater 'network electric' car, powered by a hydrogen fuel cell. The prototype has clocked over 60mph and has been weaving neatly through the traffic in London, as well as gliding down the country lanes of Powys.

The chassis is a carbon fibre monocoque made from lightweight, but extremely stiff, carbon fibre composites. The monocoque chassis weighs less than 40kg.

Riversimple's target is to go into production towards the end of 2019 and roll out across the UK town by town, in tandem with hydrogen refilling stations. As the infrastructure matures, more Riversimple vehicles will follow.

[You can view the company video here.](#)



REBM for fuel cell refurbishment

Historically, Riversimple would have purchased fuel cells for its cars. Under the REBus project, it was looking for a supplier able to offer a phased approach to developing a circular economy model for the supply of fuel cells, with an option for trade in or service contract. Critical to ensuring the fuel cell meets the needs of powering the vehicle, the fuel cells need to be optimised.

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Riversimple believes that to leverage the maximum value from its model, suppliers need to operate to similar principles.

The aim of the scheme was to agree a service/circular economy agreement with a supplier, with the system designed to be optimised for the particular model of car, and with the fuel cell traded in at the end of its end of its life.

Why REBus?

REBus enabled Riversimple to explore the options without concerns over funding. The WRAP team had already worked with the company on a previous, Innovate UK project, and brought valuable proposition and financial knowledge to the scheme.

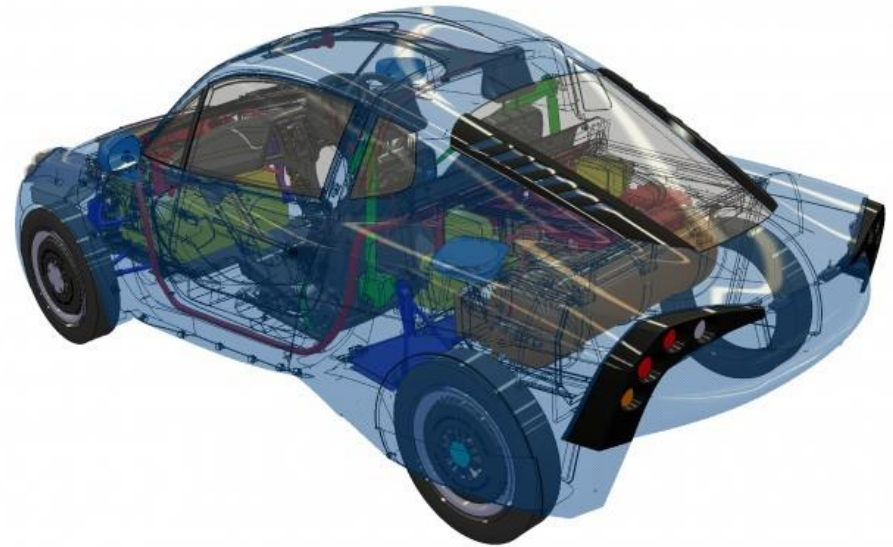
The specific goals were:

- Environmental – to improve vehicle efficiency and impacts from end of life disposal of fuel cells.
- Financial – to reduce capital expenditure and retain value at end of life.
- Business opportunities – to develop a long term relationship with a supplier on operational expenditure basis.

Benefits

Under the proposed new model, the fuel cell will be optimised for efficiency and made to be long lasting. With take back offered, it can be recycled at end of life rather than burnt.

The fuel cell makes up 17% of the cost of manufacturing the car, so optimisation helps to reduce the overall cost of the car. It makes good business sense as well as meeting environmental objectives.



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Results

The pilot is yet to take place, so long term results are not quantifiable. However, the project is expected to reduce the cost of the service contract for the customer.

Next steps

The next step is to build a series of Rasa cars for the public to test and refine in a 12-month trial. The pilot is planned to start in 2017. Further development work is planned to test the optimisation of the fuel cell and further develop circular business models for fuel cell supply.

Advice to others

"There is a tendency to rush to pilot. Think a bit more openly about how you will implement your value proposition. What really needs to be established to show it's going to work?"

"For us another important outcome of a service offering is alignment of interests at a system level, although often this isn't understood or appreciated. Think about how actors within the new value network will be incentivised and whether or not these conflict or work together."

Dr Stafford Lloyd, Systems and Sustainability Engineer, Riversimple



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KTN
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Case studies were generated as a result of pilots carried out for REBus by WRAP or RWS and the named organisations from 2013 to 2016.

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